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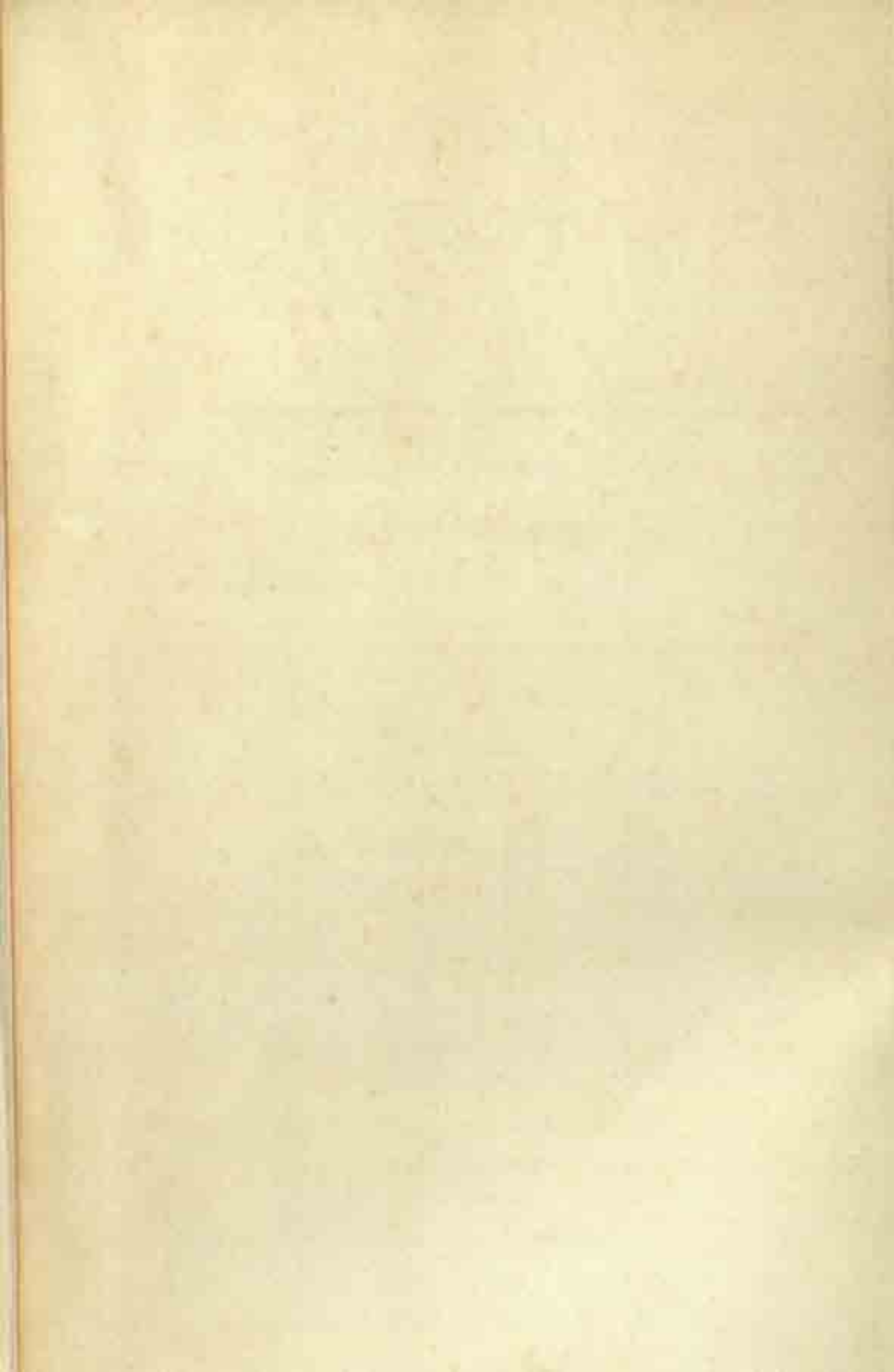
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AMERICAN ANTHROPOLOGIST

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No. 1

THE RESTORATION OF DRIED TISSUES, WITH ESPECIAL REFERENCE TO HUMAN REMAINS

BY HARRIS HAWTHORNE WILDER

I. — PRELIMINARY EXPERIMENTS

Two or three years ago, while engaged in the preparation of embryonic skeletons after the Schultze method, I was struck with the rapidity with which the specimens, after the preliminary shrinking in alcohol, reassumed their normal size and shape when put into the 3% solution of caustic potash. This led naturally to the question whether the last-named fluid might exert a similar influence upon a tissue deprived of its water by simply drying in the air, and I was thus led to drop into a jar of potash solution a very dry and flattened specimen of a frog, which had been for some months on my desk. This simple experiment was performed one night while I was leaving the laboratory and appeared of so little importance that I had for the moment quite forgotten the incident when on my return the following morning I found what seemed at first a perfectly normal frog floating in a natural attitude upon the surface of the liquid. In the dried condition it had been impossible to determine the species of the specimen, and in fact I had supposed it to be not a frog at all, but a toad; yet after the restoration, every external marking was distinct, and even the colors were in part restored, showing it at once to be *Rana clamitans*. From this time on the specimen continued to imbibe the liquid until within a few more hours it appeared slightly abnormal. The skin was smooth and tense, especially over fleshy regions like the thigh,

thus suggesting that the muscles absorbed the liquid more greedily than did the other tissues. To check this action, the frog was then thrown into water, a procedure which proved disastrous, since the bloating, instead of being checked, appeared to be accelerated, until finally the skin over the much-distended thighs burst outward by longitudinal rents, from which the muscles protruded as semi-transparent, almost gelatinous masses. Whether the bursting was due to the use of the water, or whether the potash was removed too late to check the process already far under way, I cannot state definitely, but later experiments with all sorts of dried tissues have given me the impression that the former is the case, and that, after the potash solution has exhausted its power, an immersion in water will cause further distension.

This experiment with the frog was followed, as occasion offered, by similar ones performed upon other frogs, a turtle, an earthworm and a few other invertebrate specimens, of which some had been dried in the sun when fresh, while the rest were preserved material from which the alcohol had evaporated, and in all cases the results were exceedingly interesting and furnished specimens of actual value for many lines of investigation. The frogs and the turtle permitted careful dissection, and most of the organs were of normal or nearly normal appearance, the nerves being especially good, thus suggesting the employment of some method of desiccation for the preservation of specimens obtained during expeditions in regions where the employment of the ordinary preservatives is impracticable.

In connection with these experiments the thought naturally occurred to me that this method might also be applicable to some or all of the various forms of dried human remains, even to those of considerable antiquity, since after desiccation is once complete the lapse of time would cause but little further change, and the success of such an experiment would depend mainly on the amount of tissue that had resisted decay before the completion of the drying process more than on the actual age of the mummy.

Through the kindness of Prof. F. W. Putman of the Peabody Museum at Cambridge, Mass., I was supplied with a little preliminary material with which to make a test, since which, both from him

and from his former associate, Dr Aleš Hrdlička, then of the American Museum of Natural History, New York, and now of the United States National Museum, I have received a most liberal supply of human remains, illustrating various methods of treatment, and especially well fitted to show the capabilities of the method. I wish to take this opportunity of expressing to them my gratitude for their kindness and practical interest in the matter. I wish also to acknowledge my indebtedness to the other teachers in my department, who have interested themselves in the work, and have furnished me valuable assistance, both in the practical treatment of the material, the microscopic investigation, and in the taking of the photographs which illustrate this article.

I can best set forth the results of these various experiments in the form of a report, taking up the cases in the order of treatment; but before attempting this, I will present a description of the method as it became elaborated during the progress of the work.

II.—THE METHOD

1. The essential reagent is caustic potash, applied in a solution of 1-3%. The dried object is placed at once in a tank of this fluid and held beneath the surface for a few moments, until the entire surface becomes wet. At first the specimen will float on the surface, but as it imbibes more and more of the fluid it will gradually sink. Within a short time, even in a few minutes, the liquid will become so dark-colored that the specimens cannot be readily seen, and it will be better to change the fluid. For a very brittle object 1% solution may first be used, followed after a few hours by 2-3% solution. While in the potash the object should be carefully watched, and should be removed when it threatens to fall in pieces. A certain amount of local disintegration, however, is to be expected, corresponding to places which had begun to decay before the drying process was completed. Those soft places, when the tissue becomes lost in potash, often appear in the dried condition as darker areas; for example, the left cheek of the woman mummy which dissolved under treatment and left the malar bone exposed (compare pl. II, 1, 2). The time in which an object should remain in potash varies, but may be given as between 12 and 48

hours, and it is well to remember that the caution which one naturally feels when treating a rare and valuable object impels one to remove it too soon rather than to leave it too long. In the former cases the features do not acquire their full size, and, in the latter, essential parts are in danger of becoming lost.

2. Upon removal from the potash solution the specimen should be placed in water for some time. This fluid appears to have a tendency to still further increase the swelling, but as it also hastens the maceration of the soft parts, it should be used with caution.

3. All expansion and maceration may be checked, and the parts left permanently in a given condition, by placing the specimen in a three percent solution of formalin, in which it is to remain indefinitely for permanent preservation. Since no further change can subsequently be produced in material once fixed and hardened in formalin, care must be taken that the desired increase in bulk be obtained before immersion in it.

4. If, as usually happens, certain parts are not sufficiently softened and enlarged at a time when the rest threatens to become too soft, the object may be removed from the potash and covered with absorbent cotton, which may be soaked locally in the fluid demanded. Thus the soft parts may be covered with cotton soaked in water, or even formalin, while harder portions may be still subjected to the action of the potash, applied in the same way. In addition to this method, potash may be applied to a refractory part by means of injection with an hypodermic needle. Occasionally glycerin or a mixture of glycerin and potash applied in the same way may be found of value.

III. — REPORT OF EXPERIMENTS

I. RIGHT THUMB OF A PERUVIAN MUMMY. (PEABODY MUSEUM.)

This was the first human material experimented on, and had been torn from a hand in such a way as to include the metacarpal, but was broken in two pieces at the metacarpo-phalangeal articulation. There was but little integument remaining, and the bones were completely bare over extensive areas, but upon the metacarpal there still hung a piece of the web between thumb and index, and

from the proximal end of the specimen there protruded several dried cords which eventually proved to be the tendons of the several extensor muscles of the thumb (*ext. primi internod. poll.* and *ext. secund. internod. poll.*).

After the treatment the portions of integument still intact were of about the usual thickness and were otherwise quite as when fresh; the portion covering the dorsum of the basal phalanx showed the characteristic pits for the hair, and the inner portion, especially upon the web, showed the epidermic ridges of the palmar surface. Unfortunately the integument covering the ball of the thumb had been entirely wanting in the dried specimen, so that there was no opportunity to study the apical pattern ("thumb-mark").

Aside from these normal appearances there were seen, scattered irregularly over the surface of the skin, a large number of minute whitish granules which correspond to nothing in the normal integument. A small portion of the integument, including some of these, was then imbedded in paraffin, sectioned with the microtome and stained in the usual ways (carmine, hæmatoxylin, various anilines), and the sections, when examined under the microscope, showed the granules to be minute bacterial foci, surrounded by walls of connective tissue, and were thus plainly pathological and referable to some skin disease, probably the illness to which the subject had succumbed. In the fresh state these granules had evidently been level with the outer surface of the skin, but owing either to decay or to weathering the epidermis had disappeared, leaving these foci projecting above the cutis by about the usual thickness of the missing layer.¹ Aside from these objects the sections showed clearly that the only tissue remaining was the connective tissue, but, since this forms a mold for every other tissue, the outlines of the various structures were well preserved. The blood-vessels were especially clear; the muscle fibers were marked by the sarcolemma, but showed no striations; the cutaneous nerves were clearly seen, but in cross-section they showed merely the network formed by the neurilemma of each fiber, and lacked both the medullary sheath and the axis cylinder. Beneath the cutis were seen the outlines of fat cells in masses, but

¹ The slides containing sections of the foci have been sent to the Army Medical Museum for examination, but no report has been furnished as yet.

as these were not quite spherical but somewhat flattened from without inward, it suggested that the restoration had not been complete, and that in life the soft parts were a little fuller than in the specimen at present.

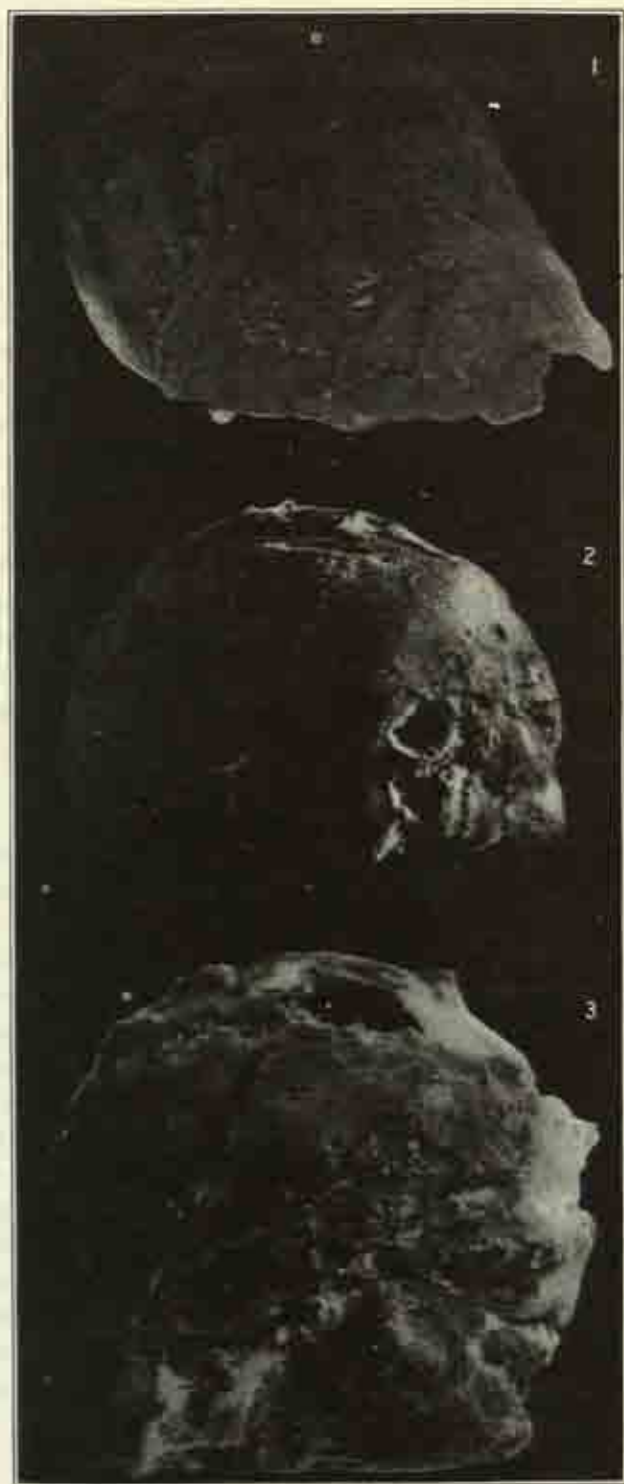
While searching for material for microscopic study, one or two minute pieces of a brownish substance were found, apparently within the tissues. These appeared under the microscope to be bits of cork or bast, from the inner bark of some tree, thus suggesting the use of bark for its tannin during the process of embalming; however, the pieces were too uncertain in location to enable one to draw a safe conclusion, and may well have been adventitious.

2. TWO INFANT HEADS FROM THE CLIFF-DWELLINGS OF SOUTHERN UTAH. (AMER. MUS. NAT. HIST.)

These heads were of infants of the same age, that of about a year. They had the same general color and appearance and had evidently been merely sun-dried in the rarified mountain air, as was the case with all the Cliff-dweller material experimented with.

The soft parts had been preserved in certain regions only, while in others the bones were entirely bare. The best preserved one, designated in my notes as A, showed a nearly flat surface of dried skin over the entire face, featureless, save for the indications of eyes and eye-sockets (pl. 1, 1). No nose was visible, the part in the photograph which resembles that organ being the edge of the upper lip. The lower jaw was without flesh. Upon the side of the face were a few easily removable bits of skin bearing hair, which was that of some animal, as seen under the microscope, and were evidently the remains of a skin in which the body had once been wrapped.

After treatment, Head A presented the appearance shown in plate 1 (2, 3). The nose, of which no trace could be seen in the dried specimen, was well restored, and this, as well as the upper lip, exhibited the characteristic infantile type. The cheeks showed a large amount of yellowish-white fat, and the skin, especially about the forehead, appeared perforated with wormholes. In color the skin was a light yellowish-brown, with frequent localized discolorations, and, although it would be hardly safe to maintain that this



HEAD OF CLIFF-DWELLER INFANT, SHOWING EFFECT OF TREATMENT.
1, In dried condition. 2 and 3, The same after restoration. (Photographed from the object.)

method of restoration has the power of restoring the original color, yet the rich brown color of the Peruvian specimens (1 and 4), the light yellowish-brown of the infants, and the brownish-red of the adult "Basket people" seem to approximate in each case one's idea of the original color. One eyelid in this specimen was well brought out and showed well-marked Meibomian glands upon its inner surface. When sectioned, the molds of these glands were definitely shown in the connective tissue, which outlined each lobule, but as in the other cases noted, all epithelial tissue had been lost.

Head B proved of little interest except that the scalp was covered with the crust often seen in neglected infants, "scald-head" (eczema). This specimen, when in the dried state, had shown curious excrescences upon either cheek which may have been of pathological significance, but yielded no especial results after restoration. Microscopic sections taken in various directions showed them merely as rather porous masses without special structure. They may, indeed, have been nothing more than the fat of the cheeks pressed upward by bandaging, but they did not show a trace of the actual fat so abundant in Head A.

3. BODY OF ONE OF THE ABOVE INFANTS

This little specimen was very much flattened, being hardly more than a centimeter thick in any place. It had evidently lain upon its back and right side, as these regions had lost the soft parts, apparently through decay, so that the bones were completely exposed. The most interesting point in this specimen was that, when subjected to the usual treatment, much of it dissolved into a soft, almost jelly-like substance of a dark-brown color, indicative of the advanced state of decay into which these parts had fallen before the drying process had been completed.

The same result has since been seen locally in other sun-dried remains, and such places are indicated in dry specimens by a dark-brown color. In this case the only parts rescued from this destruction were the skin of the abdomen, which had evidently remained uppermost, and the legs (the arms had been lost). These latter came out very well, although the fat, which had once been very abundant, was less amenable to treatment than other tissues, and

retained in a measure the creases and other forms which it had assumed when drying. The feet were very successfully restored, and it was noticeable that the four lesser toes were of approximately the same size.

Accompanying this body was a large piece of animal skin covered with hair similar to that upon the fragment found on the face of Head A. This, when restored, did not come out to the full thickness and consistency of fresh integument, but remained thinner and firmer, and had evidently been subjected to some tanning process.

4. HEAD OF YOUNG ADULT PERUVIAN. (AMER. MUS. NAT. HIST.)

This experiment was of value in showing the deficiencies of the Peruvian method of embalming and the inferiority of such a process to the natural one to which the various sun-dried remains studied had been exposed. The specimen was the head of a young man, evidently between eighteen and twenty years of age, and probably of high rank, as shown by the gold beads about his neck and by the extreme care with which his body had been embalmed. The mouth cavity was well-filled with cotton from which the seed had been for the most part removed; his neck was wound around with several layers of cotton cloth, the inner strip of which was tied in a simple knot, and there seemed to be a large circular patch of some red pigment upon either cheek. His very abundant hair was wavy and flowing, and originally came about to his shoulders. The nose and the ears were present, although flattened and dried, and the skin of the face showed no dark patches indicative of decay, although the surface was cracked in several places, a circumstance which produced much difficulty in the attempt at restoration. In short, the general appearance was so good and the features so complete that we entertained great hope of a very satisfactory restoration.

In beginning the treatment, the hair was first carefully removed with shears, and the head immersed for a few minutes in water until the surface was well moistened, after which it was placed in a weak solution of caustic potash, not over 1 percent. Within a few minutes after immersion in the potash, the failure of this case became apparent. The two edges of the skin bordering each of the numerous cracks curled outward and revealed rapidly increasing areas of

bare bone, and patches of skin cut off from the rest by cracks separated completely and floated away. It became evident that the embalmer's art had but arrested decay upon the surface alone and that nearly everywhere all structures between the integument and the surface of the bone, including the periosteum, had long since completely disappeared. The total absence of the ligaments was seen by the spontaneous separation of the cervical vertebræ from one another, and, as the process continued, the lower jaw, when free from its confining integument, became also separated from the skull, not a trace of ligament remaining to fasten it to the head. When the process was complete, the skull had lost neck, jaw, and the integument of the entire face as far up as the eyes, including the ears laterally, that of the eyebrows, forehead and scalp alone remaining, an area which corresponds to the region over which the integument lies directly upon the bone, and had probably dried without decay of the subcutaneous parts.

Noticeable features brought out by the treatment were (1) a raised scar extending along the right eyebrow, corresponding approximately to the superciliary ridge of the frontal bone, and (2) a small round bluish spot about 7 mm. in diameter, situated in the middle line of the forehead and possibly a tattoo mark.

Although disappointing from the standpoint of results, this experiment was extremely useful as a test of the Peruvian embalming process (or at least that used in this particular case) and in showing what we may expect in the case of this class of remains. If, as in this case, all ligaments and the soft parts intervening between the skin and the bone have disappeared, we can hope for little in the way of restoration except that of the integumental surface itself, or of the contour in case of regions where the soft parts readily admit of drying, as in the case of hands and feet. In the preparation of integumental surfaces for the better study of such points as tattoo-marks, scars, and skin diseases, the method may have a practical application even here.

5. ADULT MUMMIES OF THE "BASKET PEOPLE." (AMER. MUS. NAT. HIST.)

These consist of two adults, a man and a woman, the man without a head. They were obtained from a cave in southeastern Utah

by the Hyde Expedition, and are referred by Professor Putnam to the "Basket-people, who seem to have occupied these caves earlier than the cliff-house people," but are considered by Dr Hrdlička to be identical with the latter, *i. e.*, "the prehistoric southern Utah Cliff-dwellers."¹ They had been evidently sun-dried, or, at least, air-dried under conditions that did not favor decay, probably those of a high mountain altitude, and had neither been embalmed in any way nor had the most ordinary care been taken of the bodies, and they had dried in apparently the positions assumed at death. The man lay on his back, with his knees strongly flexed and turned toward the right side, suggesting that they had been drawn up at death and had fallen to one side during the softening process of incipient decay. The woman was in a half-sitting posture, with knees semi-flexed, but at different angles, and with the toes drawn back by an extreme tension of the extensors. In both the position in which they had lain relative to the surface of the earth was very apparent, as those surfaces which had lain uppermost were very hard and white and showed no decay, while the lower surfaces were darker in color and had decayed sufficiently in some places to expose the bones. Thus in the man the dorsal surface of the sacrum was entirely bare and the coccyx readily removable. Aside from these lower surfaces there were a few places that exhibited the dark-brown color suggestive of decay, and in some other localities, *e. g.*, along the arms of the woman, the soft parts had suffered somewhat from the ravages of worms or from mechanical injury, thus exposing the bones.

Description fails, however, to give an adequate idea of the lightness and dryness of these remains. Although no tests were applied, the specific gravity must have been considerably less than that of cork, and in defective places, as along the arms of the woman, the parts splintered and crumbled almost at touch. The man had evidently been tall and large during life, but in his present condition he could be carried with ease by one hand at arm's length, and could not have weighed more than 12-15 pounds. Pieces of skin that cracked off in places, and which, when restored, had a thickness of 5-7 mm., measured about 1 mm. on an average and were hardly

¹Quoted from personal letters from the authorities named.

distinguishable from pieces of the inner bark of trees. When placed in water, an arm or a leg would lie upon the surface, repelling the liquid, and it was with some difficulty that they could be at first forced beneath the surface.

For the treatment of these mummies I had two tanks constructed of galvanized iron, and supplied with flowing water by means of iron piping and siphons of rubber tubing. These tanks had a depth of 20 cm. and a width of 45.5 cm., and one of these was 76 cm. and the other 59 cm. in length. In conducting the experiments, which occupied the greater part of the winter, the mummies were dismembered in accordance with convenience, and the parts successively subjected to treatment, beginning with those parts which were of lesser value. As the details of this series of experiments would prove too laborious to record, and certainly too tedious to read, the matter may be considered under the three general topics of (*a*) the limbs, (*b*) the trunks, including the internal organs, and (*c*) the head and bust of the woman.

(*a*) *The limbs.*—Perhaps the most instructive observation obtained from these was that the muscles, when not decayed, showed a greater tendency to swell than did the integument, and that the extreme and long-continued drying to which this latter had been subjected through several centuries, prevented its expansion to quite its original condition. This was, of course, less noticeable over such parts as the feet or the dorsum of the hands where the bones lay in a superficial position; but upon such a place as the fleshy ventral side of the forearm, where the muscles would naturally round out the part and present a convex surface, the hampering effect of the tight integument was easily apparent. Especially in places where the integument was cut through, or along the edge of the limbs, where they had been severed from the body, could this effect be seen, as in such places the muscles were allowed to escape from their confines and swelled out to what was probably their original size. Such muscles were of an amber color and far more transparent than when fresh, yet consisted of bundles of fibers, which showed the characteristic appearance under the microscope, although lacking all trace of striation.

Portions of large girth, with a large proportion of soft parts,

like the thighs, did not produce good results. In most cases these parts showed enough decay to prevent complete restoration, and even when this was not especially apparent, there was not sufficient rigidity in the soft parts to fill up the contours suggested by the skin. The limbs from knee or elbow down, were, for the greater part, well restored, although in such places as fore-arm, calf, or the thenar and hypothenar eminences of the hand, the integument was usually too rigid to admit of full expansion. The epidermic ridges of the surface of the palms and soles were very evident and we were able to trace out the complete patterns, although, as a matter of fact, the entire epidermis must have been wanting and what we really saw was the mold or cast of these ridges upon the surface of the cutis.

The best general results obtained were those of the right arm and hand, the left leg and foot of the woman, and the right foot of the man. From these it could be seen that both hands and feet were extremely narrow and the arch of the latter very high. The woman had been evidently of middle size, and had borne children (see below), but her foot was of about the size of that of a little girl of seven or eight of our race, although narrower than is usual with us.

These deductions cannot in this case be due to a deficiency in the swelling out of the tissues, since the proportions depend mainly upon the bones and very little upon soft parts other than the integument the normal thickness of which had evidently been regained. On restoring the woman's left hand it was found that the thumb, which was pushed between the index and middle fingers, held between it and the first joint of the latter a flat and rather soft object, the nature of which could not be made out, but which seemed of vegetable origin. Whether this object has any bearing upon the customs of these people I cannot say, but the entire hand was clenched and the object appeared as if intentionally though awkwardly held.

(b) *The trunks, including the internal organs.*—These were treated in the larger tank after the separation of the limbs, and were not as satisfactory regarding reestablishment of the original contour as were the other parts, but furnished very interesting studies of the internal parts. In all cases the integument with its character-

istic markings becomes quite normal of appearance and in a few points deserves some little notice.

The entire back of the woman, when treated, was marked with a conspicuous cross-stripping which extended from the neck to sacrum and from side to side. This consists of bands of smooth dark skin of about 5 mm. in width and placed parallel to one another at regular intervals, leaving interspaces of perhaps 7 mm. At first we thought of a tattoo, but its extreme regularity as well as its location suggested the former presence of something woven upon which she had originally lain, probably a mat, the cross-weaves of which had protected the surfaces with which they had come in contact, allowing the erosion to continue between them. Microscopic examination corroborates this conclusion, since the stripes give evidence of a far better preserved condition of the cutis than is shown by the more spongy interspaces.

As for tattooing, certain dark stripes upon the man, one placed lengthwise on one shoulder, another in the midline of the abdomen from umbilicus to pubis, may possibly be referred to this head, but a far more obvious example is that upon the other shoulder, which consists of a series of heavy black oblique lines ranging from 5-8 mm. in width, crossed by a second set of oblique lines in the opposite direction. If this be a tattoo, it is of very crude workmanship; the lines show no regularity in width, and are irregularly placed. Aside from the above, the forehead of the woman, before it was subjected to treatment, showed five or six lines in consecutive circles, the lines being themselves composed of separate oval dots, but the arrangement of the entire design was asymmetrical, the center being near the inner corner of the right eye. Since no trace of this was left after the treatment, it was probably a paint or marking left by some article of clothing.

Both trunks after brief immersion in the potash (one-half to one hour) admitted of a thorough and very satisfactory dissection; the organs were found for the most part well preserved, but dried to the consistency of thin membranes, incapable of further restoration, undoubtedly because the connective tissue elements alone were left. Thus the intestines, the mesenteries with their blood vessels, and even the omentum were easily distinguishable and were with some

care separated from one another, but the heart was reduced to a shrunken mass of membrane representing the pericardium, the valves, etc., and all that could be found of the liver were the numerous branches of the blood-vessels and bile ducts, the latter observation especially emphasizing the fact of the loss of all epithelial tissues. In the stomach both muscular and serous coats were well preserved, and separated from each other almost spontaneously; but in both cases the stomach, although normally inflated, was either completely or almost empty, that of the woman yielding three melon seeds and a single piece of some stringy substance which we have been unable to identify. Several masses of fecal matter were found in the intestines of the woman, which, when examined with the microscope, yielded nothing but a few bits of vegetable tissue. In both cases the appendix was normal and well developed. The lungs, corresponding to their large connective tissue constituent, were well preserved, and in a few places had imprisoned a little air in drying. They showed both by their color and under the microscope carbonization to about the same degree as in the modern white race.

The kidneys were reduced to thin wafers, consisting evidently of the pressed and dried tubules of the medulla, and to these were attached the ureters, connected with well-preserved urinary bladders. The uterus of the woman was slightly asymmetrical, being deflected toward the left side, and as the distance between it and the left ovary was far less than between it and the right one, it is probable that this lateral displacement had been present during life, and was not due to the effect of gravitation acting upon the organ after death. The shape of the os uteri externum indicated that she had borne children, a supposition in accordance with the condition of the mammæ, which was shown by the integument, although the glandular portion, being epithelial, had long since disappeared. In the man the appearance of the genitals did not indicate circumcision, although the prepuce had become very thin and the free edge of the fold was ragged and worn.

(c) *The head and bust of the woman.* — As this piece presents the most general interest, both in itself and as a test of the method used, we took several photographs of it both before and after

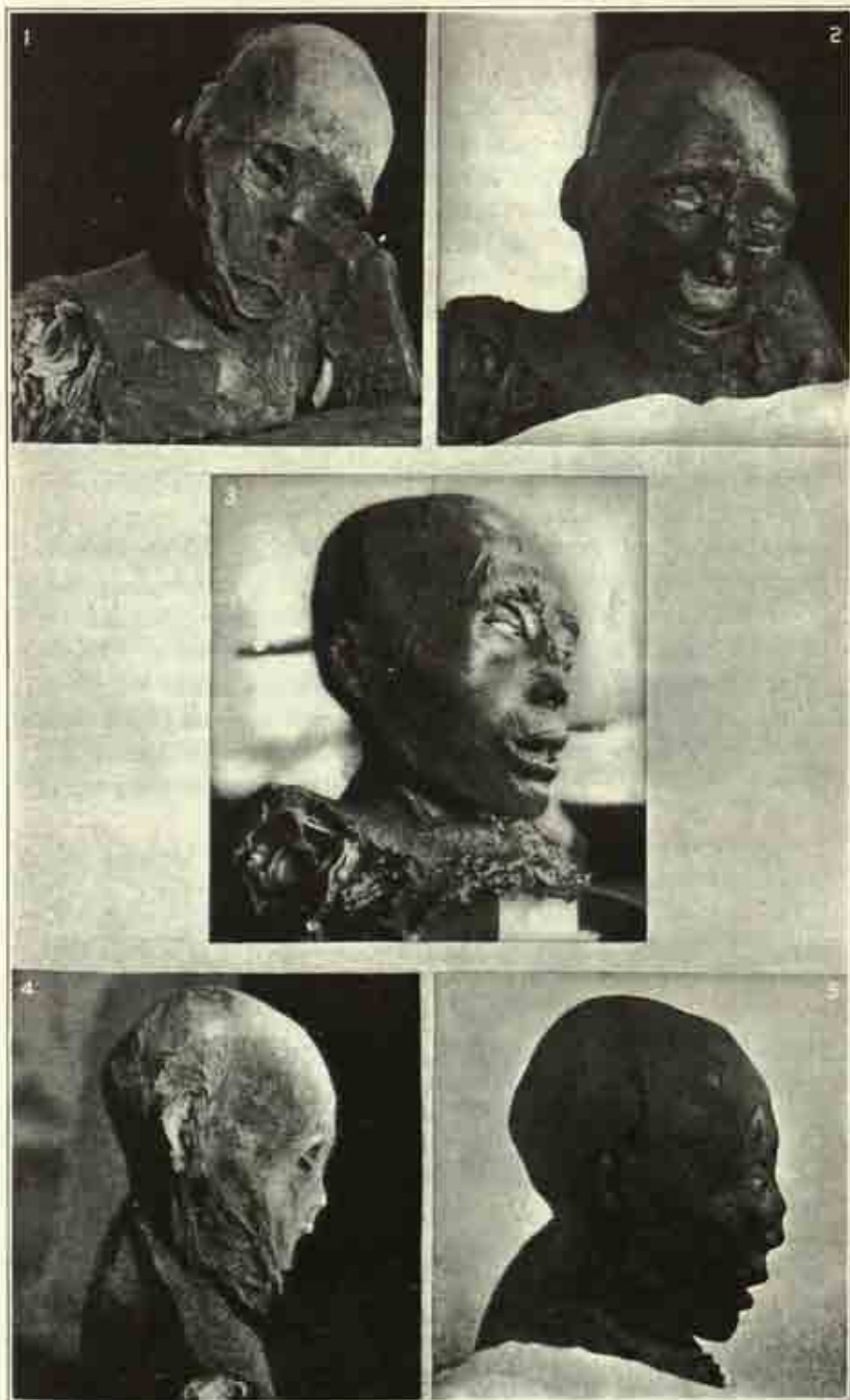
treatment, the presentation of which (pl. 11) will almost obviate the necessity of further explanation. The separation from the body was made just below the arm-pits, in order to preserve the contour of the neck and shoulders and the relation of the head to the trunk. In the dried state the head was bent strongly to the left, as though it had fallen over by the force of gravity before it became stiffened by the process of desiccation, and it is interesting to note that this defect became in great measure remedied by the treatment through the natural elasticity of the parts, although no especial attempt was made to straighten it. The same may be observed in the case of the lower lip, which had fallen down and dried in that position and which came up of its own accord by the restoration. The dropping of the jaw, however, perhaps because dependent upon ligaments and other internal parts, was not completely remedied, although much improved, and the separation of the lips in the restored specimen is due to this rather than to any defect in the lips themselves (see especially fig. 3). The left eyelid came well into shape and remains closed, while the right is partly open, and as the eyeball of this side was somewhat deficient, the socket was filled out with absorbent cotton, which is the white mass showing in the photograph. The left eyeball is quite full, although somewhat wrinkled, and shows a good iris and pupil when the lid is raised. The cartilaginous portion of the nose is, unfortunately, not wholly restored, since, when the head had attained its present condition, some of the softer parts threatened to fall to pieces, and in order to prevent this the entire head was put in three-percent formalin over night. This hardened the entire specimen and rendered the skin so firm and immovable that all subsequent treatment was of no avail. The method of continuing the action of the potash over certain areas alone, as suggested above, occurred to us too late, and although we worked for several days over the nose, there was little if any later improvement. I am persuaded, however, that if the formalin had not been used at that time, and if the potash had still been applied to the nose while the other parts were wrapped in wet cotton as recommended above, the result would have been better; but a comparison of the photographs of the dried and of the restored face will show a great improvement in the feature under dis-

cussion, even though it has failed to attain its original proportions. The elasticity shown in the lips and neck appears also in the case of the ears, as a comparison of the two sets of photographs will show.

Upon the right side of the head, above the ear, is a rather extensive oblong area from which the scalp had been removed, showing the bone (pl. II, 3, 5). As this was the condition in the dried specimen, although hardly distinguishable owing to the uniform color of this and the rest (pl. II, 4), it suggests that this piece had been removed before the body had dried, but for what purpose we can only conjecture. In pl. II, 4, 5, there will also be observed a curious scar at about the top of the head, which consists of a deep indentation of the bone lined by the skin and is undoubtedly the result of an injury received earlier in life.

Except in the most sheltered portion of the back of the neck there was no trace of hair, and this, taken in conjunction with a few other observations, gives a singular conclusion. In the first place the absence of hair is correlated with the total absence of nails from both fingers and toes, although the nail beds are so perfect that this absence is scarcely noticeable. Then, in draining off the tanks after the operation, there was left a considerable quantity of a brick-red deposit, which dried into a coarse powder and showed itself under the microscope to be dune sand, little irregular nodules of reddish quartz, which, although not noticeable in the dried specimens, must have filtered into every crevice and have become dislodged by the washing and soaking. This dune sand may perhaps furnish the clue to the absence of nails and hair, and suggests that they have been worn off by the tritulating effect of the wind-blown sand.

Another phenomenon, and one which is less easy to explain, has been the discovery of countless specimens of a small species of mite (*Acarina*), first found upon the stomach-contents of the woman, and later, in still greater quantity, within the uterus and in the nasal cavities. In the latter places, small reddish particles, which detached themselves from the walls, resolved themselves into masses of mites, some entire and others in fragments, mixed with blood corpuscles. Here the simplest supposition is that, being troglodytic animals, they have used the dried mummies for their habitat in the same



HEAD OF WOMAN MUMMY OF THE "BASKET PEOPLE" (CLIFF-DWELLERS)
 1 and 4, In dried condition. 2, 3, and 5, After restoration. [Photographed from the object.]

way as they would use a fallen tree-trunk, and that they have found their way to all accessible cavities of the body, although their association with blood corpuscles might indicate either a parasitic habit, or that they infested the body soon after death.

Much can certainly be obtained from further microscopic investigation of softened mummied material, but not only is a thorough knowledge of botany, zoölogy, anatomy, and histology necessary, but an acquaintance with the ethnology of the people to be studied, including their manners, customs, and religious rites, in order to intelligently direct such investigations. This work can best be done then by the collaboration of several investigators, and it may be hoped that something will be done in this line in the near future.

As far, also, as the gross application of the softening and restoring method is concerned, my investigations thus far have not covered the field or exhausted the possibilities of the method, since the various forms of Egyptian mummies have not yet been tested, nor has the investigation of the Peruvians been by any means completed. It may not be too much to suggest, if the method is found applicable to the best embalmed mummies of the Egyptians, that at some future time the faces of the great Pharoahs may be seen in a still more life-like condition than that which they exhibit at present in the glass cases of the Gizeh Museum.

GLOSSARY OF THE MOHEGAN-PEQUOT LANGUAGE

By J. DYNELEY PRINCE AND FRANK G. SPECK

There is always something strangely pathetic about a dying language, especially when, like the Mohegan-Pequot idiom, the dialect exists in the memory of but a single living person. Mr Speck has obtained two connected texts and most of the following words and forms from Mrs Fidelia A. H. Fielding, an aged Indian woman resident at Mohegan, near Norwich, Conn., who has kept up her scanty knowledge of her early speech chiefly by talking to herself. The text of a sermon in Mrs Fielding's dialect has already been published by us with full philological commentary in the *American Anthropologist* (vol. 5, pp. 193-212). Another shorter text with a similar commentary will soon be published separately by Mr Speck alone.

The following word-list of 446 words and forms were all collected by Mr Speck during the last year at Mohegan, Conn., chiefly from Mrs Fielding, and submitted to Professor Prince in Mrs Fielding's spelling. In arranging these words into a glossary, all the work of which was done by Professor Prince, it has been thought best for sentimental reasons to adhere to Mrs Fielding's orthography, imperfect as it is. Her system is undoubtedly that of the few white men and educated Indians who tried to write the Pequot language while it was still a living idiom. The proper pronunciation of each Pequot word as uttered by Mrs Fielding is given in parentheses, in accordance with the following method: Of the vowels, *ā* = *a* in "father"; *āw* = *aw* in "awful"; *ē* = *ay* in "may"; *ē* = *e* in "met"; *î* = *i* in "machine"; *î* = *i* in "pin"; *ō* = *o* in "note"; *ō* = *o* in "not"; *û* = *u* in "rule"; *û* = *u* in "but"; *û* = *oo* in "foot." The apostrophe (') = a short indeterminate *a*-vowel. The consonants have the English values, except that *g* is always hard as in "go"; final *-kw* = *kwa*, with a very short final vowel; *ñ* = nasal *n* as in French final *n*; *š* = *sh*. The combination *ts'* is to

be pronounced with a slight palatalization after the sibilant. The inverted comma (') indicates a light rough breathing similar to the Arabic medial *He*.

Throughout the glossary an attempt has been made to give, so far as possible, the cognates of each Pequot word. Here it should be noted that in Abenaki \bar{o} = *on* with nasal *n*, as in French *mon*, and \bar{o} = German \bar{o} . In Delaware the German system of phonetics followed by Brinton in his *Lenape Dictionary* has been observed. The Natick and Narragansett words are given according to the English system followed by Eliot and Roger Williams,¹ while the Ojibwe words are to be pronounced with the Italian vowels as given in Baraga's *Otchipwe Dictionary*.

Although Mrs Fielding's dialect of Pequot is in the last stages of decay, as has already been pointed out,² it still retains enough of the original phonetics and grammatical phenomena to enable us to judge very satisfactorily regarding the primitive character of the language.

In the Pequot phonetics we note that the Peq. \bar{b} generally = N. ρ , and that the Peq. has an indeterminate consonant \bar{b} between \bar{b} and *w*.³ This is probably the sound which Eliot indicated by *ff*. Furthermore Peq. \bar{d} = N. *t*, Peq. \bar{g} = N. *k*, and Peq. \bar{s} = N. *s*, thus showing the marked tendency of the Pequot to medialization. Perhaps the most striking characteristic of Mrs Fielding's Pequot is the extraordinary elision of the original \bar{l} = *r* = *n*. Thus, we find *moish* hen = N. *monish*; *ikekusoo* 'he works' shows the same stem as the Abn. *aloka*; *weyungoo* = Abn. *ulôgua* yesterday = N. *wnnnunkw*;

¹ The Natick *u* represented in Eliot's writings by the horizontal figure 8 (∞) I have indicated simply by *u*.

² *American Anthropologist*, 1903, vol. 5, p. 210.

³ The following abbreviations are used: Abn. = Abenaki; C. = Josiah Cotton, *Vocabulary of the Massachusetts (or Natick) Indian Language*, *Mass. Hist. Soc. Coll.*, ser. 3, II, 1830; D. = Delaware; LD. = *Lenape Dictionary*, by D. G. Brinton; N. = Natick or Massachusetts; ND. = *Natick Dictionary*, by James Hammond Trumbull, 1903; Oj. = Ojibwe; RW. = Roger Williams, *Key into the Language of America*; Stiles = Ezra Stiles, *A Vocabulary of the Pequot Language obtained by President Stiles in 1792* (copy in the library of the Bureau of American Ethnology). The signification of the other abbreviations used is obvious. The Abenaki and Passamaquoddy material used in this article comes from Professor Prince's collections. The Natick words are from Trumbull's ND., the Narragansett from RW., the Delaware from Brinton's LD., and the Ojibwe from Baraga's *Otchipwe Dictionary*.

zoogeryon rain = Abn. *soglon* = N. *sokenum*, etc. This inability on the part of the Pequots to pronounce an *l-r* sound is even seen in their English loanwords. Thus, *beyoti* plate; *beyungut* blanket; *beyoum* broom. There is no *r*-sound in Peq., in spite of Mrs Fielding's repeated use of this consonant in her text as a mere stop consonant (see *Am. Anthropol.* v, 199). A most curious point in this dialect is the dual pronunciation of some words with either *j* or hard *g*. Thus, *chawgwau* or *goggwan* what; *googernos* or *goojernos*. This perhaps points to a blending in Mrs Fielding's idiom of two distinct Algonquian linguistic variations, i. e., one which used the *j*-sound as in Abenaki and Ojibwe, and one which regularly used the hard *g* as in Peq. *woggey* for, in order that, = Abn. *waji*.

This theory that two Algonquian dialects existed in the Mohegan community seems to be further confirmed by the fact that Mr Speck has obtained two slightly varying systems of numerals, the one from Mrs Fielding and the other from an old Mohegan Indian, James H. Rogers. The following comparison of these two systems with the Natick and Narragansett numerals will serve to illustrate this point:

	MRS FIELDING.	ROGERS.	NARRAGANSETT.	NATICK.
one	<i>nequt</i>	<i>nik't</i>	<i>nquit</i>	<i>nequt</i>
two	<i>nls</i>	<i>nls</i>	<i>neesse</i>	<i>neesse</i>
three	<i>ch'wl</i>	<i>ch'wl</i>	<i>nish</i>	<i>nish</i>
four	<i>idw</i>	<i>idw</i>	<i>yoh'</i>	<i>yaw</i>
five	<i>nipdu</i>	<i>nipdu</i>	<i>nepanna</i>	<i>nepanna</i>
six	<i>k'dusk</i>	<i>ni'kudus</i>	<i>gutta</i>	<i>nequttatash</i>
seven	<i>ntu'sh</i>	<i>ni'sush</i>	<i>enada</i>	<i>nesausuk</i>
eight	<i>ch'wl-8'sk</i>	<i>ch'hons</i>	<i>shwosuck</i>	<i>shawosuk</i>
nine	<i>bawuk'kwong</i>	<i>bawuk'gon</i>	<i>paskugit</i>	<i>paskoogun</i>
ten	<i>ba'rog</i>	<i>ba'rog</i>	<i>piuck</i>	<i>puik</i>

It should be noted in this connection that the Peq. *s* tends to become *ʃ* in juxtaposition with another consonant. Thus, *squaaw* = *ʃkwá* woman, and *skeesucks* = *ʃkásaks* eyes. Two noteworthy cases of metathesis are seen in Peq. *geyommon* spoon = Abn. *amkuôn*, and Peq. *skeeshu* quick = Oj. *kejidin*.

The original grammatical phenomena are poorly preserved in Mrs Fielding's idiom. Thus we find the inan. indef. form *neweck-*

tumun explained by her as meaning 'I love him.' This can only mean 'I love *it*.' In another instance (see WEESHAWGUNSH) she uses the inan. pl. ending *-sh* where the an. pl. *-ug* should have been employed. Furthermore, her moods have nearly all disappeared (Cf. *yunjunum* 'that he open,' not a subjunctive at all), but note *wombunseyon* 'if I live in the morning,' a genuine conditional. Other correct forms, however, have been rescued from the wreck. Thus, *newotinemong* he helps me (*Am. Anth.*, v, 204); *newotinemo* I help him, etc. In *quonwehige* 'it scares me,' the *n* of the 1st p. has been lost, i. e., *nequonwehige* is the correct form. The preservation of the phonetic infix *-t-* is also noticeable, as in *gertub*, q. v., and the imperative suffix *-ush* is still extant. See s. v. BEUSH.

In vocabulary the Pequot is very close to the Natick and Narragansett, as will be seen from the glossary. It is probable that Naticks, Narragansetts, and Pequots were mutually intelligible without much difficulty. On the other hand, a few Pequot words are traceable only to the Abenaki, and occasionally only an Ojibwe cognate is possible. A very few words are given in the glossary as being without discernible cognates.

Words indicated as Brothertown words were collected by Mr Speck from an old Indian at Mohegan who had lived for some time at Brothertown, near Green Bay, Wisconsin, whither a number of New England Indians, notably Tunxis, Wampanoags, Mohegans, and a few Long Island Montauks emigrated about fifty years ago. As will appear below, these words are merely corruptions of Ojibwe forms.

Our Mohegan-Pequot list should prove a useful supplement to the late James Hammond Trumbull's *Natick Dictionary*, to which constant reference has herein been made. In spite of the doubtful character of much of Trumbull's work, his dictionary is valuable as a list. Mr Speck has rescued from oblivion the remains of what was once the speech of a powerful New England nation, a speech which according to all previous accounts had perished at least sixty years ago! Mrs Fielding is indeed the Dorothy Pen-treath of the Mohegan-Pequots, and is quite as deserving of an enduring monument as was the last old woman who spoke Cornish.

MOHEGAN-PEQUOT GLOSSARY

AHUPANUN come here. Brothertown word. No cognate.

APPECE apple (*äpl's*). There is no native equivalent for 'apple' in Abn. (*aples*) or D. (*apel*). The word is not given in ND.

AQUE hello (*ékwi'*) = Abn. *kuai*.

BAGENOOD bag (*bä'gênüd*). A hybrid, the last part of which is cogn. with RW. *nutassen* hemp-bags; cf. N. *nutin* to lift up; RW. *niutash* to take on the back. Same stem as in *manodah* bag, q. v.

BAHDUNTAH rising, said of the sun *geezushg*, q. v. (*bä'düntä*). Cogn. with N. *nepattuhquenk* a stake, pole, from *nepadtau* stand.

BAHKEDER maybe, perhaps (*bäktidü'*). This is past. The fut. is *bäktimü's*. Cf. N. *paguodche* (fut.). Element *pa* = *bah*? The separate form is *bahke*.

BATSHA it is come (*bä'chá*) = *pa* + *cha*, *pa* being the indefinite particle 'it is continuing.' Cf. N. *pakodjiteau* it is finished (ND. 259).

BEEBEE evil spirit (*bibi*)?

BEED bed (*bíd*). Eng. loanword.

BEEDDUNK bedstead (*bídunk*) = *beed* + the loc. ending.

BEESH peas (*bis*). Eng. loanword; cf. Abn. *piz*.

BEETKUZ lady's dress (*bé'tkó'z*) = Abn. *pítkōzon* coat.

BEITAR Friday (*bíd'itá*). Here we certainly expect the *b* which is not present.

BEKEDUM give up (*biké'düm*). Cogn. with Abn. *nd-abagidam* I void excrement, renounce; D. *pakitatamaúwan* to forgive someone, L.D. 106 (see *Am. Anth.* v, 207).

BEKSEES pig (*bé'ksis*). Eng. loanword with dim. *-sts*; cf. Abn. *piks*, showing the *s* of the Eng. plural.

BEMUNT thread (*bé'münt*) = N. *pemunneoh* cord, string.

BROWHY flour (*bíd'úwí*)?

BERCUD smoke (*bä'hü'd*) = N. *pukut*; RW. *puck*; Abn. *pékeda* smoke.

BEUSH come, with inv. *-sh* (*bé'úš*) from *√bī* come = N. *peyāu*, Abn. *paíō* (see *Am. Anth.* v, 205). In Pequot we find also *mās né-biyo* I shall come. See MUS and BEYOR.

BRYOR he is coming (*bígō*). See BEUSH.

BYOSHERMEED meat (*bíyā'lāmlā*). A hybrid, from *bíyā's*, a variant of *wéous* meat, q. v. + Eng. meat. Note here the medial *b*.

BEYOTI plate (*bíyō'tí*). Eng. loanword. Note the change of *l* to *y*.

BEYOUN broom (*bíyū'm*). Eng. loanword with softened *r*.

BEYUNGUT blanket (*bíyū'ngút*). Eng. loanword. Cf. the Narr. *pināquet*, also a loanword.

BIOG ten (*bā'ioḡ*). Stiles *piugg*; N. *piuk*, *piog*; Long Island *payac*, *paunk*. This is a genuine New England numeral. Abn. has *mdala* and Pass. *mtuin* ten.

BODDERNASHAH flying (adj. (*bōdūnā'sā*). Cogn. with N. *ptūeu* it flies and with *du* in Abn. *pami-duo* he flies.

BOIGE porridge (*bōij*) = N. *sebaheg*, pottage. See WEOUSIBOIGE.

BOMKUGEDOH all the world (*bō'mkūḡ'dā*). *Bom* = *wom* with *b*; *kūḡ* must be a reduplication of *ki* earth. See *Am. Anth.*, v, 206, 11.

BOOKQUE dirt blowing (*bū'k-kwē*). Lit. 'it blows'; N. *putau* he blows, ND. 227.

BOOKSHA break, lit. he b. (*bū'kšā*). Abn. *poskwenōmuk* one b.; RW. *pokesha*. I connect this with Abn. *pask-ha* shoot.

BOPOOSE cat (*bōpūs*). No cognate.

BOPUQUATEES little quail (*bōpū'kwāll's*). Stiles *papoquateece* part-ridge; N. *pahpahkshaas*, *pohpohkussu*; RW. *paupook*.

BORWESA pretty well (*bā'wē'sā*) with a variant form *pā'wē'sā*. This must be a derivative from the N. stem *peatwe* little, seen also in Abn. *piūsessit* he is little.

BORZUGWON one thing, from *borzug* one (*bā'zūḡwū'n*) = N. *pasuk*, *psauka*; Abn. *pazegwon*.

BOSHKEAG gun (*bō'shēḡ*) = RW. *peskunch*; Abn. *pashigan*; Cree *pakesiggun*. See BUSHKWA.

BOSU good-day (*bā'ūsū*). Plainly a deriv. from Fr. *bonjour*. Brothertown word.

BOYZUG one (*bōizūḡ*); see above *borzugwon*. Cogn. with Abn. *pazegwon*; Old Alg. *pezekw*; RW. *pawsuok*; Oj. *paizhik*; Cree *peyak*. Mrs F. wrote the form *boyzug* in the sermon, perhaps by accident, but it may be an old form seen in Cree *peyak* †

BOZUKUKWONG nine (*bōzūkū'kwōḡ*) also *bōzūkū'gōn*; cf. N. *pakugun*.

BUMIGE a splint which binds a basket (*bōmbā'ig*)?

BUMSHOKK they walk (*būmšā'k*) = *pomushauk*; Abn. *nō'mosa* I walk, etc.

BUNGASOO lame (*bū'ngāsū*). This may be cogn. with N. and RW. *gunnukwesu* he is lame; cf. Abn. *ngwetsidatwi* lamely.

BUNNEDWONG knife (*būn'dwōḡ*) = RW. *punnētunk*; Stiles *punnee-dunk*.

BUNNEED bonnet (*bū'nē'd*). Eng. loanword.

NE BUSHKOZETEORSUN I fall down (*nē būškōnzētā'sūn*). Also Niantic acc. to Mrs F. Cf. N. *penushau*, *petshaog* they fall.

BUSHKWA he shoots (*bōšk'wā*) = Abn. *pashhomuk* to shoot. See BOSHKEAG.

BUSHKWA noon (*bū'kwā'*) = N. *puhshequeaen*; RW. *paushaquaw*; Abn. *paskua*.

B'WACHU small (*bōwā'chū*) = N. *pechean* he makes small; Abn. *piūsessit* he is small.

BWEZE pot, chamberpot (*būwē'z*) = N. *wiskq* a vessel, dish.

BYOWHY good-bye (*bā'iwā'i*); plainly an Eng. loanword from 'bye-bye.'

CANAKISHEUN where are you going? (*Kānaki'shēun*.) Brothertown word. From Oj. *aka* where, *ija* go.

CANUKEY private parts (*kānū'ki*) must be from the same stem as N. *kinukkinum* he mixes; cf. N. *kenugke* among.

CHAWGWAN what, something (*chā'gwān*). Cogn. with Abn. *kagui*; Pass. *kekwo*; N. *chagwas*. *Chawgtwan* is pronounced also *gā'gwān* with hard *g*. See *Am. Anth.*, V, 205. For its use, cf. *chawgtwan ne* what is that; *womme chawgtwānsh* all things.

CHAWHOG where (*chā'hōg*). I can find no cognate for this. N. *uttiyeu*; Abn. *tondaka* where. In Pequot *chawhog gertish* = where are you going? See s. v. GERTISH. *Chawhog gerwoochi* = whence come you? *Chawhog* is often suffixed, as *gētāwī tūbō jōhō'g* where shall he stay?

CHAWSUN hard (*chā'sūn*). No cognate.

CHEEGUT weak-fish, Labrus Squeteage (*chē'gūt*) = N. *cheecout*, *chequit*, from *chōhki* spotted? (ND. 21).

CHEEHS cheese (*its*) with obscured *s*. Eng. loanword. Cf. Abn. *chis*.

CHEEME always (*chē'mē*), abbrev. for *wucheme*, q. v. Cf. Abn. *majimiwi*; N. *micheme*.

CHEEPHUGGEY dreadful, terrible (*chēpū'ggē*) = D. *tschīpinagot* he is terrible. Same stem as in *tschīpey* spirit (see JEBB, and Prince in *Proc. Amer. Philos. Soc.*, xli, 29).

CHEEWEE nearly, in *chewee bushkwa* nearly noon (*chē'wē'*). Perhaps cogn. with Abn. *paw-jīwi* almost.

CHREWHY new (*chē'whē*). No cognate.

CHEWEE three (*chēwē*) = N. *nishwe*; RW. pl. inan. *shwīnash*; Stiles *shweh*.

CHEWEE-OSK eight (*chēwē'ō'sk*). Stiles *shwāusk*; RW. *shwosuck*; N. *shwosuk*; Abn. *nsōzek*.

CHOY nose (*chōi*) = Stiles *wuchaun*; N. *mutchan*; Abn. *mejōl*.

CHUGGUNCE hay (*chū'gūns*). I think this must be the word for 'chicken' and an Eng. loanword. See KERCHUSH.

CHUNCHE must (*chū'ncht*) = Abn. *achowi*. This is not in N., where *mos* = must (see MUS).

CHUNCERCHEE, see KUNCERCHEE.

NE CHUNTUM I want (*nē-chūntum*) = N. *ahchewontam* he desires it.

NE CHUYER I need (*nē-chū'yū*); *chūwāk* they need. See *Am. Anth.*, v, 203, and cf. CHUNTUM.

CIDI cider (*sā'idā'i*). Eng. loanword; cf. Abn. *saidal*. Note loss of *r* in Pequot, represented by *i* in Abn.

COCHISE old man (*kūchā'is*) = N. *kehchis*, pl. *-og*; Abn. *kehayi* from *k'chi* = big, great. Cf. s. v. GUNCHE.

COOKSI sleep, 3 p. (*kū'kski*). This is a Brothertown word and must be cogn. with N. *kussukkoue* he sleeps like a stone.

CORJUX boy (*kūjū'x*). An abbreviated form of *muckachucks*, q. v.

COWISH go to sleep (*kāwīš*) = N. *koue*; *yo cowish* sleep here. Cf. D. *gauwin*; Abn. *kawi* he sleeps. In *cowish* the *-š* is the sign of the inv.

CUCHATUNG CIDI will you have some cider (*kūchātūng sādāi*) = Abn. *k'wajonem* you have.

CUDDUSK six (*kūdusk*) = Stiles *necquddosh*; N. *nequattash*.

CUDERCUM he is sleepy (*kū'dākūm*) = N. *kodtukquomunat* (partc.); D. *ngatungwan* = I sleep. The first part of this word contains the Abn. *kadawi* wish, desire.

CUDGI it is ready, finished (*kū'ji*). This is really a sign of the passive; cf. *cudgi wigātū* it is already done. I believe *cudgi* = Abn. *kizi* sign of the past tense. In N. *quoshappu* means he is ready; quite a different stem. Cf. *cudgi dupkwōh* it is already night; *cudgi nunchedah* it is already sought after, etc. See NUNCHEUSH.

DEBE, pl. *-ug* = evil spirit (*dībī*). See JEEBI.

DEBECORNUG hell (*dībikānā'g*). See JEEHCORNUG.

DIKWADUNG drunk (*dikwā'dūng*). The word occurs also in the form *dikwā'gyā'n*. A difficult word, perhaps cogn. with Abn. *wijes-mowinno* a drunkard? Cf. Oj. *menikweshkid* toper. See s. v. GERKEEWOH.

Do and. See DOCKER.

DOBBY can (*dā'bi*) = Abn. *tabi* enough; D. *tepi*. In N. we find *tāpi* it is sufficient and *tapenum* he is able. In Pequot, *dobby* precedes the verb-form, i. e. *dobby ge kedersu* can you read?

DOCKER and (*dū'kā*) = Abn. *ta + ka* = N. *kah* and. See Do.

DODDI where (rel. *dōdā'i*) = *dō + dāi* = Abn. *tali*. *Dō* = Abn. *to-ni* where, when. For *di*, cf. NEDI, YEOWDI. The elements of the Abn. *toni* appear in N. *uttiyeu* where; Narr. *tonati*.

DOOSETAR Tuesday (*Dū'sātā*).

DORBE table (*dā'bi*). Eng. loanword.

DORKES turkeys (*ddikis*). Loanword, also in D. *tschikenum* turkey, from Eng. 'chicken.' Abn. *nahama*; N. *neyhom* = turkey.

DORNUPS turnips (*ddnū'ps*). Eng. loanword.

DOZORTAR Thursday (*Dō'sātā*).

DUCKSORS rabbit (*dū'ksās*) = Stiles *tupsaas*; a pure Pequot word. Cf. RW. *wautuckques* and N. *mohtukquasog*, pl. rabbits, from a different stem.

DUCKSUNNE he falls down (*dū'ksūn'*), perhaps cogn. with N. *nu'k-shean* it falls down. Cf. Abn. *pagessin* it falls, said of a thunderbolt.

DUCKWONG mortar (*dūkw'ng*) = N. *togguhwonk*; RW. *tācunuk*; Abn. *tagwaogan*; D. *tachquahoakan*, all from the stem seen in N. *togkau* he pounds. See TEECOMMEWAAS.

DUNKER TEI what ails you? (*dūn kētlā'i*). *Dūn* = Abn. *tōni* what; *ke* is the 2d pers.; *t* is the infix before a stem beginning with a vowel, and *tāi* is the verb 'to be.' Cf. Abn. *tōni k-dāyin?* 'how are you,' or 'where are you?'

DUPKWOH night, dark (*dū'pkwū*) = Abn. *tebokw*. Loc. of *dū'pkwū* is *dū'pkwūg*.

EEN, pl. *eenug* man (*tn, t'nūg*) = N. *ninnu*, seen also in Abn. *-winno*, only in endings. Cf. Ojibwe *inini*. Trumbull says, in ND. 292, that N. *ninnu* emphasizes the 3d pers., and through it the 1st pers. Thus, *noh, neen, n'un* 'he is such as this one' or 'as I am.' *Ninnu* was used only when speaking of men of the Indian race. *Missinūwog* meant men of other races. See SKEEDUMBORK.

EWO, EWASH he says, say it; inv. (*t'wō, t'wāz*). This contains the same stem as Abn. *i-dam* he says it. Cf. also RW. *teagua nteatoem* what shall I say? In Peq. *nē-twō* = I say, without the infixed *-t*.

GAWGIAN. See CHAWGWAN.

GE, GER you (*ge*). This is a common Algonquian heritage. Cf. N. and RW. *keen*; D. *ki*; Oj. *kin*; Abn. *kia*; Pass. *kil*; Micmac *keen*; etc.

GEESHQUDDU he is angry (*gē'skwūdū*) is apparently not equivalent to N. *musquantum* (acc. to Trumbull from *musqui* red and *-antum* a state of mind?). Also Abn. *muskwaldam*.

GEESHTUTUSH wash thyself (*gē'stūtūs*) = N. *kutchissetaush* wash thyself; Abn. *kaziljōmuk*.

GEESK day in *yougeesk*, q. v. (*gē'sk*). See GEESUKOD.

GEESUKOD day (*gē's'kūd*) = C. *kesukod*, RW. *keesakat*, N. *kesuk*, Abn. *kisgad*, D. *gischquik*.

GERTUZUG cattle (*g' tūzūg*) = RW. *netasūog*, N. *netassu*, pl. -*og*. In Pequot *geetus* is the singular.

GEEZUSHG sun (*g' zū'zg*) = RW. *kesuckquand* the sun as a god; Abn. *kizos*, D. *gischuch*. Stiles gives *mecun* as the sun.

GEI chair (*gīd'i*). I believe this is a corruption of Eng. chair.

GERKEWOH drunk (*g' kē'wū*) = D. *kee cakewus* thou art drunk, from Salem Town Records, Lib. B (Trenton, N. J.). The N. cognate is *kogkeissippamwaen* he is drunk; *kakewaū*, he is mad, crazy, ND. 30.

GERMOODU he steals (*g' mū'dū*) = Narr. *kamootahick* thieves; N. *kummuto*; Abn. *kamodnamuk* one steals. See *Am. Anth.*, v, 205.

GERSUBERTOH it is hot (*g' sū'bētō*) = RW. *kusōpita*; Oj. *nkijōb* I am hot in a house; N. *kussitau* it is hot. See GERSUDAH.

GERSUDAH it is hot, said of the weather (*g' sū'dā*). See GERSUBERTOH.

GERSUG mud (*g' sū'g*) also *gersuggayoh* it is muddy (*g' sūggāyō*). This must be cogn. with N. *pissag* mire, mud, with *g* for *p*.

GERTAKWISH going to (*g' tāw'f*); *g* + *t* + *awī* + 3. For *awī*, cf. N. *awī* he goes, ND. 267. I believe this is cogn. with Abn. *kadawī*, the sign of the future, where the *k* is part of the root and not the second person. The *k* in *gertakwish* is nothing but the common Algonquian rough breathing. See GETAHWE.

GERTINEMONG he helps you (*g' tī'nemōng*). Cf. *nīwōtī'nemōng* he helps me, *Am. Anth.*, v, 204. The stem is *wotine* q. v. and cf. RW. *kuttannumous* he helps thee. In Abn. there is an inherent *k*, as in *kdemoŋgalmi* help me, where *k* is not the 2d pers. The N. stem is *annumaoh* he helps him, which is probably a cognate.

GERTUH you stay (*g' tūb*). Here *k* is the 2d pers.; *t* is the infix before the vowel, and *ūb* is the stem. Cf. Abn. *wā-abin* he stays, sits; N. *nuttappin* I sit; *wetappu* he sits with him, etc. In Peq. *gētā'wī tūbō* = he is going to stay, for *wutubo* = 3d pers.

GERTUHMAH he sings (*g' tū'mā*), pl. *gertuhmāk* they sing = N. *ketuhom* he sings. This *ketu-gertuh* = Abn. *kadawī* seen in *kadawintōdit* they who sing. The original stem is evidently seen in N. *unnuham* he sings. Abn. *kadawintōdit* really means "those who wish (*kadawī*) to sing."

GERTUMKISH get up (*g' tū'mkish*)! The root is really *umki*; cf. Abn. *ōmiki*, arise, seen in *wā-ōmikin*; N. *omohku* he gets up. In Pequot also *nēgētūmkī* I arise.

NE-GETAHWE I am going (*nē-gītā'wī*). See GERTAKWISH. This is used exactly like the Abn. *kadawī*; cf. *nē g' tāwī gītātūtū* I am going to wash. *Gētāwī tūbō* = he shall stay.

GEYOMMON spoon (*gíyǝ'món*) = Abn. *amkuôn*; C. *kunnaum*, *quonnam*.

GIGETOOKER he talks (*gígètú'kú*) = N. *kekwtau* he talks, *kekewkau* he speaks well or is fair spoken.

GIGETOOKERWONG language (*gígètú'kěwǝng*) with the regular abstr. ending *-wǝng* = Abn. *ǝyan*, Pass. *-ǝgun*. Cf. N. *Indianne unnont-wuwaonk*, *hettuwonk* language, from *hettuog* they talk together.

GOGGEY depart, get out (*gōgī*) = Abn. *kwajek* outside; cf. *Am. Anth.*, v, 204. N. *pohguaddit* outside; RW. *puckquatchick*.

GOGGWON what (*gǝ'gwǝn*) = *chawgtwan*, q. v. Note hard *g* for *j*, a frequent occurrence in Pequot-Mohegan.

GOONE fallen snow (*gún*) = N. *kun*; D. *gún*; but Abn. *psǝn*. See SOOJPOH.

NE-GOONGERTOON I am thirsty (*ně-gǝ'ngétǝn*). Cf. N. *nukkokutun* I thirst.

GOONGEYOX cock, rooster (*gǝ'ngǝyǝks*). I seem to see a cogn. for this strange word in Stiles *kohunk* a goose? The N. word for 'cock' is *monshnǝmpash*. Abn. = *ahamǝ*.

GOONGOO, pl. *goongerwonch* stocking (*gǝngǝ, -wǝnch*). Stiles *cungo-wuntch* a stocking, but this form is plural. RW. *caukoanash* leggings, inan. pl.; D. *gagun*.

GOOPKWOD a cloudy day (*gǝ'pkwǝd*). The last element is *-kwod* day, seen in all the Algonquian idioms. I find no cognate for *gǝp*.

GORDUNCH take off, imv. (*gǝ'dǝ'nsh*), cogn. with N. *kodtinum* he draws off.

GOSH cow, pl. *goshenug* (*gǝsh, -enug*). Eng. loanword. Cf. Abn. *kaoz*.

NE-GOWWE I sleep (*něgǝ'wǝ*) = Abn. *kawǝ*; D. *gǝwǝin*; N. *koueu*. See COWISH.

GUNCHE big (*gǝnk'chǝ*). The *k*-sound pronounced but not written by Mrs Fielding is interesting, as it shows that this is a reduplication from *k'chǝ* big, great (all Algonquian). With *gunche*, cf. Abn. *kwontsi* and N. *kehshē*, in compounds *keht*, as in *Kehtannit* the great God.

GUNDERMON gentleman (*gǝ'ndǝmǝn*). Eng. loanword, valuable only as showing the Pequot hard *g* for *j*.

GUNG young. See GUNGUMB.

GUNGUMB young man (*gǝng-gǝ'mǝ*) is plainly a corruption of a form like N. *nunkomp* youth, from *nunk*-light + *omp* = man; seen in RW. *skeetomp*; Pass. *skitap* man. See GUNG-SHQUAWS.

GUNG-SHQUAWS young girl; corr. of N. *nunksqua*; Abn. *nǝxkwa*.

GUNGWEKSUMA somebody whistling (*gũ-gwĩksũmã*). This prefix may be an abbreviation for *chatogwon*? See GWEKSU.

GUNIUSH long, inan. pl. (*gũnd'ĩũš*) = N. *gunni*, Abn. *kweni*.

GUSHKERCHUNG spirits' light from punkwood (*gũškerčũng*). No cognate.

GWART quart (*gwãrt*). Eng. loanword.

GWEKSU he whistles (*gwĩksũ*) = Abn. *kikwso* he whistles and *kikwso-wõgan* whistling. See GUNGWEKSUMA.

GWUNNOG pestle (*gwũnsnãg*) = N. *quinahsin*, lit. 'a long stone,' from *gunni* + *assun*. See SUN.

HOXENUG oxen (*hõxẽnũg*). Eng. loanword. Cf. Abn. *aksen* an ox.

HUNGACHY handkerchief (*hũngẽchã'i*). Eng. loanword. Cf. Abn. *moswa*, from Fr. *mouchoir*.

HUZZEES horse (*hũzẽs*). Eng. loanword. Cf. Abn. *ases*; Pass. *ha-as*. Eliot has *horsesug*, pl., but the form *nahnaiyeumooadt* 'creature that carries' occurs in Natick. Cf. D. *nanayunges* (Heckewelder Correspondence, 402).

IKEKUZOO he works (*ĩkĩk'kũzũ*) = Abn. *aloka*; N. *anakausu* he works; *nuttanãkous* I work. Here again we have the elided *l-n* in Pequot. *ĩkĩ* = *aloka-anaka*.

IKUNZOO work (noun *ĩkũnzũ'*). See IKEKUZOO.

INCHUN Indian (*ĩnchũn*), seen in *Inchineen*, i. e. Indian man + *een*, q. v. Eliot has *Indian* which was no doubt pronounced *inchun*.

JEEM spirit (*jĩbã'i*) = Stiles *chepy*; N. *chippeog* ghosts; Nanticoke *tsee-e-p* a dead man; Abn. *chibai*; D. *tschipey*. All these words come from a stem *tsip-chip* to separate, i. e. a spirit is something separated from the body. The form *debe* (*dĩbi*) also occurs in Pequot with an approach to palatalization. See DEBE.

JEERICORNUG hell (*jĩbãĩkã'nũg*). This probably contains the elements *jeebi* and *ohke* land, i. e. spirit land. See DEBECORNUG, and cf. *Am. Anth.*, v, 203.

JEETS bird (*jĩts*) = Abn. *stps*, with palatalized sibilant and change of *p* to *t*. The N. was *puppinshaas*, from a different stem.

JOCQUEEN house (*jõkwĩẽn*). This is a most difficult word. In N. *chokquog* means 'an Englishman,' i. e. 'a knife-man,' with reference to the sword; cf. Oj. *kitchimãkumãn* 'big knife' = 'English.' On the other hand, Oj. *jaganash* 'Englishman' seems to be cognate with N. *chokquog* 'Englishman.' I am tempted to see in Pequot *jocqueen* the word for Englishman, i. e. *jõg* = the element for 'knife' = 'Englishman' + *in* 'man.' If the word really meant 'house' in Pequot according to Mrs

Fielding, it meant 'English house' as distinct from a wigwam. The regular N. word for house was *komuk* = Eng. house, but *wētū* was the Indian dwelling; cf. *nekick* my house RW.; Abn. *wigwōm*; Pass. *wigwōm*; Oj. *wigiwam*, all of which words contain the stem *wig-wik* dwell. Is it possible that *jocqueen* has this stem in the inverted *kwi*? — i. e. *jo-kwūn*? The whole question is doubtful and difficult.

JONNOW near? (*jēnā'ū*) is a doubtful word without cognate.

JOSHE so much (*jāshē*), as in *joshe goone* so much snow. Perhaps this is connected with Abn. *kasi* so much?

NE JOYQUATUM I am in a hurry (*nē-jā'kwātūm*). This must be cognate with D. *schawi* immediately; *schauwessin* he makes haste. I can find no other cognate.

JOYQUISH be quick (*jōikwū'sh*) is evidently the imv. of the above.

JUNI crazy (*jūnd'i*) seen in *juni shquaaw* a crazy woman. No cognate.

JUNUM a crazy man (*jūnd'iūm*). See JUNI.

JUWHYUSH anything warm, really 'warm yourself' (*jūwōd'iūsh*) is perhaps cognate with Abn. *awazi* warm yourself.

KEE dirt (*kī*) = Abn. *kī*, *akt*; N. *ohke*.

KEEDERSU he reads (*kē'dūsū*) = N. *ogketam* he counts the letters, i. e. reads; Abn. *agida* count, read.

KEEG ground (*kig*), locative of *kee*, q. v. Cf. Abn. *kik* in the earth.

KEENUNCH carry (*kē'nūnch*) = N. *kenunnum* he bears it.

NE KEOWHIC I desire, want it (*nē-kid'wīg*). This also means 'I must.' This must be the Pequot form of N. *quenauat* it is lacking, with elision of the *t* as usual.

KERCHUSH hay (*kūchū'sh*). This is the real word for 'hay,' cogn. with N. *moskeht*; C. *askusque*; Abn. *mskikw* grass. In *kūchū'sh* we have a metathesis *k-ch* = *s-k* in the other Algonquian words. See CHUGGUNCHE.

KERMUMPSH NE you look at that (*kūmūmsh nī*) = N. *womompsk* look down; *moneau* he looks at him. All these stems are cognate with *nam* see. See NAWAH.

KIYO WETUN cold wind (*kē'yidū wētū'n*) = Abn. *tka*; Pass. *tke*; RW. *tahki*, *tatakki*. See WETUN. *Kiyo* also occurs in *kiyo zoogeryon* cold rain = Abn. *tka zoglon*. See ZOOGERYON and TERIVO.

NE-KÖNŪM. I see. See NERMU.

KOUNKETOUN cider (*kū'nkitūn*). See CIDI. Probably cogn. with *goongertoon*, q. v.

GER-KUB your hat (*gēkū'b*) must be Eng. loanword from 'cap.'

KUNCHERCHEE only a little (*kū'nchēchē'*), also *chū'nchēchē'* = N. *oguhse*; C. *ogkusse* a little.

KUNDEES leg (*kūndl's*). Probably diminutive for N. *muhkont*; RW. *wuhkont* his leg; Abn. *ukōd* his leg.

KUNNUNG head (*kū'nūng*). This means also 'face, appearance.' No cognate.

LADEES lady (*lēdis*). English loanword.

MA sign of the past tense, as in *ne-ma-mud* I did not (*mā*). It also precedes the verb, as in *ma-ne-tish* I went. This *mā* may be an abbrev. of a form like N. *mahche* it has passed away, which appears in the form *mesh*; cf. *tashin mesh commaug* how much have you given? D. *matschi* already.

MANODAH a basket (*mānū'dā*); *n'manodah* = my basket. This is really 'a bag'; N. *manud*; Stiles *munnoigh*, probably pl.; Abn. *manoda*. See BAGENOOD.

MEECH eat it, imv. (*mits**) = N. *meetsu* he eats it; RW. *metesimmin*; D. *mitsin* in *kdapi mitzi* have you eaten enough? Abn. *n'mitzi*.

MEEJO he eats it (*mī'jō*), seen in *n'meejo* I eat it. See above MEECH. Also *germeechyowon* = you eat it; *n'meejunne* I eat it.

GER-MEESH in *ma ne germeesh* I did give you (*g'mīl*). Cf. also *mus ne germeesh* I will give you. In *germeesh*, we have the *ger* of the 2d pers. (q. v.), which always has the precedence in Algonquian, + the root *mee* give = Abn. *γ' mil* seen in *n'milgon* he gives me. Cf. N. *magis* give thou; RW. *mauks*. In Pequot the form *meezum ne* 'give me that' (*ne* = that) also occurs (*m'ūm nī*) = Abn. *mili* give me.

MEGEESHKUDDU he is lazy (*mīgishkū'dū*). The root is probably *geesh* seen in D. *gicht-amen* he is lazy; cf. Oj. *naegatch* slowly (?).

MEGERCHID dung (*m'gēchld*), undoubtedly cognate with Abn. *magwi* dung.

MEGWON feather, quill (*m'gwōn*) = N. *megun*, Abn. *miguen*, D. *migun*.

MEKEGOO he is strong (*m'kigū*) = Abn. *mīkigō* he is strong, with loss of *i* in Pequot. Cf. N. *menuhki*; RW. *minikon* strong.

MERDUPSH sit down (*mū'dūpsh*) imv. = RW. *māttapsh yōteg* sit by the fire; N. *nuttappin* I sit.

MERKEAHWEES little boy (*mō'klā'wōts*). The common word is *muckachucks*, q. v. The first element in *merkeahwees* seems to be identical with that seen in *muckachucks*.

NE MERKUNUM I pick, gather (*nē-mā'kūnūm*) = N. *mukkinum* he gathers. Seen in Abn. *magamōldimuk* the place where they gather.

METOOG tree, stick (*mī'tū'g*) = D. *mehitt'gus* a twig; Stiles *a'tucks*; N. *mehlug*.

MINSHKUDAWĀPŪ whiskey. Brothertown word. Corr. of Oj. *ish-kotewabo* firewater.

MISHIAN little rain (*mishāiān*). ND. 212 gives *mishinnon* great heavy rain. Perhaps *mishian* means a shower, i. e. a heavy but short rain; hence Mrs F.'s definition as 'little rain.'

MOHEEKS Mohegan, pl. *moheekseenug* (*mōhīks-inūg*). This word also appears in the pl. form *Muheeganing* (see *Am. Anth.*, v, 193). The word may be derived from *makhaak* great and *hican* tide-water (D.). It was first used to denote the Hudson River Mohicans and later applied to itself by the mongrel colony at Mohegan.

MOISH hen (*mōish*) = N. *mōnish*. Here again we note the Pequot elision of the *n*.

MOISHOCKS chickens (*mōishāks*) dim. of *mōish*, q. v.

NE MOOCHINA I am sick (*nēmū'chīnā'*). This is cogn. with N. *machinau* he is sick; Abn. *machina* he dies, but note that in Pequot *mūchūnū* means he perishes, *Am. Anth.*, v, 206. See MUTTIANOMOH and MUCHUNU.

MOOSKUT anus (*mū'skūt*), distantly cognate with Abn. *wobeskuan* his back; cf. N. *muppusk* back.

MOW he cries, weeps (*māū*, sometimes *māwī*) = N. *mau*; C. *mou*; RW. *mauo*.

NE MOWE SUSMO I am coming to meeting (*nē-mā'wī-sūsmō*). *Ne-mowe* I go must be cognate with N. *āmū* to go; also *ām*, ND. 267. See SUSMOH.

MOYGOOWOG bad witches (*mōigū'wōg*), perhaps = RW. *mannētū*, i. e. *maune* or *manne* = *moy* in Pequot. Cf. D. *mallikuwagan* conjuration.

M'TARWE much very (*m'tāwī*).

MUCHUNU he dies (*mūchūnū*) = Abn. *machina*. See *Am. Anth.*, v, 206 and s. v. MOOCHINA.

MUCKACHUCKS boy (*mū'kāchūks*) = N. *mukkatchouks*; RW. *muck-quachucks*; Stiles *muckachux*. See MERKEAHWEES.

MUD not, no (*mūd*) = N. *matta*, *mat*; RW. *mattuks*; D. *makhta* also shortened to *ta* in D. This is a cognate with Abn. *onda*; Pen. *anda*. Pequot *mud* is always prefixed to the verb. See MUDDER.

NE MUD my brother (*nēmū'd*) = N. *wematoh* his brother; *neemat* my brother.

MUDDER no (*mū'dū*). This is exactly equivalent to N. *matta*.

MUDDORPOH he curses (*mūdā'pā*). Seen in *muddorpohtwor* he speaks evil. With *-wo*, *-wa*, cf. Abn. *-ond'wa*; Pass. *aduwe* speak. *Mud* in these compounds = *mutshe* bad, *Am. Anth.*, v, 205. N. *mattanumau* he curses him; Abn. *majalmukworo*, *machdonkat* he curses.

MUDJOG GOONE the snow is gone (*mūjā'g gūn*). *Mūjā'g* = verb 'to go'; RW. *mauche*, Abn. *mōji*.

MUD-SHQUONU dull (*mūd-shkwō'nū*), lit. 'not sharp.' See SHQUONU.

MUGGAYASHA breathing hard (*mūgāyā'shā*), a combination of *mug-gayōh* big, q. v. + N. *nashauonk* breath, from *nahnasha* he breathes; Abn. *nasa* he breathes, *nasawan* breathing.

MUGGAYOH big (*mūgā'yō*) = N. *mogki* 'great' used in comparison. This N. *mogki* appears in the well-known word *mugwump* = N. *moge-womp* a great man, a captain. Cf. D. *machweu* large; Abn. *mahsihōmuk* one makes large.

MUKUS shoe (*mū'kūs*, pl. *-unsh*) = *mokus*, pl. *-enash*; Stiles *muckasons*; Abn. *m'kezenal*; Pass. *m'kussenul*.

MUNDETAR Monday (*mondētā*). Eng. loanword.

MUNDONOG heaven (*mündōnā'g*), from *Mundo* God, q. v., a very difficult compound. See *Am. Anth.*, v, 203.

MUNDU God (*mūwū'ndō*) = Stiles *mundtu*; N. *manit*; D. *manitto*; RW. *manittowock*, pl.; Abn. *madahōdo*, from the same stem 'devil.'

MUNEESH money (*mūnē'sh*). Eng. loanword. Cf. Abn. *mōni*.

MUS sign of the future (*mūs*). In N. *mos* means 'must.' Eliot has *mos* and *pish*, both for 'shall' or 'will,' but he distinguishes between them, saying that *mos* is obligatory and *pish* the pure future. RW. has *moce* in *mocenaneepcam* I shall come, and *mesh*. In Pequot *mus* is prefixed to the verb form, as *mus ne beyōh* I am coming (*mūs nē-biyo*).

MUSKERZEETS beans (*mūtkēzē'ts*) = Stiles *mushgissedes*; but N. *tup-puhkwamash*; Abn. *tebakwal* from quite a different stem.

MUTAHGA he dances, pl. *mutahgahk* (*mūtā'gā*) = RW. *ahque mat-wākesh* do not dance; *matwakkakonk* they are dancing, perhaps the war dance? Cf. RW. *matwan* enemy. I do not believe there is any connection here between "enemy" and "dance."

NE MUTCHETUM I spoil it (*nē-mū'tchitūm*), from *mutchi* bad; Abn. *maji*. See MUTCHI, MUTSHER.

MUTCHI bad (*mūchi*) = Abn. *maji*, N. *matche*.

MUTSHER it is spoiled, bad, said of eggs (*mūchū*). See MUTCHI.

MUTTIANOMOH sick (*mūtā'iānōmō*) = *mud* + *tāiā'nū* he is not in health. See NOOGER.

MUTTOUNBE pack-basket (*muttū'mb*) = Abn. and Pen. *madōbe*. This is the original of the Canada-English expression 'thump-line,' referring to the rope passing over the forehead of the carrier, by means of which these baskets are borne.

MUTTUDIAZOO he is ugly, hideous (*mūtūdiā'sū*). The first element

is *mut* bad, from *mutchi*. The word is compounded of *mut* + *udia* + *zu*. The middle element *udia* is cognate with N. *uttae* wofully, the same stem seen in Abn. *n-udaldam* I am sorry. The ending *-zu* is the regular reflexive, seen in Abn. *akwamalso* he is sick.

MUTTYWOWOG good many (*müttwōd'wōg*), from same stem as N. *mut-tae* many. Cf. M'tARWE.

NĀGUM he, she, it (*nā'gūm*) = Pass. *nēgūm*; N. *nāgum* (Eliot and C.); D. *neka*, *nekama*; Abn. *ag'ma*. See *Am. Anth.*, v, 206.

NE NAWAH I saw him (*nē-nā'wōd*), same stem as Abn. *namiō* he sees him; N. *naum*; Pass. *nim'iu* he sees him. See NERMU. *Nawah* really means 'know.'

NE I (*nē*, or before verb-stems *nā*). This is a common Algonquian heritage. Cf. N. *neen*; Abn. *nia*; Pass. *nīl*; D. *nin*; Oj. *nin*, etc. See GE.

NE demonstr. pronoun 'that' (*nē*) = N. *ne*; Abn. and Pass. *nī*. See NISH.

NEBEECH woods (*nēb'ch*) occurs with loc. ending *-ug*. I believe Mrs F. is wrong in this word's meaning. *Nebeech* can only mean 'lake' and not 'forest.' Cf. Abn. *nebes* lake and especially N. *nipisse* lake.

NEDI there (*nē'dā'i*) = Abn. *nī-dālī* with elision of *l*. See *Am. Anth.*, v, 204. The N. word for 'there' was *na-ut* in that place, with loc. ending *ut* = *ūk*, *ūnk* in the other Algonquian dialects.

NEES two (*nīs*) = N. *neese*; Abn. *nīs*; Stiles *naese*, *neese*.

NEESWEEK fortnight (*nīs'wōik*). A hybrid from *nees*, q. v. and Eng. 'week.'

NEGUNNE gone first, really before (*nē'gōn'*) = N. *negonuhkau* he goes before; Abn. *nikōnta*; Pass. *nikani* before, in front. Abn. *negōni* also means 'old,' 'aforetime.' In Pequot I find the form *negun-neesh* go before, used as the inv. of a verb.

NEITSISSIMOŪ tobacco (*nīs'i'simū*). Brothertown word. Corr. of Oj. *asema*.

NEKĀNIS my brother (*nēkā'nīs*), a Brothertown word, taken from Oj. *nikanisi* my brother.

NENEQUDDER never, ever (*nēnikwū'dū*) is cognate with Abn. *nikwōōi* now.

NENERTAH that is mine (*nē'nā'tā'*). This stands for *nē* = 1st pers. + *na* that + the demonstrative element *-ta*. Cf. *nē gētū* that is thine, and see WOTOHEESH. N. *nuttaihe* = it is mine.

NEPOW five (*nēpū'*) = Stiles *nūppau*; N. and RW. *napanna*.

NEQUT one (*nēkwū't*) = N. *nequt*; RW. *nquit*; Stiles *nuquut*; Moh. *ngwittah* (Edwards); Pass. *neqt*; D. *ngutti*.

NE NERMU I see (*ně-ně'mūn*). This really means 'I see him.' Cf. *nawah* and Abn. *n'namid* I see him; Pass. *n'nim'io*; N. *ndum*; RW. *kunnunnous* I saw you. The form *nawah*, q. v., is probably a by-form of this stem. The *n* seems to be inherent in Algonquian dialects of the eastern coast. Cf. also D. *nemen*. The form *někōnūm* 'I see' looks suspiciously like the demonstrative *ne* + *kenaum*, 2d pers.?

NERPO he dies (*nūpā'*) = Abn. *nehowi*, *n'bowōgan* death. Cf. N. *nuppuwonk* death and *nuppu* he dies.

NERTERNEES my daughter (*nōtōnts*) = N. *wut-taun-oh* his daughter; Oj. *nin-daniss*; Abn. *nd-osa* 'my daughter' is clearly a distant cognate from the same stem.

NE NETUN I desire, want (*ně-nitū'n*) = N. *kodtantum* he desires.

NEZUSH seven (*nězū'sh*). Stiles has *nezzaugnsk*; N. *nesausuk tah-she*; D. *nischasch*. It looks as if *nezush* were a Mohican form, owing to the D. *nischasch* which it resembles more closely than the N. E. forms. The Narr. had another stem to denote this numeral, i. e. *enada* seven.

NICHIE my brother (*nichl'*). Brothertown word = Abn. *nijia* my brother.

NISH inan. pl. 'those' (*nish*), pl. of *ne* that, q. v. The N. has *ne*, pl. inan. *nish*.

NON in the following compounds = the word given by Stiles as *naubut* and has the meaning of multiplying and also of adding: NOBNEBIOG twenty (*nābnibā'ioḡ*); Stiles *piugg naubut piugg* ten + ten; see BIOG. NOBNEBOZUKUKWONG nineteen; see BOZUKUKWONG. NOBNECHEWEE thirteen; see CHEWEE. NOBNECHEWEEOSK eighteen; see CHEWEE-OSK. NOBNECUDDUSK sixteen; see CUDDUSK. NOBNENEES twelve; see NEES. NOBNENEPOW fifteen; see NEPOW. NOBNENEQUT eleven; see NEQUT. NOBNENEZUSH seventeen; see NEZUSH. NOBNEYOW fourteen; see YOW. NOBNENEBOZUKUKWONG twenty-nine; note the double *ne*; I do not understand these forms; see BOZUKUKWONG. NOBNENECHWEE twenty-three; see CHEWEE. NOBNENECHWEEOSK twenty-eight; see CHEWEE-OSK. NOBNECUDDUSK twenty-six; see CUDDUSK. NOBNENENEES twenty-two; see NEES. NOBNENENEPOW twenty-five; see NEPOW. NOBNENENEQUT twenty-one; see NEQUT. NOBNENENEZUSH twenty-seven; see NEZUSH. NOBNEZYOW twenty-four; see YOW.

NER NOHWA I know (*ně-ně'wā*) = N. *waheau* he knows, *nuwateo* I know. See ND. 285. Cf. Abn. *n'wawawinōwō* I know him. See NAWAH.

NOODASHA not enough (*nū'dāshā*) is perhaps equivalent to N. *noadt* afar off = Abn. *nōwat*?

NOOGER TIANER how are you? (*nā'gūtāiā'nū*) = N. *nūgeu* so far as, so much. I believe *nooger* contains the same element as that seen in Abn. *paakui-nogw-sian* how are you?

NORNER my grandmother (*nā'nū'*). Is this cognate with D. *ohum* grandmother? The N. has *ukummes* which is well known in Oj. *nokomis* my grandmother. See OOGERNOS.

NORNUNG my mother (*nā'nū'ng*). I can find no cognate. Abn. has *nigawes*; Pass. *nigtous*; RW. *nokas*; D. *okasu* his mother. The Oj. *ninga* 'my mother' is nearest to *nornung*.

N'SHUH he kills (*n'shūh*). Cf. N. *nushau*; RW. *niss*; Abn. *w'niklō* he kills, murders him. The Abn. form is only distantly cognate, if at all.

NUK yes (*nūk*) also *nūks*. Stiles gives *nux* which Exp. Mayhew states was really pronounced *nukies* in two syllables. RW. also has *nūk*. See NYE.

NUNCHEDUSH go after, inv. (*nū'nhidūsh*). I find in N. *natinneham* he seeks after. Is this cognate?

NUNEBISHKOOT bad (*nūmbā'ishkūt*), an error for *noombishkoot*. This is cognate with Abn. *eskwai*; i. e. *āshkū* = *eska-wai*.

NUPPE water (*nūpt*) = N. *nippe*; Abn. *nebi*; Stiles *manippēno* have you no water?

NUTTEAH dog (*nā'ttā'*) pl. *nutteahsug* (*nā'ttū'sūg*). This is pure Pequot; see De Forest p. 491, where the doubtful form *ndijau* 'dog' is given as coming from the Hudson River Mohican. In N., however, we find *anum*; RW. *ayum*; D. *allum*; Abn. *alemos*; Pass. *ul'mūs*, all cognates together.

NYE yes (*nāi*). See NUK.

ORBUD he is, he being (*ā'būd*) = Abn. *abit* where he sits. Cf. N. *appit* where he sits, from *appu*.

G-OOGERNOS thy grandfather (*gū'jēnōs*). The pronunciation *gū'gēnōs* with hard *g* is also given by Mrs F. This form makes me suspect a relationship with the Oj. *kokummes* thy grandmother = D. *muchomes*; Abn. *mahom*. See NORNER.

OOPSGS hair (*ūpsks*). I do not believe that this word means 'hair,' but 'back'; cf. N. *uppush* 'his back,' from *muppush*, ND. 70. In N. 'hair' is *meesunk*; RW. *wesheck* his hair. The Abn. *wduphuan-ai*, pl. 'hairs' from *mdup* head; N. *muppuhkuk*. This is a different stem.

OOSH his father (*ūsh*) = N. *ushoh* his father, literally 'the one from whom he comes'; see WOCHI. Cf. D. *ooch* and see *Am. Anth.*, v, 209.

ORNEEKS given by Mrs F. as 'mouse,' but probably the equivalent for any rodent; cf. N. *wonogg* a hole, burrow; Abn. *wōlakw* a hole.

The word is pronounced *á'niks*. The last part of the word *-iks* may be cognate with Abn. *wóbikwos* mouse. See SQUONNEKS.

ORSEED river (*á's'á'd*). I can find no cognate here.

ORWON who, someone (*á'wón*) = N. *howan*; Abn. *awani*; Pass. *wen*; Pen. *aweni*; D. *awenen*; Oj. *awenen*.

PAPOOSE child, baby (*pá'pús*) = RW. *papoos*; Stiles *puppous*; N. *papeases*. The word is evidently a reduplication of *pea* 'little,' seen in Abn. *piusessit* he is little.

PEORMUG fish, pl. (*pí'ámá'g*). This must mean 'a little fish,' i. e. *pí + á má'g*. Cf. N. *mogke-amaugq-ut* 'great fishes,' where *amaugq* = fish. See the next.

PEORMUG CHAW to fish (*pí'ámá'g chá*). The N. form for 'fishermen' is *negomá'cheg*; RW. *aumá'chick*. For *amag*, cf. Abn. *nd-aman* I fish; RW. *aumauí* he fishes.

PISKUT penis (*pí'shkút*). No cognate.

GER-POONCH you shut (*g'pá'nsh*). The stem is *pán* = N. *ponum*; inv. *ponsh* put thou. Abn. *nbenumun* I put it. In Pequot also the inv. *páunú'ch* 'put it' occurs. Peq. *n'pánum* = I laid down something.

POSSER light rain, drizzle (*páshá*). No cognate.

POYANTUM he starves (*pó'yú'ndum*), probably a distant cognate with N. *paskanontam* he is starving? See YUNDUM.

PUDEENCH arms, inan. pl. (*púd'l'nsh*) = RW. *wuppitténash* his arms; N. *muhpít* arm; Abn. *upedin* his arm.

NE PUDDUM I hear (*népúdum*) also *wopuddumun* he hears, *Am. Anth.* v, 206. This is identical with Abn. *podawasina* let us take counsel. Cf. D. *pendamen* he hears. The N. for 'hear' is *nutam* = Abn. *nodam* from another stem.

QUAHAUG clams (*kwá'há'g*) = RW. *poquauhock*; Stiles *pouhquahhaug*, *piquaughhaug*, clams. This is the round clam = *Venus Mercenaria*. Note that Mrs F.'s form has lost the *p*-prefix.

QUINNEBAUG long pond (*kwí'nébá'g*) = Abn. *kwenóbagak* from *kwenó* long + *baga* water, pond, only in composition. In N. the ending *pog-paug* has the meaning 'water,' 'lake' in composition.

QUDDUM he swallows (*kú'dum*). In N. we find *qusséashk* he swallows; Abn. *kwazildmuk* one swallows. See QUDDUNG.

QUDDUNG throat (*kú'dung*) = N. *mukgutunk* throat; RW. *quttuck*.

QUGGEY he tries (*kú'gi*) = N. *qutchehtam* he tries; Abn. *n'gwagwaji* I will try.

NE QUNNA I catch (*nē-kú'nú*) = N. *tohgunau mosquoh* he catches a bear; D. *achquonnan* he catches with a net.

QUOGQUISH run, inv. (*kwā'gkwish*) = Stiles *koquish*; RW. *quogquish*, *quogquetu* he runs.

QUOJUG out of doors (*kwā'jūg*) = N. *po-quadeche* outside; RW. *puck-quatchick*; Abn. *kwajemiwi*; Minsee *quotschemink*.

GER-QUOMMUSH he will bite you (*gūkwō'mūsh*). In Oj. I find *nin takwange* I bite. Is this a cognate? *Kwange* = *quom*?

QUONWEHIGE it frightens me (*kwōñwihāig*) must be cogn. with N. *queihtam* he fears. The Pequot form should have *n*-prefix; thus, *ne-quon-wehige*, to denote the 1st pers.

QUOTSTUMPSH taste, inv. (*kwūtstū'msh*) = N. *quetchtam* he tastes. The *-p* in Mrs F.'s form is unnecessary. Cf. also in Pequot *ne qutsh-tumun* (*nē-kūchtūmūn*) I taste some, with the definite ending *-un*.

QUTSHETUSH wash yourself, inv. (*kūchtūsh*) = N. *kutchissitau* he washes himself; *kutchissumwush* wash thyself; D. *kschieche*; Abn. *kasebaalēmuk* one washes.

QUTSUG lice (*kū'tsūg*). This in N. was *yeuhquog*. *Kuts* in N. = a cormorant!

SABASHAH it melts (*sābā'shā*) = N. *sabohtean* it melts, from *sabae* it is soft.

SEBOOD anus (*sēbō'd*). I find this also in the River Mohican word *sepūtā* preserved by James Harris of Kent, Conn. It has as its cognate D. *saputti*.

SEEBOIS a little brook (*sē'bōis*) = N. *sepuese* a little river, with dim. ending *-eese*, is.

SEEBOOG brook (*sē'bāg*). This is really a pl. = rivers. Cf. N. *sepuash*, inan. pl.; Abn. *sibo-al*.

SEDUSH feet, inan. pl. (*sē'dūsh* and *sē'dūnsh*) = N. *musseet*; Stiles *cusseet* thy foot; Abn. *mezid*.

SEGUISH come in! (*sūgwē'sh*). No cognate, unless it is connected with *shquond* door, entrance, which is probable. See SHKWUND.

NE SEWORTUM I am sorry (*nē sēwō'tūm*) = Abn. *n'siwa'tum*.

SHENEE that (*shēnē'*). The last element is the demonstr. *nē*, but I cannot find *sh* anywhere.

SHKOOK snake (*shkūk*) = N. *askuk*; RW. *askug*; Stiles *shoogs*. Speck found *shkook* in the mouth of a Poospatuck Indian near Bellport, L. I. Cf. Abn. *skog*; D. *achgook*.

SHKUNSH bones (*shkūnsh*), inan. pl. of *shkun* = N. *muskon*, pl. *muskonash*; D. *wochgan*; Abn. *uskan*.

SHKWUND door (*shkwūnd*) = N. *squont*, *squontam*; RW. *squontāumuck* at the door; D. *esquande*. Anthony says this means 'the threshold'; rather than 'the door.' This harmonizes with *seguish*, q. v. The Peq. loc. is *shkwūndā'g*.

SHMOKERMAN white man (*shmō'kēmūn*). A Brothertown word = Oj. *kitchimūkēmān* big knife.

SHPUCK meat (*shpūk*). A Brothertown word, with no cognate. All other Algonquian idioms have *wias* in some form. See WEOUS.

SHQUAAW woman; pl. *shquaawwsuk* (*shkwā*) = N. *squaas*; C. *eshqua*; RW. *squaws*. The forms are undoubtedly connected with the D. *ochqucu*; Oj. *ikwe* and Pass. Micmac *ēpit*. The meaning of the stem was the prepuce. I see in Mohican *pghainoom* the same stem inverted, which appears also in Abn. *pehanum*; N. *penomp* virgin. There is of course no connection between Abn. *pehanum* and Fr. *femme*, as Trumbull thought.

SHQUAWSEES a little girl (*shkwāsis*) = Narr. *squahsees*; D. *okhquet-schitsch*.

SHQUONU sharp (*shkwō'nū*) = Abn. *skuahigen* it is sharp. Cf. also N. *kēna*, *kēneh*; D. *kihneu*, *kihusu*.

SKEEDUMBORK people (*shkē'dūmbāk*) = N. *woskētomp*; RW. *skeetomp*; Pass. *skētap*. The ending *-omp*, *-ap* appears as *-āpe* in D. and as *ōba* in Abn. See *Am. Anth.*, v, 203.

SKEESHU quick (*shkē'shu*) = Oj. *kejidin*.

SKEESUCKS eyes (*shkē'sūks*) = N. *muskezuk*, *muskezuk* my eye; RW. *wuskeesucks* his eyes; Stiles *skeezucks*; Abn. *msinukw* eye, face.

SKUNX skunk (*shkūnks*) = Josselyn *squnch*; Abn. *segōgw*; Oj. *shi-kaug*, hence Chicago 'place of skunks.' The Pequot of Stiles was *ausowush*, from a different stem.

SKWISHEGUN head (*shk'wēshēgūn*). Brothertown word. The nearest to this is Oj. *oshtigwan* his head. The connection is doubtful.

GE SOOJEPOOG neck (*g'sū'jēpūg*). This is really 'your-neck.' Cf. N. *mussittipuk*; RW. *sitchipuck*, *wussittipuk* his neck, pl. = *-anash*.

SOOJPOH snow falling (*sū'tspō* and *sū'jpo*) = Stiles *souch'pon*; RW. *sochepunch* when it snows; Abn. *pson* with metathesis. See GOONE.

NE SOOKEDUNG I urinate (*nēsū'kidūng*) = Abn. *ngade-rugi* I want to urinate; N. *noh sagkeet* he who urinates. From the same stem as Abn. *sognem* he pours out; N. *sokinnum*.

SOOKTASH succotash (*sū'ktāsh*) = RW. *msichquatash* corn (pl.) boiled whole; *msukquttahha3* things (inan.) beaten to pieces, from *sukqut-taham* he beats.

SOOME too much (*sū'mī*) = N. *wussaume*; C. *wussomme*; Abn. *uzōmī*; D. *wasamī*.

NE SOSUNNE I am tired (*nē-sā'sūnī*); also *gēsā'sūnī* 2d pers., and *sā'sūnī* 3d pers., *Am. Anth.*, v, 207. Cf. RW. *nissowanishkaumen*;

Abn. *n'sao'to* I am tired. The Pequot form is a reduplication of N. *sauunum* he is tired.

SQUAYOH red (*skwā'io*); N. = *musqui*, *msqui*; RW. *msqui*; Abn. *mkui*; D. *machkeu*. Stiles gives a curious form with *p*, i. e. *mes'piou*. *Squayoh* has lost its *m*.

SQUONNEKS red squirrel (*skwān'ks*); Stiles *shenneague* and *m'ushanneege*; RW. *anequs*. See ORNEEKS. In Abn. *anikwses* = a striped squirrel. The old word was probably pronounced with *r* as is so often the case, i. e. *squorrecks*. The first syllable is from *squayoh* red, q. v.

SUGATUCK negro (*sū'gātūk*). Probably pl., i. e. *sukit* he who is black + *uk*. In RW. *sucki* is black = Abn. *mkazawit* a black man. See SUGGAYOH.

SUGGAYOH adj. black (*sū'gā'yō*). See SUGATUCK.

SUN stone (*sū'en*) = N. *hassun*; D. *achsin*; Abn. *sen*; Pass. *s'n*.

SUNJUM sachem (*sū'njūm*) = Narr. *saunchim*; Stiles *sunjum*; N. *sachim*, from which the Eng. sachem. Cf. Abn. *sō'gmō*; D. *sakima*.

SUNKATIDDEYORK stingy ones (*sū'nkāfid'iyā'k*) pl. = RW. *sun-nukehteau* he crushes, *sunnuichig* a crushing instrument. Cf. Abn. *nesekekenemen* I press it. The same idiom prevails in colloquial English when one speaks of a 'close' man.

SUSMOH meeting (*sū'smō*). No cognate.

TAH heart (*tā*) = N. *metah*, *nuttah* my heart; D. (Heckewelder) *wodee* his heart; Moh. (Edwards) *utoh* his heart.

TAHBUT NE thanks (*tā'būt nī*); Lit. thanks for that = *nī*. Cf. N. *tabuttantam* he is thankful; C. *kuttatōtomish* I thank you, from *tapi* enough, sufficient + *antam*, denoting a mental condition. It literally means 'to be satisfied.' The same idiom prevails in Arabic and Turkish *ana memnūn* (Ar.), *memnūnim* (Tk.) I am content, i. e. thank you.

GER-TEE you do (*gētl*). Same stem as in Abn. *kizi-t-o* he does; N. *wuttussen* he does so.

TEECOMMEWAAS a family name (*t'kū'mwās*). This name is said to mean 'striker' and probably correctly. Cf. N. *togku* he strikes, and see s. v. DUKWANG. I cannot explain the ending *-waas*.

TEKIYO cold (*t'kā'iyō*) = Abn. *tka*; Pass. *tke*; RW. *taquonck* autumn. Note RW. *tupu* frost with *p* for *k*. See KIYO.

TETE rap-rap, used in a story to indicate the sound of knocking (*tī-tī*).

TIANER. See NOOGER (*tāiā'nū*).

NE-TIATUM I think (*nē-tāiū'tūm*) probably for *taiantum*. Cf. the N. *-antum*, denoting a state of *mind*, as in N. *nuttentantamun* I think it; in Abn. *ndelaldam*. See YERTUM.

TIONDEES liar (*tā'iond's*), probably connected with *talantum* ?

NER-TISHOR I went (*nē'ti'shā*); the last part is evidently *au* = go, ND. 267-8, perhaps = N. *ussishau* he hastens.

TORDUS potatoes (*tā'dūs*). Cf. Abn. *padates*. Eng. loanwords.

TOWUG ears (*tā'ūwūg*) = N. *mehtauog*; Stiles *kuturwaneage* your ears, from *wakteau* he perceives. Cf. Abn. *watawagwit*; D. *whittawack*.

TUDDUM he drinks (*tū'dūm*) = N. *wuttāttam* he drinks; *wuttattash* drink thou, inv.

TUGERNEEG bread (*tū'gēnig*) = RW. *petukqueneg*.

TUGGUNG axe (*tū'gūng*) = N. *togkunk*, lit. 'a striker' from same stem as *teccommewaas*, q. v.; also see DUCKWONG.

TULEPAS turtle (*tū'lipās*) = Abn. *tolba*; Old Abn. *turebe*. This stem is not in Natick.

NE TUMERSUM I cut (*nē-tū'mēsūm*) = N. *tummusum* he cuts it off. Same stem as *tamahigan* an axe (Abn.).

TUMOUNG a pipe (*tūmū'ng*) = Stiles *wuttummunc*; Abn. *wadamon* tobacco.

UMBUSK medicine (*ūmbū'sk*). Cogn. with N. *moskeht*; RW. *maskit* ? Or does *umbusk* contain the root for water (*nuppe*, q. v.), as in Abn. *mbizonal* medicines.

UMKI. See GERTUMKISH.

UMSQUE blood (*umskwe*) = RW. *mishque*; N. *musquehonk*. This word contains the stem 'red.' Cf. D. *mehokquish* bloody.

UN is the definite ending in verbs, as in Pequot *nepuddumun* I hear it, but *nepuddum* simply 'I hear.' Cf. Abn. *n'wajonem* I have, but *n'wajonemen* I have it.

UNDI then (*ūndā'i*). See *Am. Anth.*, v, 207.

UNGERTUG dark, cloudy (*ū'ngūtūg*) = RW. *mattaquat*; N. *matokqs* cloud.

UNGOOZE pray, not in N. (*ūngūz*). Note ad pers. *g'ōngūz*, *Am. Anth.*, v, 206. Cf. Abn. *winawōnz-wigamigw* a house of prayer; D. *wundangunsin* he prays for him.

UNKSHOH he sells (*ū'nskshā*) = Abn. *onkohlōmuk* one sells.

UNKUPE rum (*ūnkūpl'*) = Abn. *akwbi*; N. *onkuppe* strong drink.

WAHEAYOH windy (*wābā'yō*) = N. *waban* wind. See WETUN. In N. we find *waapu* and *waabeu* the wind rises.

WAHSUS bear (*wā'sūs*) = Abn. *awasos*; Pen. *awesos*; N. *mosq*. Stiles gives a word from an entirely different stem; viz., *ahawgwut*.

WEBUT his tooth (*wē'būt*); RW. *weepit*; N. *weepit* his tooth; Stiles *meebut*, the original form = Abn. *wibidal* teeth; D. *wīpit*.

WEECHU he laughs (*wē'chū*). No cognate.

WEEGWASUN good-morning (*wēgwā'sūn*). This is the common Mohegan-Pequot salutation. It probably means 'may you live happily' from the root *wig*. I do not understand *weegwasun* as it is given by Mrs F. Not in Natick.

WEEKCHU he is handsome (*wēk'chū*). Same stem as *wēktūm*. See NE WEEKTUMUN.

WEEKSUBAHGUD it is sweet (*wēksūbā'gūd*). Cf. WEEKCHU. See N. *wēkon* sweet.

NE WEEKTUMUN I love someone (*nē-wē'ktūmūn*). From the same stem as Abn. *n'wigība* I would like, really 'I love it.'

WEESHAWGUNSH they are hairy (*wē'shā'gūnsh*). This seems to be an inan. pl. It should be *wishagunuk*. Note Mrs Fielding's monstrous combination *weeshawgunsh wōnnūxāg* hairy whiteman. Cf. N. *uweshaganu*.

NE WEESHKERNUM I make a bed (*nē-wē'shkūnām*). This is partly connected with N. *kukenaume* he puts in order, i. e. *kunu* = the last part of *weeshkernum*. The *weesh* may be for *wuleesh* good, well. In Abn. *walītebahlōmuk* one arranges.

WEEWACHERMUNCH corn (*wēwā'chēmūnch*) = N. *weatchimin*; Stiles *wewautchimins*. The *-sh* in this word is the inan. pl.

WEGATUH it is done (*wē'gātū*). No cognate.

WEGOO it is clear (*wē'gū*) = Abn. *uligo*.

WEGUN good (*wē'gūn*) = Abn. *uligun*; RW. *wunnēgan*; D. *wulī*; Pass. *ulī*, etc. *Wegun dupkwōh* 'good-night' is an undoubted Anglicism.

WEGUN TAH good day (*wē'gūn tā'*). *Tah* is probably an Eng. loan-word from 'day.'

WEJEESH his hand (*wējē'sh*) = RW. *wunnuntch* his hand; Abn. *mejī* hand.

WEMOO light, not dark (*wē'mū*). Has this anything to do with *wemooni*?

WEMOONI it is true (*wēmūndī*) = N. *wonnomwan* he speaks the truth; Abn. *wawidwogan* truth; Del. *wulamoc* he speaks truly. Mrs. F.'s form should be *wemooni*.

WENAI old woman (*wēndī*) = Stiles *wenyghe*; Abn. *winasōsis*.

WEOS meat (*wē'ūs*) = N. *weyaus*; Abn. *wiūs*; D. *ojos*.

WEOSIBOIGE soup (*wē'ūsibō'ij*). Cf. N. *sōbahēg* porridge, from *saupā* soft. See BOIGE.

NE WESUCK CHAWSUN this bed is hard (*nē-wē'sūk chā'sūn*). Does the D. *gechgawwīwink* contain the root of *wesuck*?

NE WESUKWON I hurt myself (*nē-wē'sōgwōn*) = N. *woskheau* he hurts him; *mwoskhit* I am hurt; D. *wissachgissi* it hurts me.

WETUN wind (*wé'tún*) = Stiles *wuttun*; Oj. *notine*; Old Algonquian *lootin* (Lahontan).

WEYON tongue (*wé'yún*) = N. *menan*; *wenan* his tongue; D. (Heckewelder) *wilanu*; Abn. *wilalo* his tongue.

WEYONGOO yesterday (*wé'yungá'*) = Abn. *ulôgua*; N. *wunnonkw*. D. *ulaque*.

WEYOUN moon (*wé'yún*) = Stiles *weyhan*, a pure Pequot word.

WEYOUT fire (*wé'yá't*) = Stiles *yewt*; RW. *yoteg*, loc.; Pass. *skunt*, Abn. *skweda*, Oj. *ishkote*. The N. wood is *nut* from the same stem.

WEZERWONG his name (*wé'zëwóng*) = Abn. *wisowongan*; *kdeliwisi* you are named; N. and RW. *wesuwok*. See *Am. Anth.*, v, 209.

WHEE wheat (*kwé*). Eng. loanword.

NE WHEEZIG I am afraid (*né-wé'zëg*) = RW. *wesassu* he is afraid.

WICHENAH when rel. (*wícht'ná*). Same stem as Abn. *chiga*; D. *tschingé* when?

WIGWŪMŪN come in the house. A Brothertown word. A deriv. from *wigwom* house.

WISHBIUM get out, avaunt! (*wishbái'um*) = partly from RW. *sawhush*; C. *sohhash*; Abn. *saosa* go out.

WOCHI from (*wácht'i*) = Abn. *uji*; RW. *wuche*; N. *wutche*; Moh. *ochéh*.

WODGIANUM he has (*wájiā'nūm*) = Abn. *wajōnem*. Cf. RW. *num-mache* I have.

WOGGEY for so that (*wó'gi*) = Abn. *waji*; N. *wutche* also *yeu waje* for this.

NE WOHTER I know (*né-wá'tū*) = N. *waheau* he knows; Abn. *n'wa-wawindwō*; RW. *nowantum* I understand. D. *nawu* = he knows.

WOMRAYOH white (*wómbá'io*) = Abn. *wómbi*; Pass. *wábi*; N. *wompi*, Stiles *wumbiow*; Long Island *wampayo*; D. *wape*.

WOMBEEYOH he is coming (*wómbé'yō*) = *wu* + *biyo* = N. *peyau*. See BEYOR.

WOMME all (*wómi*) = D. *wame*; RW. *wameteāgun* all things; N. *wame*. See WONJUG.

WOMPSHAUK geese (*wá'mpshá'h*) = Abn. *wóbtëgua* the white goose; C. *wompohstuck*.

WONJUG all people (*wó'njüg*), pl. of *womme*, q. v. See *Am. Anth.*, v, 207.

WONNIX white man (pl. *-ug*) = Stiles *waunmukuk* Englishmen. This word is a derivative from *howan* = Peq. *orwon*, q. v., 'someone.' Cf. in Abenaki *awanooh* 'a Canadian Frenchman,' originally simply 'someone coming from yonder,' i. e. *awani uji*.

WONSARTAR Wednesday (*wō'sātā'*). Eng. loanword.

WOODQUNCH wood for the fire (*wū'dkwūnch*) = N. *wuttuhqun*; RW. *wuttuckquanash* put wood on the fire.

WOOPER was a fly (*wō'gūwās* and *wū'jūwās*) = N. *uchaus*; Abn. *ujawas*; D. *utscheurwes*.

WOOSGWEGE book (*wū'shgwīg*) = N. *wussukwhonk*, from *wussukhum* he writes.

WOOSTOH he made (*wū'stū*). This is simply the same as Abn. *uji-to* he makes it out of something. See WOCHI.

WOOT mouth (*wū't*) = N. *muttoon*; Stiles *cultoneage*; Abn. *mdon*; D. *wdon* his mouth.

WOOTHUPPEAG pail, bucket (*wū'tūp'g*). No cognate.

WORMUNCH eggs, inan. pl. (*wā'mūnsh*) = N. *woanash*; C. *wouwanash*; Abn. *wōwanal*; D. *wahh*.

WORWHODDERWORK they shout (*wā'wōdūwā'k*). No cognate.

WOTI'NĒ help; cf. *nēwōt' nēmōng* he helps me = N. *kuttannumous* I help you. In Pequot the forms *nēwōt' nēmōwū* 'I help him,' and *wōt' nēmōwū* he helps him, occur; see *Am. Anth.*, v, 204.

WOTOHEESH it is his (*wōtōhī'sh*) = *wo + t + o + sh*, inan. pl. = N. *wuttaihe* as in *nen-wuttaiheuh* I am his.

WOTONE go to a place (*wōtōnī*) = D. *aan*; N. *au*.

NER-WOTSHOR I went (*nē-wō'tshā*). This must mean 'I went from.' See WOCHI.

WOUMBUNSEYON if I live in the morning (*wōmbānsiyōh*) = Abn. *wōban* + Peq. *seyon* if I am.

WUNX fox (*wūnks*) = Stiles *awaumps*; N. *wonkquissis*; Abn. *wōkwes*.

WUSGWOSU he writes (*wū'skūsū'*) = N. *wussukhon* he writes; RW. *wussuckhosu* he is painted. See WOOSGWEGE.

WŪSKŪSŌ 'writing'; noun.

WUTUGAPA it is wet (*w'tūgāpā'*) = N. *wuttogki* it is wet; Stiles *wutugw* it is wet; Abn. *udagkisgad* wet weather. I think this *w'tugapa* means 'it would be' (*-pa* = Abn. *-ba* would be; suffix of the conditional).

WUTUGAYOW it is wet (*w'tūgāyō*).

WYCOJOMUNK O dear me (*wā'kūjō'mūnk*). No cognate.

YEOWDI here (*yū'dā'i*) = Abn. *yu dali*; N. *yeut*, with loc. *-ut*.

YERTUM he thinks, a thought (*yū'tūm*). Cf. TIATUM. This word is probably cognate with the stem seen in N. *anantum*; Abn. *laldamen* he thinks it, i. e. *yu'tumantum*, *aldam* to be in a state of mind. See p. 16 on *t-n-r*.

YOKEG parched corn (*yôkig*) = N. *nukik*; RW. *nokchick* Indian corn parched and beaten.

YONOKWASU sewing (*yô'nakwâsû'*) = N. *usquontesu* he is sewing.

YOTS rat (*yôts*). Eng. loanword.

YOU this (*yû*) = Abn. *yu*; N. and RW. *yeu*. Cf. Pequot *you dupkwoh* this night; *you geesk* today.

YOUMBEWE early morning (*yûmbô'wi*) = *yu* + *mô* or *inbi* + *wi*. The root is seen in N. *mautompan*; RW. *mautabon* 'early morning' and the ending *-wi* appears in Abn., e. g. *spôzowitwi* 'early in the morning.'

YOUMBEWONG again (*yû'mbêwong*) = *yu* + *inbi* + *wong* = N. *wonk*; D. *woak* 'and' 'repetition.' See *Am. Anth.*, v, 208. *Inbi* or *mbi* may mean 'time.'

YOW four (*yâ'û*) = Abn. *iaw*; N. *yau*; Stiles *yauuh*.

YUKCHAWWE yonder (*yû'kchâw'*) = N. *yo, ya* yonder. Perhaps the first part of the word is cognate with D. *ika* yonder.

YUNDUM he is hungry; *gâyôndûm* you are hungry. See PIANTUM.

YUNJANUNFSH open, inv. (*yû'njânû'msh*). Is this cogn. with N. *woshwunnum* *sgount* open the door? This *yunjum* probably = Abn. *tondana* open, inv., D. *tenktschechen tonquihillen* open. In Peq. *yunjon* = he opens; subjunctive *yunjonum* that he open, not really a subjunctive.

ZEESHKUNUS milk (*zû'shkûnûs*), a difficult word. Stiles gives *nuzaus* a baby, a sucker. This *-saus* may be cogn. with *zeesh* here? Perhaps the word should be *nuzeshkunus* with prefixed *n*? There is no D. cogn. for milk; they say *mellik*. In N. milk = *sogkodtunk*, from *sogkodtun-gash* teats.

ZEEWOMBAYOH blue (*zû'wômbâ'îô*). In N. *see* = unripe. *Zeewombayoh* may mean 'an unripe white'? I can find no parallel.

NE ZERUKSUN I lie down (*nêzûmû'ksûn*). Cogn. with N. *summa'-gunum* he stretches out.

ZOB tomorrow (*zâb*) = N. *saup*; RW. *sauop*; Abn. *saba*; Pass. *sepaunu*.

ZOOGERYON rain, it rains (*zû'gûyûn*) = Abn. *soglon*, from *sognem* he pours. Cf. N. *sokanon*; RW. *sokenum* it pours forth; D. *sokelan* rain.

ZOTORTAR Saturday (*zâ'tâtâ*). Eng. loanword.

ZUNATAR Sunday (*zû'nâtâ*). Eng. loanword.

ZUNGWATUM anything cold (*zûngwâ'tûm*), lit. 'it is cold.' See TEKIYO. Cf. N. *sonqui* it is cold; RW. *saunkopaugot* cold water. The same stem is seen in Abn. *wesguinôgana mzena* he has a cold with a cough.

COUNTING-OUT RHYMES OF CHILDREN

By WILL SEYMOUR MONROE

In the belief that the reactions of children on their play interests would be of service to the student of the psychology of childhood, I instituted five years ago the following investigation among the pupils in the elementary schools of western Massachusetts.

Two sets of compositions were written by two thousand and fifty (2,050) children, the direct aim of the investigation being six-fold:

1. To make as complete as possible a list of the traditional games of Massachusetts school children.
2. To determine the play interest of children as indicated by their preference for certain games.
3. To obtain descriptions of traditional games.
4. To ascertain personal variations in such typical games as tag and hide-and-seek.
5. To ascertain the qualities involved in determining leadership in plays and games.
6. To determine the extent and importance attached to counting-out rhymes in the plays and games of school children.

I now desire to present a brief review of the results obtained on the sixth and last rubric of the investigation. The compositions were written in the schools as a part of the required school work and the papers sent to me. The results were collated, tabulated, and curved by sexes and ages. The ages of the children were from 7 to 16 years, 978 of the whole number being boys and 1,072 girls. Of the more than two thousand children tested but five boys reported that they never used counting-out rhymes in their games. One of these was further questioned by his teacher as to the method employed in determining who shall be "it," and he replied: "I say to the boys, let's play. I'll be 'it' to begin the game."

The incident is introduced not because of surprise that these lads knew no counting-out rhymes, or at any rate made no use of

such rhymes, but because the investigation suggests that such rhymes are apparently universal features of the plays and games of children. Indeed, individual children reported as many as seventeen (17) such formulas.

In all, one hundred and eighty-three (183) different counting-out rhymes were reported, but all but fifty-four (54) proved to be variations of a few pleasing or much used jingles. The girls throughout mentioned more such rhymes than the boys. The one oftenest named, being given by 91 percent of the children, is the unmeaning and inelegant :

*Ena, mena, mina, mo,
Catch a nigger by the toe ;
If he hollers, let him go,
Ena, mena, mina, mo.*

The second in point of popularity, being given by 86 percent of the children, is :

*One, two, three, four, five, six, seven,
All good children go to heaven.*

And the third oftenest named (given by 79 percent of the children) is :

*Richman, poorman, beggarman, thief,
Lawyer, doctor, merchant, chief.*

Sex differences were pronounced in the study. Rhymes involving color and dress were mentioned much oftener by the girls than by the boys, such as :

*Red, white and blue,
All out but you.*

And

*As I went up the steeple,
I met a crowd of people ;
Some were white and some were black,
And some were the color of a ginger-snap.*

The same is true of counting-out rhymes which involve love, courtship, and marriage, such as :

He loves me, he loves me not,

being mentioned almost exclusively by girls.

Boys, on the other hand, are far ahead of the girls in counting-out rhymes which involve number combinations, such as :

*Little boy driving cattle,
Don't you hear his money rattle,
One, two, three, out goes he.*

and

*Intry, mintry, coutry corn,
Apple seed and apple thorn ;
Wire, briar, limber, lock,
Three geese in a flock ;
One flew east, one flew west,
One flew o'er the cuckoo's nest,
One, two, three, out goes he.*

Boys also lead in rhymes involving animals and natural phenomena, such as :

*As I was walking near Silver lake,
I met a little rattlesnake ;
He ate so much of jelly cake,
It made his little belly ache.*

Nursery rhymes and jingles are made to do service in the plays and games of children, as is apparent from the frequent mention of such counting-out rhymes as :

*Hickory, hickory, dock,
The mouse ran up the clock,
The clock struck one and down he ran
Hickory, hickory, dock.*

Also :

*Peter, Peter, pumpkin cat her,
Had a wife and couldn't keep her.
Put her in a pumpkin shell,
And there he kept her very well.*

Many of the older children were questioned as to whether they ever composed, or had known of their companions composing counting-out rhymes for their plays and games, but none such could be recalled. From the large number of variations, however, it is apparent that children must add to and alter such rhymes. Following are examples of such variations :

*As I went up the apple tree,
All the apples fell on me ;
Bake a pudding, bake a pie,
Did you ever tell a lie ?
No, but I stole my mother's tea-pot lid.
She kicked me up, she kicked me down,
She kicked me all around the town.*

Compare with the following :

*As I went up the apple tree,
All the apples fell on me ;
Bake a pudding, bake a pie,
Did you ever tell a lie ?
No, I never told a lie,
But I ate the apple pie.*

These unmeaning and mysterious formulas, according to the testimony of the children themselves, serve a two-fold purpose in the play-activities of childhood :

1. They determine who shall take the undesirable part in a game — a species of casting lots, as has been suggested, but differing in the method of execution. As these Massachusetts children say, the counting-out rhymes enable them to determine who shall be "it" — the use of "it" being purely technical and having distinct meaning in their play-vocabularies, — and

2. They use these rhymes for purposes of divination ; some of them foretell the life-duration of the child ; others the occupation of prospective husbands, probable number of children, etc. Bolton is doubtless right in regarding counting-out rhymes as survivals of the practice of sorcery — spoken charms originally used to enforce

priestly power — and now repeated by children in innocent ignorance of the practices and language of a sorcerer in some dark age of the past.

Although occasionally undergoing changes, being transmitted from one generation of childhood to another through oral repetition, the marvel is that they should survive at all with such apparent purity. This persistence is possible only through a conservatism of children which is as pronounced as it is unexpected, since in most of the matters that concern them, they are reformers of the most aggressive type — wholly oblivious of the traditions and limitations of their environment.

But in all that pertains to their play interests, they are conservative to the core. The formulas of play are clung to with gospel tenacity; and children themselves are most displeased when the canons of games have been violated.

Because of this insistence, this vein of juvenile conservatism, children's play interests and activities, with their counting-out rhymes, are the oldest things in the world, linking the child through his play-life to the mental life of savages and barbarians.

NOTES ON THE INDIANS OF SONORA, MEXICO¹

By ALEŠ HRDLIČKA

INTRODUCTION

My field-work in physical anthropology in 1902 included a visit to several of the scientifically important but little-known tribes of Sonora. This paper, the result of the visit, embodies the casual observations made, together with whatever reliable information I was able to gather, on the present state of these Indians, to which are added some preliminary notes on their physical characters. I shall not be able to present many entirely new data concerning the ethnology of the tribes of this region, because my visit was short and also because much of the purely Indian has become obscured; the object of the paper is more to direct the attention of students to this field of research than to cover the same.

For historical information concerning the Sonora tribes the reader is referred especially to the writings of Ribas, Ortega, Zapata, and other Jesuits, and particularly to the anonymous *Rudo Ensayo*,² while more recent notes of value will be found in the works of Hardy, Velasco, Bartlett, Stone, Corral, Bandelier, McGee, and Hernandez.³

¹ Based on researches conducted for the Hyde Expedition under the auspices of the American Museum of Natural History, New York City, and published by permission of the Museum. All the illustrations are from negatives by the author, now the property of the American Museum.

² Andrés Perez de Ribas, *Historia de los triunfos de nuestra Santa Fee*, Madrid, 1645. [José Ortega,] *Apostólicos afanes*, Barcelona, 1754. Ortega, *Historia del Nayarit, Sonora, Sinaloa y ambas Californias*, Mexico, 1887 (same as his *Apostólicos afanes*). Juan O. Zapata, *Relacion de las Misiones de la Nueva Vizcaya*, 1678 (in N. Vizcaya, Doc. Hist., tomo III, also MS.). The anonymous *Rudo Ensayo*, San Augustin de la Florida, 1863; also translation into English by E. Guitéras, *Records of the American Catholic Historical Society of Philadelphia*, vol. v, no. 2, 1894.

³ R. W. H. Hardy, *Travels in the Interior of Mexico*, London, 1829. Ignacio Zañiga, *Rápida ojeada al estado de Sonora*, Mexico, 1835. J. A. de Escudero, *Noticias estadísticas de Sonora y Sinaloa*, Mexico, 1849. J. F. Velasco, *Noticias estadísticas de Sonora*, Mexico, 1850 (also in English). John Russell Bartlett, *Personal Narrative*, N. Y., 1854. Chas. P. Stone, *Notes on the State of Sonora*, Wash., 1861. Ramon

Another list of works, as well as an abstract of the historical references to Sonora and its indigenes, are given with noteworthy completeness in the works of H. H. Bancroft.¹

The territory now included in the state of Sonora was first penetrated by whites in 1533, when a party led by Diego de Guzman advanced from Sinaloa as far as the Rio Yaqui. Guzman was followed by Cabeza de Vaca (1536), Pedro Nadal and Juan de la Asuncion (1538), Marcos de Niza (1539), Coronado (1540), and Ibarra (1564 or 1565);² after these, early in the seventeenth century, came the main body of the friars, among whom (1604-20; in Sonora 1617-20) was the historian Ribas. From the narratives of these pioneer explorers or their companions it is learned that Sonora in the sixteenth century was inhabited by several populous and a number of minor tribes and divisions of natives. Some idea of the number of the Indians soon after the discovery can be gained from the assertion that in 1621 the converts of Sonora and Sinaloa alone numbered 86,340, and in 1624 they were estimated at over 100,000.³

The various tribes, as distinguished by different languages, and apparently many parts of tribes, were referred to by the early Spaniards under distinct names, usually those of their settlements. For example, it is recorded that Diego de Guzman reached a village called Yaquimi,⁴ and the name, in the form of "Yaqui," was extended to the river flowing by the village, to the people of the

Corral, *Razas indigenas del estado de Sonora*, 1884. A. F. Bandelier, *Final Report*, Arch. Inst. Am., Papers, pt. 11, Cambridge, 1892. W. J. McGee, *The Seri Indians*, 17th Rep. Bur. Am. Ethnology, Wash., 1898. Fortunato Hernandez, *Las Razas Indigenas de Sonora y la Guerra del Yaqui*, Mexico, 1902. A. Hrdlička, *Report on a Seri Skull and Skeleton* (included in McGee's and Hernandez' publications here mentioned).

¹ *Native Races of the Pacific States*, vol. 1, 1874, p. 571 et seq.; also *North Mexican States and Texas*, vol. 1, 1884, and vol. 11, 1889.

² It is possible that some portions of the Cortés expedition (1532), particularly that of Hurtado de Mendoza, came in contact with the Sonora Indians even earlier than Diego de Guzman. Some authors, including Escudero, mention Pedro Almenex Chirinos as the first to reach the Rio Yaqui, in 1533, but this is considered by Bancroft (*North Mexican States*, 1, 54-55) to be an error.

³ Bancroft, *North Mexican States*, 1, 226-27, from original sources.

⁴ See Bancroft, *op. cit.*, 1, 57; also map p. 43; original statement in Diego de Guzman's Relation (quoted in Bancroft, p. 56). For another account of the name Yaqui, or Hiaqui, see Ribas, *Historia*, *op. cit.*

village, and to their congeners along the river. Such was the case also with the Nevomi or Nevome, and Nuri, farther up the stream, and subsequently in many localities to the northward; indeed there is no historical evidence that any of the numerous names applied to tribes, found in early records of Sonora, were those used as tribal names by the Indians before the advent of the whites.

THE TRIBES IN GENERAL

The principal peoples early found in Sonora were, to use their historical names, the Mayos, Yaquis, Opatas; Heris, Ceris or Seris; Pimas, Papagos, some Yumas and possibly Coco- or Co-Maricopas; also the much later noticed and probably not truly indigenous Apache. There were likewise the Nevomes, apparently a separate band of either the Pimas or Yaquis; the Eudeves, Sahuaripas, etc., various divisions of the Opatas; the Jovas, who were, it seems, different in origin from the Opatas;¹ the Tepocas or Tepopas, Sobas and probably Guaymas,² who were parts of the Seris; etc. The Pimas were divided into the "Bajos" and "Altos" (Lower and Upper), and probably included the Corazones, Nuris, and others.³

All the above tribes (except the Apaches, who, being mainly an extraneous people, will not be further considered herein) are shown to be sedentary, for their descendants to this day preserve the same general geographical distribution as in ancient times. (Plate III.)

Most of the smaller divisions have disappeared as such, having doubtless become blended with the parent or main stock; the remaining distinct tribal groups in Sonora are the Mayos, Yaquis, Pimas Bajos, Opatas, Seris, and Papagos.

¹ "The Eudebes and the Jovas may be counted with the Opatas; the former, because their language is as little different from the Opatas as the Portuguese is from the Castilian, . . . and the latter, because they live among the Opatas, and for the most part speak their language, with the exception of some women and old men, who retain their own language, which is a very difficult one and different from all the others spoken in the Province."—*Rudo Ensayo*, p. 70 orig., p. 166 transl. "The Jovas are ruder and more awkward and less tractable than the Opatas, and prefer to live not in villages but on ranches in the mountain ravines."—*Ibid.*, pp. 98-99 orig., pp. 186-87 transl.

² "The Guaymas speak the same language, with but little difference, as the Seris."—*Rudo Ensayo*, p. 70 orig., p. 166 transl.

³ See identification of the Corazones village with Ures by F. W. Hodge in *Memoirs of Explorations in the Basin of the Mississippi*, II, "Harabey," St. Paul, Minn., 1899.

Habitat.—The Mayos occupy practically the same region as they did in the sixteenth century—the lower part of the Mayo valley and much of ancient Ostimuri. The Yaquis, until a comparatively recent date, remained centered along the lower Rio Yaqui, but they are now scattered over the larger part of southern Sonora. The Pimas Bajos still live along a part of the upper Yaqui, as well as in certain localities about Ures (*e. g.*, Pueblo Viejo) and in the district of Magdalena. The remnants of the Opatas are found principally along San Miguel river, but they are also met with in many spots farther west, over their ancient territory. The Seris proper are restricted, as ever, to Tiburon island; but there remain also, on the mainland, a few Tepocas. The Papagos, since Sonora was reduced to its present boundaries, have become in large part a tribe of Arizona, but a fair number still live south of the Arizona line, in the district of Altar, reaching individually as far as the town of Altar, while a small group is settled a little west of Torres, south of Hermosillo. The Pimas Altos and Maricopas have nearly disappeared from Sonora, owing mainly to their assignment to reservations in the United States. In the north-western corner of the state, according to information given me by some Yumas and recently confirmed by Mr J. S. Spears, superintendent of the Fort Yuma Indian school, there are a few Cocopa Indians on the Sonora side of the Rio Colorado, and about fifty Yumas are found about the boundary line. It is quite probable that a few Tarahumares also are settled near the southwestern boundary of Sonora, but on this point I have no positive information.

Population.—As to the relative numbers of the Sonora Indians, it was estimated by the padres in 1621 that there were 21,000 Mayos (30,000 according to Ribas), 30,000 Yaquis, and 9000 Nevomes. Zapata, in the latter part of the seventeenth century, reported the population of the seven main Yaqui pueblos as 8116; while in 1760, according to Jesuit accounts, the population of eight principal settlements of this tribe was 19,325.¹ In 1849, according to Escudero² (who is not so explicit in regard to other tribes), the

¹ See Buncroft, *North Mexican States*, 1, 245-247, 372 et seq.

² *Noticias estadísticas de Sonora y Sinaloa*, p. 100.



MAP SHOWING THE PRESENT DISTRIBUTION OF THE INDIANS OF SONORA, MEXICO

eight chief pueblos of the Yaquis contained from 54,000 to 57,000 natives and somewhat more than 200 *gente de razon*, or whites.¹ This particular estimate doubtless included the inhabitants of the entire territory belonging to the pueblos named, but even if so considered it appears to be an exaggeration.

The Opatas extended from the western branch of the Rio Sonora to the Sierra Madre, and, though scattered, must have been numerous. A Jesuit census of 1730² gives their number, including the Eudeves and Jovas, at nearly 7000; Hardy³ in 1829 estimated them at about 10,000.

Taken together the Pimas were also undoubtedly a populous tribe, extending over an irregular and possibly interrupted area from the region northeast of the Yaquis to the Gila. According to the Jesuit census above cited, their number in 1730 was 4378, but this can not have included the entire tribe.

Of the Papago population nothing is definitely known, but the tribe was large enough to make itself felt in several conflicts with the whites, particularly in that of 1840.

The Seris, including the mainland branch, numbered, at various periods prior to 1884, from 1500 to possibly 4000.⁴

As to the present numbers of these native tribes even approximate estimates can be given only with difficulty, since there are no reliable statistics concerning the natives in the state or country. Owing partly to constitutional peculiarities and partly to apathy, no thorough census has ever been attempted. There are, however, in Sonora, and indeed throughout Mexico, practically insurmountable obstacles to an ethnically correct census owing to the great intermixture of the various elements of population, combined with the character of some of the natives and the almost inaccessibility of a large part of the country. From what can be seen and learned

¹ Cocori, 4000 natives; 150 whites. Bacum, 4000 to 5000 natives. Torin, 10,000 to 12,000 natives; 6 families of whites. Bicum, 9000 natives; 3 families of whites. Potam, 8000 natives; 4 families of whites. Racum, 6000 natives; 2 families of whites. Quiririba, 10,000 natives; 4 or 5 families of whites. Belem, 3000 natives.

² Reproduced in Bancroft, *North Mexican States*, I, 513-514.

³ Op. cit., p. 437.

⁴ The various estimates by Velasco, Troncoso, Retis, Hardy, De Moiras, and others are summarized by McGee, op. cit., p. 135. A reference to some additional reports on Sonora population will be found in Escudero, *Noticias estadísticas*, p. 83.

from reliable sources it would appear that both the Mayos and the Yaquis are nearly, if not fully, holding their own in point of numbers. Indeed little has occurred within the last half century that could materially affect the population of the Mayos; the Yaquis, however, since 1849 have lost many hundreds of men and even numerous women and children during their frequent rebellions, while others have been removed from Sonora to less healthful regions and have died in captivity. Yet during this period there remained many hundreds of healthy and prolific Yaqui families on Mexican haciendas, in or near Mexican towns, near mines, and in mountains, probably increasing sufficiently to equalize the loss. It is not possible to give reliable figures, but wherever one turns in southern Sonora he meets with pure-blood Yaquis, and sometimes they may be encountered in almost any part of the state, as well as beyond its borders. Stone, in 1860, estimated the Mayos at 10,000 to 12,000, and the Yaquis at about 20,000 persons. Conservative local estimates today give the Mayos a number nearly twice as large, while for the Yaquis the estimate for 1860 would probably serve very well for the present time.

The Pimas (particularly those in the Magdalena district and about Ures), and especially the Opatas, are nearing complete assimilation with the whites. Owing to the Yaqui revolution of 1902, I was not able to reach Tonichi, Soyopa, or other Pima settlements northeast of the Yaquis, hence can give no information as to their numbers in those parts; but about Ures the Pimas are reduced to not more than 200 or 300, and these are scarcely distinguishable among the general population.

Of the Opatas the pure-bloods today can barely reach 500 or 600. In such settlements as Opodepe, Arizpe, and others, where even a century ago the Indians of this tribe numbered hundreds, it is now difficult to find a dozen pure-blood individuals.

The Seris, according to McGee,¹ now number about 300 and are probably slowly increasing. I regret that with the means available I was not able to enlist a suitable party with which to visit the tribe, and therefore can give nothing respecting its numbers from my own observation.

¹ *Op. cit.*, p. 135 et seq.

Civilization.—The Mayos, Yaquis, Pimas, and Opatas were among the earliest tribes of northern Mexico to receive missionary friars, and, consequently, the Catholic religion as well as some civilization. But with the limited possibilities of the padres, in the face of the deep-seated primitive religion and superstitions of the natives, coupled with the bad example of the white colonists and especially with the various conflicts that arose, real civilization of most of those who were not actually absorbed by the whites remained little more than nominal. The Opatas alone largely adopted the mode of life and organization of the whites and recognized their laws. The other three tribes accepted the dress and ultimately (but without relinquishing their own) the language of the whites; they also, probably as a reflection of their original traits, always respected, in some degree at least, their treaties, and when in conflict did not commit great atrocities. Excepting the Yaquis, they recognized the general law and authority of the government. For a long time, however, they adhered to and in many localities they still preserve their native practices. The tribes that were brought less in contact with the whites, such as some of the Papagos and particularly the Tiburon Seris, have firmly resisted, wherever possible, all change in their old condition.

At present the Opatas, Yaquis, Mayos, the Ures Pimas, and some of the Papagos are, with a few minor exceptions, in about the same culture-grade as the lower classes of white and mixed Mexicans. Most of the Papagos live in their own villages or rancherias about the frontier, and preserve their customs and traditions in almost aboriginal purity. The Tiburon Seris, as McGee has shown, remain entirely in a primitive state. The Opatas alone have reached such a stage that for the greater part they not only dislike to be called Indians, but (at least along the Rio San Miguel), even endeavor not to use their own language or anything else that distinguishes them from their neighbors. They preserve, however, a few of their old ceremonies or dances. They send their children to school when convenient, and in some localities, as at Tuape, are permitted to vote. The Yaquis, Mayos, and Pimas of Yaqui river still prefer their own tongue, but almost all of them know more or less of the Spanish. The members of these tribes who have received

some education are distinguishable from the whites only by their color and features. The members of these tribes generally prefer to live more or less together, in dwellings of their own; this is not alone from the desire not to associate with the whites, but also because they have been so long accustomed to their light, well-ventilated huts, which are more healthful and comfortable than the adobe houses of the Mexicans.

There is no doubt, from all that one sees today, that if really good schools, with industrial training, were provided for all the children of the Sonora tribes, barring the Seris, in two or three generations the state would be the home of only civilized Indians, and, judging from some examples, even the Seris are not a hopeless task by any means. The physical and intellectual qualities of the Sonora native stock are high; indeed they are such that the state, notwithstanding its disastrous past, has brighter prospects than almost any other in the Mexican federation.

Archeological.—Before taking up the Sonora tribes in detail, a few words may be said about traces of prehistoric occupancy of the region. On the north the territory adjoins Arizona, in the central and northern parts of which ruin sline most every stream and extend into the valleys and plains. In Sonora, however, while in the northern and western parts remnants of old villages, artificially terraced farming strips, and simple fortified hills occur,¹ nowhere are there pueblo structures corresponding to those of Arizona. I have neither seen nor heard of a single ancient ruin along the lower Yaqui or to the south of it, and none to the south or west of Ures—a dearth which signifies the prevalence of more or less perishable dwellings ever since the aboriginal occupancy of the region began.

The early explorers saw only dwellings made from brush and poles and palm leaves or mats (*petates*), and such may be seen among the Sonora natives almost everywhere today. The Opatas

¹ For a detailed account of such structures see Bandelier, *Final Report*, p. 482 et seq. There are two fortified mountains a short distance from Tuape. Dr Alderman, who visited one of these, found some remnants of well-laid walls and considerable broken pottery and metates. Similar hills are spoken of in other parts of the Opata region. Batres, in his *Cuadro arqueológico y etnográfico de la República Mexicana* (Mexico, 1885), mentions "ruinas de edificios conocidas con el nombre de S. Miguel de Babiacorí," and "grutas de Sahuaripa."

alone, as they well remember, built stone foundations or walls to their habitations, which may account for the remnants now found in their country. A thorough survey of the state would probably bring to notice many more traces of archeological interest than are now known, but that any larger type of ruin exists in Sonora is very doubtful.

THE TRIBES IN DETAIL

THE MAYOS

The Mayos¹ form today the second largest, if not the largest, tribe of Sonora. They have been settled, since known to history, in the southern part of the state, principally along the lower Rio Mayo and extending nearly to the Yaqui on the north and the Fuerte on the south. Their principal settlements at the present time are Macoyahui, Conicari, Camoa, Tecia, Navojoa, Cuirimpo (or San Ignacio), San Pedro, Echojoa, Huatabampo, and Bacabachi, all of which, except Macoyahui and Conicari, are situated south of and near the Rio Mayo. Their population, including the dependencies, is locally estimated at about 20,000. There are many scattered Mayos on haciendas and elsewhere to within less than forty miles of the Rio Yaqui, as well as along the Fuerte and toward Sinaloa. One or two localities, the names of which terminate with the characteristic Mayo *bampo*, are found even north of the Rio Yaqui.²

A large majority of the people are still of pure blood (pl. iv, 1, 2, 4); but in San Pedro, Echojoa, and Huatabampo there are some of much lighter complexion and eyes, very probably the result of foreign admixture. A greater or less degree of mixture with Mexicans is quite general and is increasing.

The Mayos use the same language ("Cahita") and exhibit the same general degree of culture as the Yaquis; but the two tribes, contrary to general belief, show certain ethnological differences and are not identical physically. The primitive Mayo culture, of which only traces can now be seen, was apparently of different origin. The Yaquis, through conquest, regarded these people as their vassals and

¹ I take this opportunity to express grateful acknowledgment, for much aid in my work among the Mayos, to Señor Don Jesus Velderrain, of Guadalupe, Sonora, one of the most cultured men in the region.

² See strategic map in Hernandez, *op. cit.*

exacted tribute from them as late as the latter part of the nineteenth century, during the domination of Cajeme. During the last century the two tribes were occasionally allied in warfare, but always at the instance of the Yaquis.¹ No insurrection against the whites has ever originated with the Mayos themselves.

The principal occupation of the Mayos is agriculture; they also raise some cattle and engage in various industries; but on the whole they do not seem to be so universally sturdy and habile as the Yaquis. Lately the government allotted the lands of the villages in severalty, giving the Mayos separate deeds, a transaction which places them in this particular on an equal footing with the Mexicans.

The native arts are apparently degenerating. The women formerly made beautiful woolen serapes, but now one such is rarely seen. The blanket now manufactured is mostly crude in quality and with little or no decoration. Some of the men wear a blue *huipil*, or sleeveless, one-piece chemise of native weave, which I saw nowhere else in Sonora. The women make also a few fine *fajas*, or belts, which display considerable skill and are characteristic in color and decoration, reminding one of the finer Scotch plaids.² Palm mats, hats, common baskets, and a little ordinary pottery practically complete the native manufactures, at least in the upper part of the Mayo country.

The Mayo dwelling consists mainly of a quadrangular hut, often with a partly open extension, with walls of brush, reeds, or adobe, and with flat or nearly flat roofs, all as among the Yaquis. (Plate VII, 3.)

The dress, with the exception of the occasional *huipil*, *faja*, *serape*, and hat, is of Mexican origin. As among all the Sonora Indians, the Seris excepted, the hair of the men is worn short; that of the women is braided in a manner similar to that of the Mexicans.

There is no tribal organization, though the elders generally have much influence. The more important governing power is entirely Mexican in character, but many smaller offices are intrusted to the Mayos themselves.

¹ Consult notes on Bandera's revolution in Hardy's *Travels*, and the accounts of Sonora historians, *op. cit.*

² I obtained specimens of all grades of the blankets, as well as belts, which are now in the American Museum of Natural History.



MAYO AND OPATA TYPES
1, Mayo girls. 2, Mayo young men. 3, Opata young women. 4, Mayo men.

Of native customs I can speak but little from actual observation. According to Señor Velderrain the Mayos are wholly converted to the Catholic faith and are often quite fanatical in exercising it. A remnant of an ancient custom consists of sacrifice in honor of their dead, "*para que vallan al cielo*" of sheep and cattle. There are certain men, called *maestros*, who are charged with curing the ill and of communicating with the dead. There are others who are resorted to for curing sickness alone, their treatment consisting of various incantations and of the use of certain herbs.

Alcoholism prevails among the Mayos, as among other Indians where the opportunity exists, but one rarely meets with a confirmed toper as among the whites. There is also manifest much love of feasting and ceremony, and a frequent want of providence, as among so many other tribes of Indians.

THE YAQUIS¹

The most interesting Sonora tribe, psychologically as well as physically, is that of the indomitable Yaquis. This is the only tribe on the continent that, surrounded by whites from the beginning of their history, have never been fully subdued, for they still intermittently carry on a fight for their lands and independence, as they conceive it, — a conflict which commenced with Guzman's invasion in 1533.² Some women and young men of the tribe are shown in plates v and vi.

An account of the long series of struggles, however interesting,

¹ In my investigations concerning this tribe I have received and gratefully acknowledge much valuable aid from Gen. Luis Torres; from Sr. Don Rafael Izábal, Governor of Sonora; and particularly from Sr. D. Francisco Muñoz, Secretary of the State of Sonora.

² Escudero (*Noticias estadísticas de Sonora y Sinaloa*, Mexico, 1849, pp. 137-38) wrote half a century ago: "The Yaqui nation has never been governed by the whites." The tribe "had its own governors and one principal *capitan*, who exercised a sovereign authority. Their authority has always been recognized by the judges and governors of Sonora. Neither have the Yaquis paid tribute; they were permitted to cultivate the native tobacco, called *marachi*, because it was impossible to introduce that of commerce or to destroy what has been sown;" and, "the most surprising condition, culprits of all sorts were immune in their pueblos. A deserter or a criminal who escaped to the Yaquis was secure from apprehension by justice." The only apparent change effected since 1849 concerns the last-named privilege, of which no more is heard. But it is hard to see how any refugee once finding an asylum among the free Yaquis, could, even today, be retaken.

cannot be given here.¹ Notwithstanding their early conversion to the Catholic religion, and a fair degree of civilization, these Indians display a persistent insurgent spirit and general bitterness toward the Mexicans which lead again and again to organized outbreaks, resulting in serious losses. On the other hand the Mexicans of the lower class manifest an insatiable greed for the extremely fertile lands of the tribe, while the government, through its militia, wages a sometimes just but usually merciless warfare that spares neither sex nor age and which generally aims at the annihilation of what is the most virile element of the Sonora population. Occasionally there is a sort of truce, during which the Indians replenish their supply of ammunition and weapons, whereupon, if there be a leader, (and the demand for such seems ever to be fitly met), the insurrection begins anew. And thus, the free Yaquis declare, when one can be induced to speak, it will be until the very last of them; and their history substantiates this determination. The friars have been accused, particularly recently, of fomenting the Yaqui wars for selfish interests; the charge may be true, but is difficult to prove.

Numbers.—From time to time the announcement is made that the Yaquis are becoming greatly reduced in numbers, and are even on the verge of extermination, but such statements are erroneous. As before mentioned, the pure-blood Yaquis alone still form one of the strongest tribes of Sonora. The current reports, including those of Mexican army officers, undoubtedly refer only to the Yaquis in the field, a contingent which varies according to season, opportunity, or other circumstance, and which occasionally, when the supplies are exhausted, or planting or harvest time approaches, disappears entirely. Fortunately for Sonora enterprise there is no prospect of the tribe at large becoming extinct, as has been pointed out.

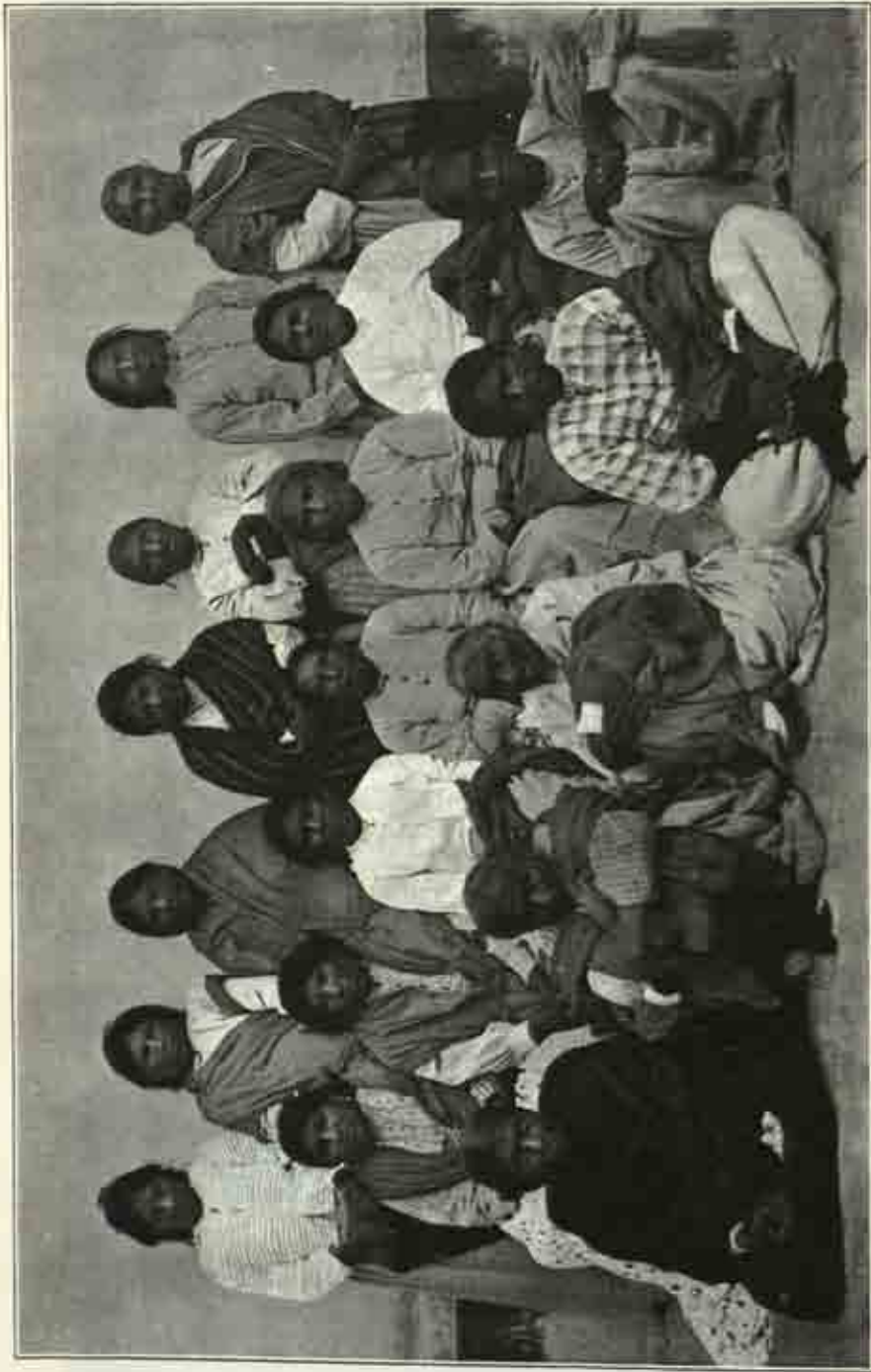
Mode of Living; Dwellings; Dress.—From the time they first became known to the whites until a few years ago the Yaquis lived mainly in seven large villages² and subsisted by cultivating the very fertile neighboring country. No necessity existing for

¹ An account of the later wars of the tribe is given by Hernandez.

² Belem, Rahum, Potam, Bicom, Torim, Bacum, and Còcori. Two or three other settlements are mentioned by different writers. It is uncertain what became of "Yaquimi."



YAQUI YOUNG MEN



YACUI WOMEN

scattered ranches, the people became grouped into large communities. The majority of these settlements are now abandoned to the Mexicans. Torim, Bicom, Potam, and Cocori, all of which I visited, have been more or less transformed into ordinary Mexican towns, with regular streets and rows of adobe houses occupied by newcomers under constant military protection. Only some of the more Mexicanized natives remain; the rest are either scattered in the mountains and over southern Sonora generally, or have been killed or captured. An uncertain number remain in the almost impenetrable cholla, mezquite, and other forbidding undergrowth that covers the entire country along the river, harassing the soldiers and keeping them constantly on the alert. The military not only garrison the former Yaqui towns, but have built a number of picturesque adobe and palisaded forts in the country (see pl. VII, 1).

The native dwelling in the towns mentioned has not yet been entirely superseded by that of Mexican construction. It is generally a fair-sized quadrilateral structure of poles and reeds, or of adobe and reeds or brush, with a flat or, more commonly, slightly sloping roof of grass and mud. The same type of dwellings is seen where the Yaquis live undisturbed; they are identical in style and material to those of the Mayos, and are very nearly like most of those still built by the Pimas and the Opatas (pl. VII). The structure consists usually of the main hut, substantially made, and a connected shelter in which the cooking and most of the indoor work are done. In the country districts I have come across an occasional, probably temporary, hut made in the same manner, but entirely of brush and with but few supporting poles. (Plate VII, 4.)

The simple life of the family in all of these dwellings does not differ materially from that which prevails among most other Indians in warm countries. There is hardly any furniture. The family sleep on petates. Sometimes there are a box for the better clothing, a water-jar, a saddle, one or more water-gourds covered with a mesh of raw-hide, a violin or harp of native make, perhaps a blanket or two, and occasionally a few crude pictures of religious subjects. In the kitchen are a metate and a supply of crude cooking utensils.

The dress of both sexes among the Yaquis is almost wholly like that of the ordinary Mexicans; the only wholly native articles are

the now rare blankets and fajas and the somewhat more common sombreros.¹

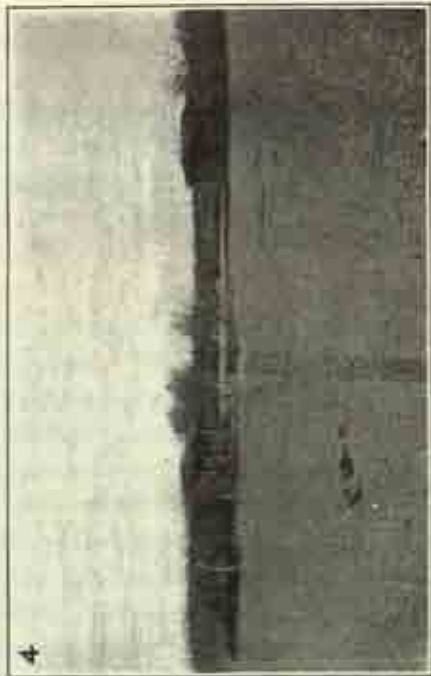
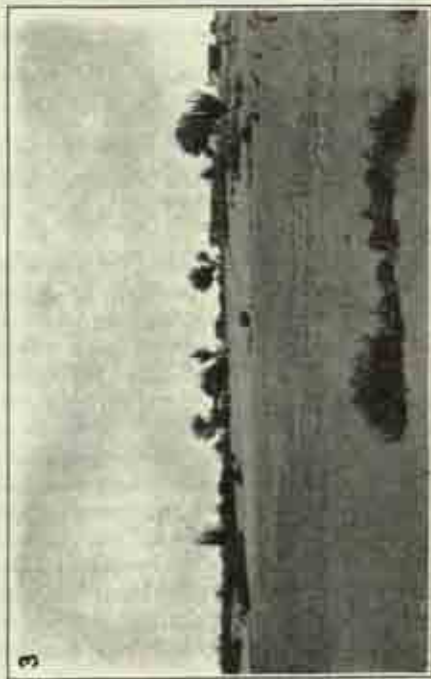
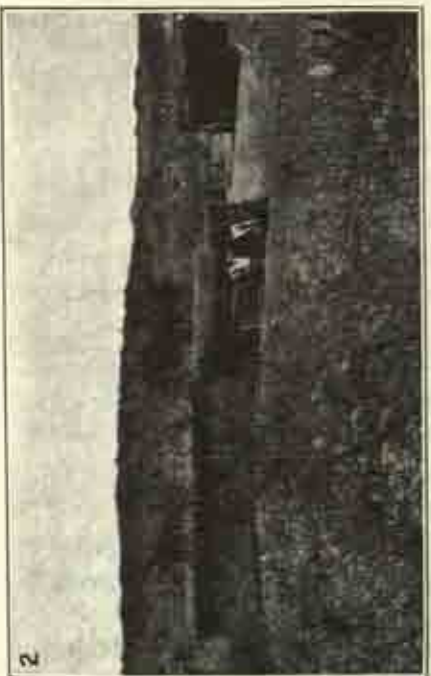
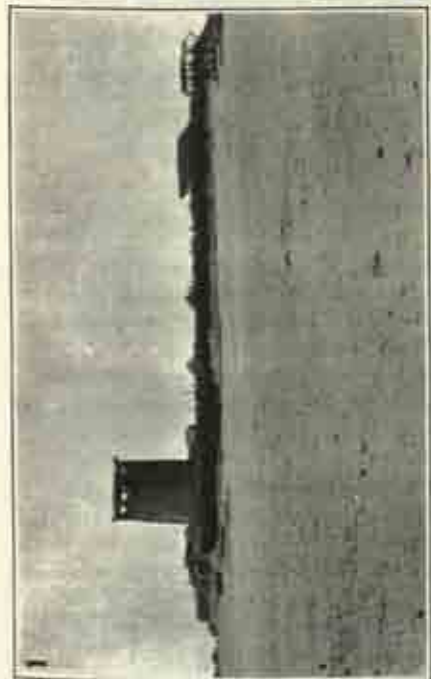
Industries.—My observations and information concerning the industries of the Yaquis may be briefly summarized by saying that, whenever a good laborer or an artisan is required in Sonora, a Yaqui is greatly preferred. As to details I can do no better than to quote the former governor of Sonora, Ramon Corral,² for in this respect, except as to weaving, the conditions of 1884 still prevail:

"The principal industries of the Indians [speaking of the Yaquis and Mayos together] are agriculture, cattle raising, and commerce. Moreover, they are very apt in making cotton and woolen stuffs, using very imperfect apparatus of their own construction. They also make hats and very fine mats from palm leaf, shovels, reed-baskets of different forms, and other objects which they sell at Guaymas and other neighboring settlements. They gather the indigo which is produced in abundance on both rivers [Yaqui and Mayo], and prepare the color; tan the skins of various animals; gather honey; and, in a word, exploit the inexhaustible virgin region to the utmost that their culture permits."

"Over all the districts of the state, especially in those of Ures, Hermosillo, Guaymas, Alamos (Mayos), and Sahuaripa; in the adjacent regions of Sinaloa (Mayos); in Lower California, and in the mineral districts in the Chihuahua Sierra Madre, there are scattered a great number of these indigenous Yaquis and Mayos, who occupy themselves in all classes of work, from labor in the fields to the exploitation of mines and from the use of the plow to that of machines. It is they who compose the laborers of the haciendas; they are the working element of the mines; they are the best mariners of our coast; they fish for the pearl in Lower California, are employed in all kinds of rural construction and work, form the domestic service, and execute whatever public work is undertaken. They resist equally well the cold of the winter and the great heat of the summer, and one of them is capable of performing twice as much work in a day as the best of white laborers. It is not rare to see some of

¹ At Muzian (see pp. 66-67) a number of the slain men had on ordinary American jeans overalls. In the abandoned camp there were modern stockings and small-heeled women's shoes; and near the body of a child lay a little handkerchief with colored border and a picture of a boy with an English verse in the middle. No such gaudiness as is common among many of the United States Indians is ever seen among the Yaquis.

² *Op. cit.*, p. 12.



1. A Mexican fortress in the Yaqui country. 2. Opata dwellings at Tuspe, Sonora. 3. A small Mayo village near Guadalupe, Sonora. 4. Yaqui dwellings on a plain 20 miles east of Hermosillo, Sonora.

these Indians manipulating complicated instruments and machines with the ability of mechanics."

Arts; Decoration; Food.—The manufacture of cotton and woolen fabrics has greatly declined. The only clothing of native weave now to be seen among the Yaquis is the faja and the white serape, the latter ornamented with one or two broad stripes in pale blue and natural brown or black; but even these garments are scarce.

A few articles, particularly rings, earrings, and beads, are made by the Yaquis from silver or other metals. The rings, as a rule, are simple bands, much like those sold cheaply on gala occasions, sometimes with sharp edges and usually showing the weld. The earrings are mostly of one style, probably after the Spanish, but they show better workmanship. The metal beads seen were all rather rude and often angular, looking like drops or pieces of native silver modified by hammering. On the whole the Yaqui silver work seems to be inferior to that of the Navahos.

On ranches each Yaqui employed keeps a personal account, which he carries in a tube made from the native bamboo. Each of these tubes is differently decorated on its surface with numerous incised figures, mostly of geometrical pattern. These figures are not strictly property-marks, yet they serve to distinguish the tubes.

The bows and arrows (pl. viii) made by the Yaquis are remarkable. On the battlefield in the Sierra de Mazatan, on the site of the camp of the non-combatants,¹ I found them in all stages of manufacture, and

¹ In June, 1902, a force of 200 to 300 free and armed Yaquis descended one evening on four haciendas near Hermosillo and, without doing any damage, took away, partly by force, over 600 Yaquis there employed. The whole party proceeded in the direction of Ures, with the intention of reaching the safe upper Yaqui country. A little southwest of Ures the party had a skirmish with soldiers, whom they defeated. Shortly afterward the Yaquis reached the isolated, rough, but not very high mountain called Sierra de Mazatan, nearly south of Ures. Here they waited for the soldiers. The armed party separated from the rest and took up a strong position on a rugged ridge facing westward. The men, women, and children from the haciendas, with a guard of about a score of armed men, made a camp on sloping ground, thickly overgrown with visaches, etc., separated from the ridge by a rough though not very deep barranca. It was in this camp that some of the men commenced to make bows and arrows, rude spears consisting of pointed sticks, and clubs. On the night of June 15th a force of about 900 Mexican soldiers, under General Luis Torres, instead of attacking the armed Yaquis from the front, as the latter expected, rounded the mountain and in the morning surprised the camp of Indians from the

in the barranca, where the Indians had been surprised by the troops, there were arrows and bows that had been used. The bows are plain, nearly 5 feet in length,¹ flat, but slightly arched, and occasionally are strengthened with sinew; they require considerable strength to draw them. The arrows² are stout and measure $2\frac{1}{2}$ to more than 3 feet long; the shaft consists of a stout, hollow reed, while the long point, of more or less prismatic shape, is made, often crudely, of hard, sometimes knotty, white or reddish wood. At short range the Yaqui arrow is no doubt a most effective weapon.

The only club found at Mazatan is made of heavy, dark-red wood; it is 56.5 cm. or $22\frac{1}{4}$ inches long, nearly cylindrical, and has a perforation for a thong at the end of the handle.

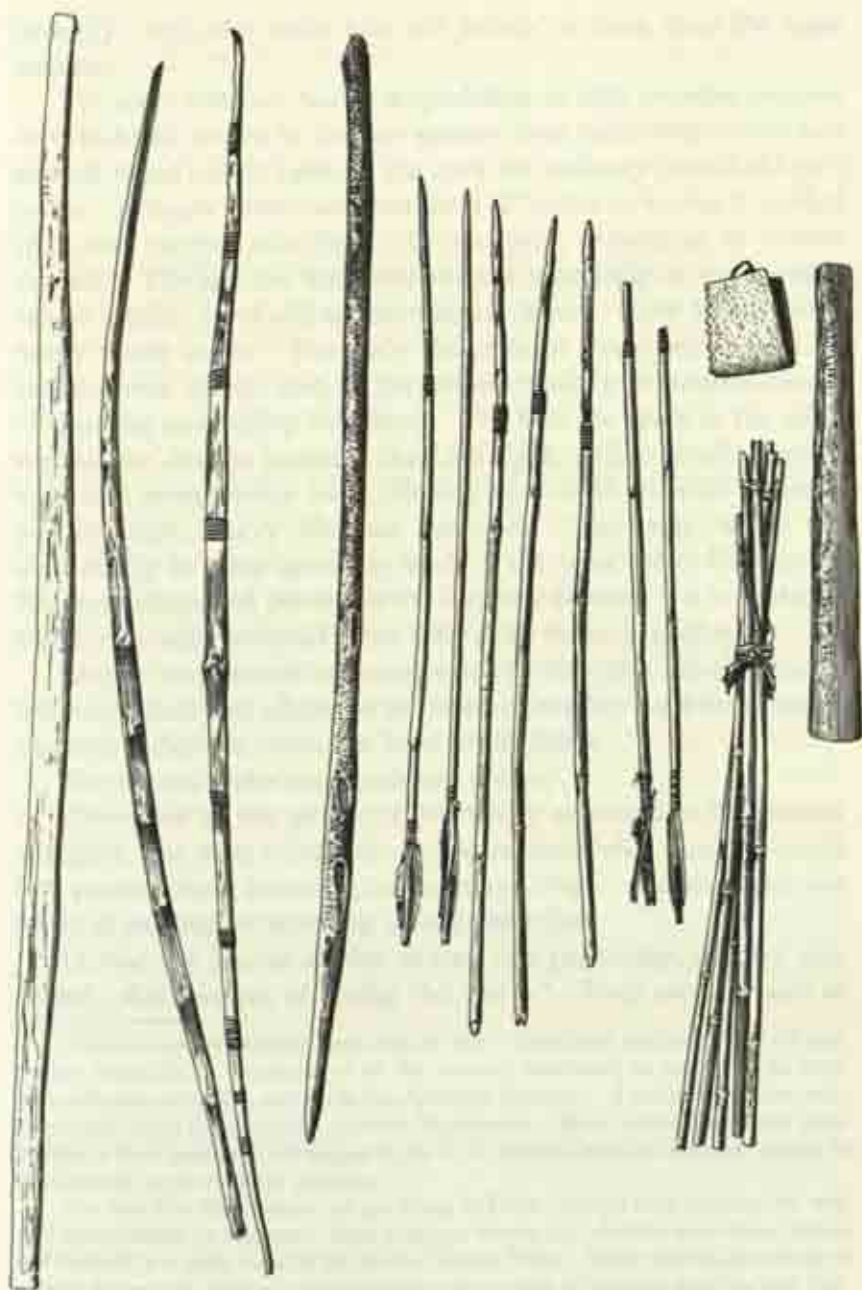
On my return to Hermosillo, General Torres presented me with a large ball-cartridge (now in the National Museum), the powder as well as the ball of which were made by the Yaquis, who, when hard-pressed for ammunition, pick up all the cartridge shells they can and refill them for further use. Our finding of heaps of Mauser cartridges at Mazatan was sure proof to my *rurales* that no Yaqui had visited the field after the battle.

The Yaqui women make several kinds of uncolored palm

haciendas. At the first volley the entire party, except those who were wounded or killed on the spot, ran down the mountain, most of the women and the armed guard directing their flight through the barranca. The soldiers following, killed many here and took the rest prisoners. In one part of the gulch resistance was offered by the armed guard. The main armed body of the Yaquis was too far away to actively participate, and when the panic began, that part, with some of the men from the haciendas, escaped over the mountain. I visited the field with some *rurales* three weeks after the affair, and as no one had preceded us we found everything as left by the Indians and the soldiers. We found the bodies of sixty-four Indians, including those of a number of women; in one nook in the barranca there was a heap of twelve bodies of women and the body of a little girl, while in another place there was a cradle-board (pl. ix, 1) and some bones of a baby. In one spot a row of men lay executed, and a similar row was buried below the mountain. My object in visiting the place was to obtain skeletal material, in which I was successful; but most of the skulls, whether from a peculiar effect of the Mauser cartridges or from the closeness of the range, were so shattered as to be of no use. The material collected is now in the American Museum.

¹ No. 65-2511, A.M.N.H., shortest of five, 126 cm. (49.5 in.); No. 2502, 141 cm. (54.5 in.); No. 2507, the longest of five, 146.2 cm. (57.75 in.).

² No. 65-2531, A.M.N.H., without point, 86.7 cm. (34.25 in.). Bunch of shafts average length, 77 cm. (30.38 in.). Arrow 2524, shaft, 65 cm. (25.62 in.); point, 23.3 cm. (9.25 in.). Arrow 2522, shaft, 73.25 cm. (29 in.); point, 20.2 cm. (8 in.).



PRIMITIVE YAQUI IMPLEMENTS OF WAR

(Specimens in the American Museum of Natural History, New York.)

basketry; they also make hats and *petates*, or mats, from the same material.

The most common basket is quadrilateral with rounded corners, or cylindrical, woven in checker pattern from palm strips about half an inch broad; such baskets are used for ordinary household purposes. A much better but rarer form of basket is woven in twilled style from narrow palm fiber. It is cubical, cylindrical, or bottle-shaped.¹ The last two kinds are double, consisting of a somewhat coarse interior layer and a finer exterior layer. Each basket has a neatly made cover. The only decorations employed consist of varied woven bands, and, in the cubical baskets, of tasteful modes of exposing and ending the fibers. The hats are made in the same way as the double baskets; they are light, with a broad concave rim and a semiglobular body, differing very much from the ordinary pointed, high, heavy Mexican sombrero. The mats, which are used mainly to sleep upon, are made of the same broad fiber and in the same checkered pattern as the ordinary baskets. It is probable that occasionally material other than palm strips is employed.

Simple baby-boards are constructed by fastening together native bamboo splints and adding at the head a properly bent hoop which supports a cloth to shade the head of the infant.

The women make some ordinary pottery.

Decoration of the person is practically restricted to the women and girls, who wear necklaces of various beads with usually a small iron pendant, bead bracelets, earrings, and rings. I neither saw nor heard of painting or tattooing among the tribe.

In food the Yaquis display at least one peculiarity, which I witnessed; this consists of eating the burro.² They are also said to

¹ This last form is probably made only for sale. I obtained specimens from the captives at Guadalajara. Examples of all the varieties mentioned, as well as of the hats, were collected on this trip and are in the American Museum. A somewhat similar cubical covered basket is made by the southern Tepehuanes. More technical notes and illustrations of these specimens will appear in Dr O. T. Mason's work on basketry, shortly to be published by the National Museum.

² On how little these people can get along, and how resistant their constitutions, was well demonstrated at Maratan. Here over 300 women and children were taken captive and confined in a cattle corral of the nearby Rancho Viejo. These captives, according to reliable information, received nothing to eat, owing to lack of supplies, until the next day, when they were given a fanega (about two and a half bushels) of raw corn. The women

like horse meat, like the Seris, but do not consume it raw like the latter. Maize, prepared in numerous ways, is their chief diet, and fruit comes next.

Social Conditions; Observances, etc.—There is no organization among the Yaquis except of that part of the tribe which lives practically free and conducts the revolutions; but most of the remainder are bound closely together by strong sympathies, thus hindering any extensive blending with the whites. The hostile contingent recognizes rule by the elders, and these are generally headed by one or more leaders. The height of their organization was reached under the chiefs Banderas (1825-32) and Cajeme (executed in 1887); the name of the present leader is not known. There is said to be no secret organization among the warriors, and apparently the authority of no one in the tribe reaches further than it can find willing adherence or can be enforced. Not a few of the Yaquis actually serve in the Mexican army, and during the uprising of 1902 I saw some among the Hermosillo volunteers, enlisted to fight their own people.

There are now apparently but few purely native observances among the Yaquis of the haciendas, and the same may be said of the old customs. Velasco,¹ in 1850, mentioned four special Yaqui dances, the "Tesguin" (Tevino), "Pascola,"² "Venado," and "Coyote,"³ and at least three of these still survive among the freer

contrived to kindle a fire and parch the corn, on which they subsisted until nightfall, when they were marched to Hermosillo, about 35 miles distant. One of the men, whom I later examined in the hospital at Hermosillo, was badly wounded in the knee at Mazatlan, but he crawled away into the brush where he hid for six or seven days, subsisting on anything he could find. The last day, from extreme thirst, he drank his urine. Finally he reached an arroyo. He was taken in a car to Hermosillo, where his leg was amputated. Two weeks later, when I saw him, he was approaching recovery, being strong enough to permit me to measure him. Similar instances might be cited.

¹ Op. cit., p. 74.

² Escudero (op. cit., p. 135) calls this dance *Pascol* and says it was thus named because it was celebrated particularly during Easter. This dance, as well as the Venado and the Coyote, are still practised. The principal feature of this Pascol dance is a masked and otherwise especially attired individual, preferably some old and sagacious man, who devotes his time to relating satirical, moral, amusing, or critical tales and epigrams.

³ In the "Venado" a male dancer carries on his head the head of a deer and performs remarkable muscular evolutions. In the "Coyote" or rather "Coyota," the dancers are a male and a female, and the dance, without being immoral, is said to be highly voluptuous. Compare Zúñiga and Hernandez,

members of the tribe. At the haciendas, however, or at Mexican fiestas, Yaqui music and dancing, as well as other Yaqui customs, are becoming more and more like those of the Mexicans.

Zúñiga, Velasco (page 78), and Escudero mention a peculiar but now apparently unknown Yaqui custom of exchanging wives. Escudero¹ says the observance was a part of a fiesta or ceremony called *Tutile Gamuchi*, and those who did not exchange wives on this occasion were not considered good Yaquis. Hernandez² says he found no trace of this, nor could he obtain any account of it from the Yaquis themselves. If any survival of such a custom still persists it can be only among the free members of the tribe, observations among whom are lacking.

A former custom, traces of which are still heard of, was the initiation of the youths by the warriors.³ This ceremony, apparently identical with that practised by the Opatas,⁴ consisted in giving the applicant useful counsel and in subjecting him to various tests of endurance, particularly by lacerating him with eagle's claws.

Marriage, natal, and mortuary ceremonies are mainly Catholic, but from what I could learn of the subject they are never without a strong tinge of the native. Among women marriage usually takes place very early. The bridegroom is chosen, at least nominally, by the father of the girl. The dead are buried in the ground. No tribe in Sonora practises cremation.

Character.—The Yaqui, as all agree who know him and as can be easily seen anywhere, besides being a good workman is generally orderly, cheerful, intelligent, endurant, and brave. He loves music,⁵ dancing, and sport, and greatly appreciates wit and humor;⁶ but he is also easily provoked to rebellion, is occasionally inclined to shiftlessness and to drink to excess, is quite superstitious, and is

¹ *Ibid.*, p. 135.

² *Op. cit.*, p. 94.

³ Compare Hernandez, p. 91.

⁴ *Rudo Ensayo*, pp. 86-87.

⁵ Not a few of the younger Yaqui men know how to play the violin, flute, guitar, or harp. They learn this simply by perseverance, without any special instruction. They make their own violins, as do the Tarahumares and many other Mexican Indians, and also the flutes, harps, and occasionally drums.

⁶ "The Yaquis are celebrated for the exuberance of their wit."—Hardy, *op. cit.*, p. 772.

never very provident. From my own observation it would seem that the Yaqui is in no way radically different from the typical Indian, save that he is of superior physique and virility.

The best account of the bravery of the warring Yaquis was given me by the Mexican army officers who fought or still fight against them.¹ They run if defeated, but once captured they offer no complaint and make no effort to escape execution, their usual fate. Velasco² wrote in 1850: "They are of firm character and nothing will move them when they decide upon some project or are guarding a secret. Even the Masons are hardly capable of equaling the Yaquis in the vigilance with which they keep their mysteries, secrets, or undertakings." The same is quite true today. No Yaqui captive has been known to turn traitor, even at the cost of life. The invariable answers of the prisoner to his questioners are: "*No se*" ("I do not know") and "*Caito culpa*" ("No fault").³

The determination of the Yaquis to resent Mexican encroachment on their land and white domination may be illustrated by merely stating that they have had important uprisings against the Spanish or Mexicans in 1609, 1740-41, 1764-67, 1825-27, 1832, 1840, 1867-68, 1887, 1889-1901, and 1902. Since 1825 the tribe has never been really at peace.

The warfare of the Yaquis is not that of savages. They have

¹The higher officers of the Mexican army are, as a rule, educated men and gentlemen; but the common soldiers are often recruited from criminals and are undoubtedly responsible for much of the gross injustice and many of the barbarities committed against the Indians.

²Op. cit., p. 74.

³Two days before my visit to Torim, some soldiers found a Yaqui eating *pitayas*. They shot him in the thigh, took him to Torim without any treatment of his wounds, and cast him into prison. A short time before a person obnoxious to the Yaquis was killed in his house, and as a rifle and a belt of cartridges were found near the prisoner, he was suspected of complicity at least. There was, I was told, no trial. Early next morning they placed the wounded man on a burro, telling him they would conduct him to a hospital; but he answered that he knew well enough to what sort of hospital they were going to take him! They then tried to obtain from him a confession, promising him mercy as a reward; but the answer was the invariable "*Caito culpa*," and "You can hang me if you want to." So they took him out, riding on the burro and his wound still unattended to, more than four miles beyond the town, and hung him from a *visache*, where I found him on my way to Torim the next morning (pl. ix, 2). The history of the case was related to me by Torim Mexicans themselves.

many times in the past been reported to have plundered neighboring ranches, but I have learned of no such occurrence in recent time. Mail stages, sometimes with passengers and valuables, pass daily through their country; only once during the uprising of 1902 was one of these attacked and its occupants killed, and then it was not certain that the deed was done by Yaquis. Instances of torture have been spoken of; it is said that some captured Mexican soldiers were compelled to walk barefooted, or even with the soles of the feet cut off, over hot coals, but the statement of the occurrence is difficult to verify. It would of course be folly to suppose that all the Yaquis lack barbarity as well as other bad qualities.¹ Two Americans from Hermosillo were killed by members of the tribe near Torim,² but it appears that the men had been imprudent, endeavoring, in the face of warning, to photograph an armed band.

THE OPATAS

The Opatas have a good claim to be better known to anthropology. The tribe has nearly always been friendly to the whites, and, with other good qualities, has always shown a brave spirit. The people speak, or rather spoke, a language different from that of all the other large Sonora tribes; they differ also in other ways, all of which increases the desirability of learning something of their original habits and relations. For much knowledge that could once have been acquired, it is now too late, but with persistent effort something might still be saved. The tribe is disappearing — in a manner exceptional among American tribes — by voluntary amalgamation with the whites, whose numbers in the Opatá country, since the termination of Apache hostilities, have greatly increased. In a few generations, under conditions similar to those of the present, the Opatas as such will have ceased to exist.

¹ Particularly after such examples as they witness in the Mexicans. They are distributed broadcast among the ranches, where they are practically in slavery. At the Guadalajara Hospital I examined over twenty women, nearly all speaking Spanish and belonging to the Catholic church, every one of whom had lost not only every adult relation but even her children, the latter having been torn away from their mothers and given to whomsoever applied for them. At the Hermosillo Hospital I saw a girl, seven or eight years of age, with three bullet wounds in her body, and there were also a number of wounded women. There is no end of such examples.

² Their bones still lay in the brush in 1902, but I was unable to recover them.

I visited this tribe in several localities, particularly at Opodepe, along San Miguel river, and at Tuape.¹ San Miguel valley is apparently the principal focus of the remnants of the people.

According to data gathered from all sources, small numbers of pure-blood Opatas may still be found at Masacauvi, La Concepcion, Suaque, Baviacori, Distancia, Aconche, San Felipe, Huepac or Huepaca, Banamiche, Sinoquipe, Arispe, Chinape or Chinapa, Biquache; also at Rayon, where they are mixed with the Pimas; and at San Miguel, Opodepe, San José, San Juan, Marysiche, Pueblo Viejo, Tuape, and Cucurpe, on the Rio San Miguel; with a few more in the district of Moctezuma and Sahuaripa (pl. iv, 3; pl. ix, 3).² In a number of these settlements which I visited there were but few pure-bloods. At the little village of Tuape, however, and in the adjacent Pueblo Viejo, the pure Opatas are still in large majority.³ Here also many of them still know their own language and preserve at least some of their customs and ceremonies, and probably some folklore and traditions. This fact, together with the proximity of Tuape to the railroad (less than a day's journey from Querobabi, on the Sonora Railroad), makes this locality especially favorable for investigation.

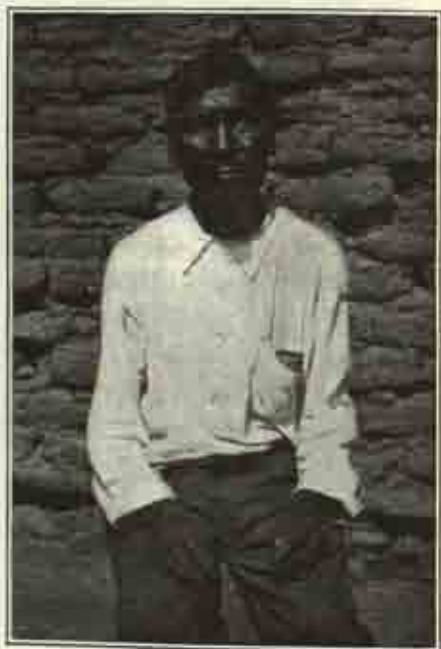
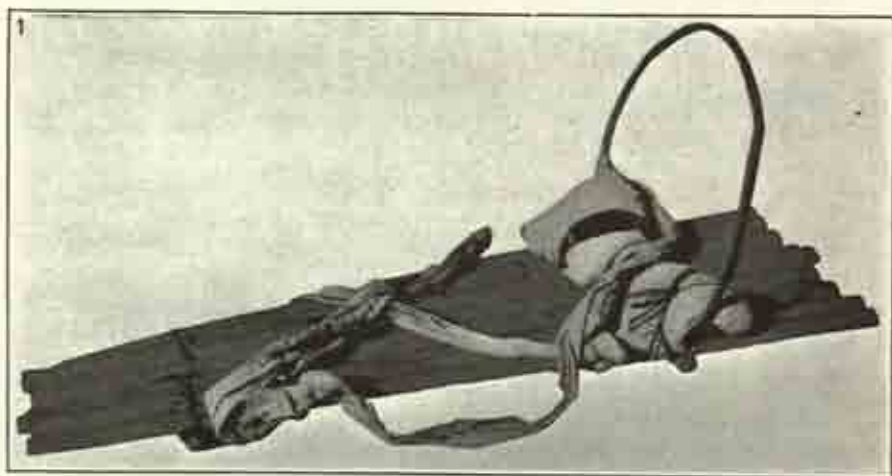
Dwellings; Dress; Industries.—The present Opatas dwellings are quadrilateral, with flat or slightly sloping roofs, thus following the general type of native dwellings throughout Sonora (pl. vii, 2). Formerly, I was told, the Opatas also built round structures. The materials used for the walls are stone, adobe, and reeds (or a combination of some or all of these), and zacate, reeds, boughs, and mud for the roofs. Formerly stone foundations or walls were common, with roofs of native timber, ocatilla, grass, and mud.

Of native costume but few traces now remain. Men wear pan-

¹ At Tuape I was so fortunate as to find two resident Americans, one, Mr James G. Chism, actually the *jefe politico* of the village, the other Dr E. M. Alderman, a physician-miner, Mr Chism's companion. Both of these gentlemen have given me much valuable aid. I owe particularly to Dr Alderman, who has lived many years among the Opatas, a large part of the information herein noted in regard to the tribe.

² Some of these names differ somewhat in local native pronunciation from the usual orthography. For old Opatas pueblos see Bancroft, *North Mexican States*, I, pp. 513-514; *Rudo Ensayo*, cap. vi; Hernandez, *op. cit.*, pp. xii, xv.

³ According to the census furnished me by Dr Alderman, there are 41 pure-blood Opatas at Tuape and 154 at Pueblo Viejo; but here, as elsewhere, they are decreasing.



1. Yaqui baby-board, from the battlefield at Sierra Mazatan. 2. "Cabo Culpa," executed Yaqui near Torim, Sonora. 3. Type of Opata man, San Miguel valley, Sonora.

taloon and shirts of manta, as do all the rural male population of the locality; the women dress in loose shirts, jackets, and skirts, all made of manta or calico. A few serapes of wool or cotton are the only specimens of native weaving now to be seen. In the past, Dr Alderman was told, these people made blankets or *tilmas* of coarse woven fabric, which were wrapped around the body;¹ originally this was the only article, except a breech-cloth, worn by the men. The women formerly wore short skirts made from the inside bark of the cottonwood, which was obtained in large sheets and scraped down nearly to the thinness of paper.

The chief occupation of the Opatas is agriculture, their crops consisting principally of maize, frijoles, melons, and chile.² They also fish in the rivers for a species of minnow, which they eat whole; formerly they netted them with their *tilmas*. Some of the men are employed as laborers, drivers, etc.

The Opatas make water jars and cooking vessels of clay, burning them to about the hardness and color of red brick. In ancient times, they say, they made a kind of stoneware, some of the stone jars being nicely finished inside and out and holding up to ten gallons or more. The women make hats and a few ordinary baskets and mats from the palm leaf; formerly they made baskets and water vessels of willow. They also make ropes and thongs from the fiber of the maguey and yucca, from which they also formerly manufactured snares for deer and peccaries, when these animals were very abundant in their country. This was the principal means of trapping known to the tribe. Of the same fibers they also wove better *tilmas*, which were worn at fiestas and on other great occasions.

It appears that the Opatas made four kinds of fermented liquor — one of corn (*tesvino*); one of mezcal;³ one of the fruits of various cacti, such as the saguaro, the pitaya, the cholla, and the nopal; and the last from the stringent native grape.⁴ *Tesvino* seems now

¹ Compare *Rudo Ensayo*, p. 95 et seq.

² *Ibid.*, cap. iv, sec. 1.

³ *Ibid.*

⁴ "The wild grape is to be found all over the Province [Sonora] in damp ravines, creeping up the groves of willows, poplars and mesquites. It is called *Aurague* in Opatas, and is ripe in May and June. It is eaten by the Indians, who also eat the leaves; but it

to be the only native liquor, being sometimes made in San Miguel valley.

Social Customs.—There are now apparently no traces of tribal organization among the Opatas, and their only religion is an adaptation of the Catholic faith. To correctly determine the exact status of any people in these respects, however, would require personal and prolonged, specific investigation.

Along San Miguel valley the Opatas do not like to be regarded as Indians; they prefer to be called "Mexicans." Very few under thirty years of age can speak their native language; even if they understand it they do not like to employ it, and if any one addresses them in Opatá, they answer in Spanish. According to Dr Alderman, in all the families of Tuape, with one exception, the older people speak the native language while the children use only Spanish.

The Opatas maintain their reputation for honesty, but there are exceptions among youths who come frequently in contact with whites. Crime is almost entirely confined to murder, the result of drink or jealousy.

Both sexes among the Opatas are apparently as much inclined to excess in drink as among the neighboring tribes; but there is nowhere north of the Rio Grande del Sur (Rio Tojolotlan) such thorough addiction to drink as in many parts south of it—in the *pulque* or *caña* regions. The only native drink made today by the Opatas of San Miguel valley is, as above mentioned, a rather weak *tesvino*, made by fermenting corn with yeast. Occasionally the corn is first made to sprout, which was the original method. This liquor seems to leave no permanent bad effects. Unfortunately, at the numerous fiestas, particularly among the *vecinos*, the Indians consume much Mexican mezcal or other liquor, often of a vile quality. Alcoholic drinks of all kinds generally produce at first a state of hilarity, manifested by singing, shouting, playing, dancing, and sometimes by fighting; this is followed by stupidity and finally stuporous sleep.

is acrid and of little benefit. I have seen vinegar and even rum made of it, but it is seldom used for this purpose."—*Rudo Essays*, cap. iv, sec. 1. Among the Pimas, "the wine or drink, with which they become intoxicated, is made out of maize, the maguey called *mezcal*, wheat, Indian fig, and other things"; but the worst of all is that made of the alder tree."—*Ibid.*, cap. v, sec. 4.

The women are reported to be virtuous, but those addicted to drink are said usually to become dissolute; for neither vice, however, are they ostracized, and indeed occasional drunkenness is not regarded as at all degrading.

The Opatas deny that polygamy ever prevailed among them, but they acknowledge that occasionally men had concubines.

Traditions; Former Culture.—There are certain traditions among the Opatas, but the subject would require long and patient investigation and careful sifting from foreign elements. The younger generation, as among all Indians adopting white men's habits, are ignorant of their history. Perhaps the Opatas farther eastward, near the lofty sierras, preserve more traditionary lore than those of San Miguel valley. Bandelier¹ obtained from them references to their fights with the Casas Grandes (Chihuahua) people, which must have occurred in very ancient times, since the Casas Grandes structures have not been inhabited within the historical period. Their most vivid and numerous recollections, however, pertain to their long struggle against the Apaches.

As to the former culture of the tribe we must rely mainly on the account preserved in the *Rudo Ensayo*. A few surmises may also be made from relics found in the Opata country. According to Dr Alderman the only farming implement found is a hoe made from *guayacan* (lignum vitæ), but stone axes, mealing stones, and stone mortars are found quite frequently. Arrow-heads and lance-heads of bone are also often found, but few of flint have been discovered, and these are believed by the Opatas to have been lost by other tribes, especially the Apaches, while at war with them. A few broken clay images have been unearthed, but none of these nor any of the other specimens mentioned have been preserved.

Native Observances.—The chief one of the few entirely native observances still practised is known as *Taguaro*,² which purports to be the celebration of a peculiar victory once achieved by some Opata women over a band of marauding Apaches. According to

¹ *Final Report*, part II.

² According to the *Rudo Ensayo* the term *taguara* (there is no mention of the observance bearing the name) means the large sparrow-hawk (p. 46), while *taguaro* was the plant *tolocha* or larger *estafiate* (p. 61 orig.).

the more or less variable tradition, an important Opatá pueblo, in which was kept the much-coveted figure of the powerful god Taguaro, was one day suddenly attacked by Apaches while the men had departed for some reason, leaving the women alone. The Apaches were always enemies of the Opatas, and on this occasion they wanted above all to get possession of the idol. It chanced, however, that they were discovered by some women who went to get water; these alarmed the others, and all armed themselves, principally with ashes, with which they blinded the invaders, threw them into confusion, and finally repulsed them. The men returning soon after, the pueblo with its precious idol remained safe. The strange victory was attributed to aid from Taguaro, hence the *Taguaro* is now celebrated in its commemoration.¹

El Taguaro is held the first Monday after Easter week. A doll is made from straw and rags, in representation of Taguaro, and is placed during the night preceding the ceremony on top of the church tower. Early in the morning of the *Taguaro* day a band of Opatas, dressed to represent Apaches, with faces and bodies painted, and armed with bows, arrows, and guns, proceed for a certain distance beyond the village, then turn and simulate the stealthy approach of an enemy. They pass unnoticed until near the church, when suddenly they begin yelling and shooting at the stick on which the image is perched, trying to knock it down. They eventually succeed, and as the image falls they pounce upon it and dance with it through the village, carrying it away. But as they reach the plaza they are confronted by the women of the settlement, who carry baskets and other utensils hidden under their rebozos. The two parties commence to taunt each other, and finally rush together as in battle, whereupon the women reach into their receptacles and the rushing "Apaches" are treated to a shower of ashes, which blinds them; they are thus thrown into confusion and the entire invading

¹ I find only one report of this observance and that in Hernandez, op. cit., p. xii. According to this author the Apaches "come and steal burros and women, and the inhabitants of the pueblo come to the defense and to recover what has been taken. After this the people go to the plaza, where stands a high pole with a figure or doll (*muñeco*) on the top, which is the Taguaro. The old ones come with some rattles and sing, while the warriors shoot at the figure and according to their dexterity receive ovation or vituperation."

party retreats, pursued by the women who take as many prisoners as possible. Sometimes half a dozen women seize a single "Apache" and carry him off with them by main force. Finally the whole attacking party is dispersed or taken captive, leaving the image of Taguaro in safety. The prisoners are taken to the guardhouse, and in order to gain freedom are obliged to pay a fine (in Tuape usually two and a half pesos). The money thus obtained is generally expended for drink.

Thus is the occasion celebrated one year. The next year the doll is made and put in place by the men who the year before belonged to the attacking party, and a band of women dress in representation of Apaches and attack the town, while the men at home take the part of the women with the ashes, etc.

Another ceremony still observed is known as *La Cuelga*,¹ and occurs the day after the *Taguaro*. There are music and dancing, but the principal feature is an exchange of gifts between men and women, mostly, though not exclusively, between husband and wife — the peculiarity of the giving being that the receiver is bound at the next *Cuelga* to repay the donor at a double rate. There is no limit to what may be given: it may be a piece of money or a cow, and the custom is a source of much merriment as well as of some vexation. Articles that cannot conveniently be made up in a package are transferred by means of signs or of writing in a wrapper or an envelope.

These observances were witnessed by both Dr Alderman and Mr Chism, and their description agrees with the above. The same custom, with variants, is observed in several places besides Tuape.

In former times the Opatas practised, with ceremony, the initiation of young men as warriors.² They also had a nocturnal dance as an invocation for rain, in which "a number of girls, dressed in white or simply wearing a chemise, would come out at night to dance in a place previously well swept and embellished, leaving behind them, in the house from which they came, their musicians,

¹ Hernandez (op. cit., p. xi), who also speaks of this observance, citing an unnamed author, says it is known as "*Dagáimara*" ("Give-me-and-I-shall-give-you") and is in commemoration of the fraternization of the Opatas and the Spanish. The "double rate" is not mentioned.

² *Rudo Ensayo*, pp. 86-87.

who consisted of old men and women, making a noise with hollow gourds, sticks and bones."¹

In addition the Opatas have numerous nominally Catholic fiestas, of which drinking seems to be the general culmination.

Physiological and Medical.—Opatas girls generally attain puberty during the twelfth or thirteenth year, but Dr Alderman saw two girls who reached this stage at about nine years. Puberty, as well as the established function, seldom occasion difficulty; yet there are exceptions. The menses last mostly from three to five days; menopause generally occurs between forty-five and fifty years. Women remain secluded during menstruation.

Opatas girls now marry at all ages after puberty, although generally between fifteen and eighteen years. Marriage is seldom contracted as a result of mutual love, it being arranged by the parents. During married life the woman occupies a subordinate position, not, however, without having and asserting some rights of her own and enjoying considerable liberty.

A few cases of sterility have been observed, but in general the Opatas women are prolific. Five or six children in a family are common, and there are instances in which one woman has borne twelve, fifteen, and even more children. Nevertheless, a large grown-up family is not usual, many of the children dying, particularly of intestinal disorders, when young. Twins are born occasionally, probably somewhat more frequently than among whites.

With the aid of Dr Alderman I have obtained the following limited statistics, which were recorded with reasonable care and after repeated inquiry. As among all Indians, it is hard to obtain the actual facts of this nature among the Opatas, owing to ignorance and prejudice. But few of the Opatas know their age, hence most of the ages could only be approximated by asking the Indians how old they were when the French were in Mexico, or when the cholera raged in their country, or if they remember when gold was discovered in California, etc.

The interest of the different columns is self-evident; they show the fertility of the people, the high mortality of children, the very

¹ *Rudo Ensayo*, pp. 79-80 (173 of trans.). For accounts of further observances see *ibid.*, cap. v, and Hernandez, *op. cit.*, p. xii.

early age at which women frequently commence to bear, a large percentage of miscarriages, and frequency of twins.

NAME	AGE	CHILDREN			AGE AT BIRTH OF FIRST CHILD	MISCARRIAGES	TWINS	CONCEPTIONS
		LIVING	DEAD	TOTAL				
1 Antonia Villa	31	4	3	7	15	1	—	8
2 Maria Angeles	34	4	2	6	23	—	—	6
3 Oulana Tabinico	40	5	1	6	17	—	—	6
4 Luisa Albera	50	9	6	15	17	2	—	17
5 Francisca Pares	52	2	4	6	20	2	—	8
6 Salome Urquidas	53	4	2	6	15	1	1	7
7 Jesus ¹ Murieta	58	8	14	22	15	3	2	25
8 Pascuala Robles	62	3	2	5	15	—	1	5
9 Gabriela Sierra	62	8	12	20	15	5	—	25
10 Jesusa Vergana	64	5	7	12	17	2	—	14
11 Delfina Atondo	64	7	2	9	26	4	—	13
12 Josefa Cocoba	65	2	1	3	27	1	—	4
13 Valerina Pares	69	0	9	9	13	3	—	12
14 Albina Ajesta	82	8	11	19	14	—	3	19

Some of the miscarriages are undoubtedly due to syphilis; others, in Dr Alderman's opinion, are caused by the women lifting heavy loads on and off their heads, this being their favorite mode of carrying, the women conveying in this way nearly all the water used by the family from the rivers up trails to their houses, which at Tuape are 75 to 100 feet above the supply. The jars in which they carry the water often hold six gallons, and when filled weigh

¹ Some names, although possessing a feminine form, are used for both sexes in the same form. Two children in the same family may bear the same name. Dr Alderman writes me, Oct. 16, 1903, on this interesting subject as follows: "You would find in almost all the families two of the same name and sometimes more. They name their children after the saints, such as Jesus, Juan, José, etc. And if a child dies, the next child that is born in the family takes the same name in memory of the departed. In some of the large families, as many as three, or even four, children have honored some one saint by wearing his name. Some of their names are used for both girls and boys, such as Jesus, Refugio, etc. It is true that these names have a feminine termination, as Jesusa, Refugia, but these people use the masculine name for both sexes. In rare cases I have known two of the same sex and same name in one family, and both living. It is not very exceptional to find a brother and a sister by the name of Carnacion, and often two little Jesuses in the same family, full brother and sister. In a house adjoining the store where you worked when you were here, there was a case of this kind, although the people were not of full blood."

about 55 pounds. To raise this load and put it on the head certainly cannot be conducive to the safety of a pregnant woman.

Most of the children die, when young, from intestinal disorders, measles, and occasionally smallpox. But little care is taken of the health of the children. No effort is made to avoid contagion or epidemics. On the contrary, mothers will deliberately expose their little ones to measles and other contagious diseases, believing that they must contract them sooner or later and that it is better for them to get through with it. I have met with a similar sentiment and practice in several localities among the white Mexicans, and indeed it is not unknown among our own people!

Although Dr Alderman has attended nearly fifty confinements among the Opatas, he never observed a deformed pelvis, and I have not seen one. The external as well as the internal genital organs do not differ appreciably from those of whites. In only a small proportion of the cases is the pubis or the axilla without hair.

The fœtus is believed to breathe in the womb, air gaining access to it through the vagina; should the latter be occluded in any manner, the child will lose its breath and die. An Oyata woman recently testified to this effect before a judge.

Labor lasts usually from eight to eighteen hours, but instances are known of a duration of but a few minutes, while, on the other hand, in a small number of cases several days elapsed between the first occurrence of pains and the delivery, without prolonged interruption in the pains. There are but few instances in which the labor was more or less atypical and really difficult. Among the cases in which he assisted, Dr Alderman has seen but one feet presentation; he never saw nor could I learn of any monstrosities.

In labor the woman usually kneels or squats with her feet apart. She is attended by her nearest female relatives, but other women and even men and children may be present: the event is not considered one making secrecy necessary. A rebozo, or light shawl, is tied about the woman's abdomen, above the fundus, and tightened as much as "two women can draw" (Alderman). During the pains (at any period of the labor) a woman takes the patient (who has assumed a sort of sitting posture) by the hips and shakes her violently to and fro; this manipulation is repeated at intervals until the child

is born. Sometimes two women, one at each side, will alternate in pressing strongly on the fundus.

The cord is tied and cut. The placental portion must in some way be fastened to the thigh, otherwise, it is believed, it might recede and be lost within, when the woman could not be delivered of it and the after-birth. The placenta, however, seldom causes trouble; it is buried, with no special care or secrecy. The toilet of the mother is restricted to drying with pieces of cloth, washing being delayed until the *dieta* is over. If flooding occurs, the women set fire to mescal wine, which, when warm, is extinguished; into this is then dipped a piece of muslin which is introduced as far as possible into the vagina. This treatment is sometimes, though not generally, effective.

After delivery the woman usually remains four or five days in bed; but she observes a *dieta* for forty days, during which time she must not wash nor comb her hair. The *dieta* consists of the exclusion of chile, frijoles, fresh meats, etc.; the woman subsists solely on a little dried meat, chicken, eggs, and a few other simple unstimulating foods, with but a small allowance of salt. It is probable that this limited diet is in part the result of Mexican influence. Nursing is generally normal, although it happens, particularly in the more fleshy women, that the secretion is scanty. As among others Indians the nursing is often prolonged until the child is two years of age or even older, but the child is weaned at once if the woman finds that she is again pregnant.

The Opata women attribute a peculiar influence on the health of the new-born child to the anterior cranial fontanel, though I have reason to doubt whether this is original with them. This soft place on the infant's head is called *mojera*, and is believed to be capable of "falling down," thus making the child ill. To prevent this, Dr Alderman told me, a woman takes the babe on her knee, lets its head hang downward, and, introducing her thumb into its mouth, presses strongly upward upon the palate, sometimes sufficiently to abrade it, thus "raising" the *mojera*. Sometimes, when an older child is sick, an old woman will suggest that its *mojera* needs "raising"; the child is thereupon lifted by the heels and shaken up and down.

Another curious belief of the Opatas which Dr Alderman has sometimes observed, is that people, and especially children, have a certain part of the intestine, called *tripiide*, which they may lose, but which can grow again.

Native medical treatment is on the decline among that portion of the Opatas more particularly dealt with here. I could learn of no medicine-men, of which there was no dearth at the time the *Rudo Ensayo* was written, but along the Rio San Miguel there are a few old medicine-women who know and use such herbs as peppermint, *rosa de castilla*, etc. Camomile, red-lead, and metallic mercury are procured from the dealers and are used quite indiscriminately. Dr Alderman, whose services are frequently demanded, knew of a child who was given a decoction of native herbs which resulted in death a few minutes later. Some of the old women's mixtures are said to contain twenty or more ingredients, as barks, thorns, roots, leaves, flowers, seeds, nuts, grass, and domestic supplies, such as coffee, rice, salt, sugar, tea, pepper, and egg-shells. These are sometimes boiled in water, milk, wine, or vinegar. Such concoctions are given even to babies while teething, and some of them, as might be expected, do not survive.

There is no doubt that there are many valuable medicinal plants in the region, some of which may have been well known to the earlier Opatas;¹ but nowadays they are rarely used with discrimination. For snake bites the people employ a lactescent cathartic plant called *golondrina*, while scalds or burns are sometimes treated by the application of dog excrement.

Prayers and offerings to saints are today resorted to more than medication by the Opatas, as by the white Mexicans.

Sick persons must not touch water except to drink, and they must not shave nor comb their hair, nor taste fruit of any kind. To cover the body with a coating of lard is regarded as very beneficial. Vermin, especially on a sick person, are believed to be healthful, and few can be found who are not supplied.

¹ The *Rudo Ensayo* is replete with accounts of native medicinal herbs and their uses. There were remedies for amenorrhoea, difficult labor, wounds, fractures, etc. The *peyote* was well known to the Opatas, as well as to the Yaquis. Treatment by incantation and sucking was also practised.

According to Dr Alderman the Opatas believe it to be unwholesome to bathe, except on San Juan Bautista's day (the great holiday of all Sonora Indians), when all water is holy and therefore harmless.¹

The most common disorders among the Opatas, as among all the Indians of the Southwest, are those of the digestive system; in infants, as above mentioned, they are often fatal. Malarial fever is also prevalent.

Among twenty-two women from San Miguel valley whom I measured, seven had goitres.² In these cases the enlargement was twice unilateral, only on the right side, and five times bilateral, but without exception larger on the right. The natives have no definite conception of the cause of this disease and no knowledge of how to cure it. All the goitres seen but one were of moderate size. I observed no case of the disease among the men, but was informed that they are afflicted with it also, though much more rarely than the women.

Venereal diseases are quite common, but, as among other north-Mexican tribes, serious syphilitic lesions seem to be rare. Rickets is unknown among those of pure blood. Pulmonary tuberculosis occurs, but is not prevalent; it seems to attack the half-breeds oftener than the full-bloods.

Insanity and idiocy are said to be very rare. In all his experience with the Opatas Dr Alderman knew but one insane person (a man who had the delusion that he owned everything) and but a single feeble-minded individual. I could obtain no information regarding children born blind or deaf. The only case of serious

¹ These beliefs are not wholly original with the Opatas, but were largely introduced by the Spanish Mexicans, among whom they are still prevalent. The ordinary Mexican is afraid of water. I have never seen my *mestizo* companions, and very seldom those of the better class of white Mexicans, wash. I was many times warned not to wash my hands and face every morning; and when toward the close of 1902 I was stricken with fever, it was the unanimous opinion of those about me that it was due to my morning *baños*. [Since writing the above I have found a similar state of affairs reported among the Mexicans of the Opatas country in 1829 by Hardy (op. cit., p. 715); and I find also the following note in the *Rudo Ensayo*, p. 158 transl.: "These poor women [Opatas] are in great need of such remedies [for amenorrhœas], for they go into the water and bathe at all times."]

² *Native Races*, I, p. 588: "The Opatas of Oposura are disfigured by goitre, but this disease seems to be confined within three leagues of the town."

nervous disease of which I could learn was that of paralysis agitans in a woman who had been addicted to liquor.¹

On the whole the Opatas are healthier and generally in better physical condition than their white or mixed Mexican neighbors; and were the main principles of hygiene inculcated into them and alcoholism prevented they would rapidly increase in numbers.

Lost Customs.—Among the customs the Opatas have abandoned are two that deserve particular mention. One is tattooing, which used to be practised on both sexes and from childhood (*Rudo Ensayo*, p. 84); the other is that of burial, in which the body was laid in a grave with all the effects of the individual—his favorite dish, basin of water, etc. (*ibid.*, p. 85). I have seen no instance of tattooing, while burials take place in the *campo santo* of the church and according to the rites of the new religion.

SERIS, PAPAGOS, PIMAS

Of the Seris I have met but one individual, the measurements of whom, for purposes of comparison, are given in the table at the close of this paper.

The Papagos and Pimas were both studied principally in Arizona. Many of the Pimas Bajos, as mentioned before, are of about the same culture-status as the Yaquis or Mayos; while the Papagos along the Sonora border still retain enough of their aboriginal customs to make them ethnologically important. The Papagos near Torres, south of Hermosillo, make characteristic white coiled basketry with red figures. Several comparisons concerning the physical anthropology of these tribes will be found in the tables.

PHYSICAL CHARACTERS OF THE SONORA INDIANS

As the details of my physical examination of the Opatas, Yaquis, and Mayos are being prepared for publication in another form, with

¹ An interesting case, probably allied to chorea, was recently communicated to me by Dr Alderman, as follows: "One of the men who work for Mr Chism looks, walks, and talks like a very drunken man, and this has been his condition since birth. He is married, and is the father of several children, whose intelligence is on a par with other Opata children of the same age. He does not drink to excess, he is an expert vaquero, but rides in the most drunken manner, and how he manages to remain on his horse and throw his reata with precision is a wonder."

similar data on all the tribes visited, I will restrict myself in this place to a few particulars only.

The most important result of the measurements is the definite separation, particularly by their head-form, of tribes that have always been supposed to be of identical origin, such as the Yaquis and Mayos, and the Pimas and Papagos. But there are also other points of great interest.

The color of the Sonora Indians differs only individually; the pure-bloods are of the same brown as the Indians generally, ranging from light yellowish brown in some women and in some of the dressed younger men, to dark, nearly chocolate brown in others, particularly in some of the aged. The color of the little children, as a rule, is a live light to rich brown, of more uniform shade than in the adults.

The hair of the Sonora Indians is black and straight, growing to a fair but not extraordinary length. As a rule the beard is short and scant, particularly on the sides of the face.

The body is generally well-developed and, except in the old, is well nourished and regular. Some of the women past the prime of life are rather stout, but none are obese.¹ Their breasts are usually of moderate size. There is no steatopygia and no excessive abdomens. The feet and hands are always of moderate size.

The face usually exhibits more or less pronounced alveolar prognathism and prominence of the malars. The forehead is seldom as well arched as in the pure whites. The eye-slits are often slightly oblique, the outer canthi a little higher than the inner. As a rule the nasion depression is well marked in men, but is liable to be shallow and long in women. The nasal bridge ranges from straight to moderately convex, while the septum is either horizontal or slightly inclined downward. Regular and pleasant features are the rule in the younger Indians, but real beauty is very rare among the pure-bloods.

So much for the characteristics common to the Indians of Sonora, and indeed to practically all those of the Southwest. The tribal differences are scarcely detectable from casual observation; they are confined almost exclusively to physical proportions, as ascertained by measurements, and to the interrelations of these. The

¹ Some actually obese women are seen among the Pimas of the Gila, however.

Yaquis, whatever the cause may be, have among them taller and more powerful men than any of the Sonora tribes. The Pimas are the most dolichocephalic of the Indians of the region, closely approaching the ancient cliff-dwellers of southern Utah; the Mayos are the most short-headed, resembling in this respect the Opatas, Tepehuanes, and Nahuas.¹ The Yaquis are apparently a Pima physical stock, modified by mixture with the Mayos. The Seris seem to belong to the same type, possibly modified somewhat by the Apache. The Opatas are, according to many indications, a Tepehuane stock, with a considerable element of the Pimas or Tarahumares.

The above and other differences, on the details and signification of which I shall not now dwell, are shown in the accompanying tables.

As the data which I obtained in the Southwest accumulate, it becomes more and more apparent that we shall have to deal there not only with type but also with tribal differences in the various body dimensions; when these can be eliminated or explained, there is good prospect of reducing all the numerous ethnic divisions of that great and important region to probably three principal physical groups. It is also evident that close relations of a physical nature to the various Sonora tribes will be found both north and south of that region.

MEASUREMENTS
HEIGHT (*Males*)

	OPATAS (31) Percent.	YAQUIS (51) Percent.	MAYOS (53) Percent.	SERIS * (1)	PIMAS (53) Percent.	PAPAGOS (50) Percent.
152.6 to 155 cm.	—	—	3.8		—	—
155.1 to 157.5	—	3.9	1.9		—	6.0
157.6 to 160	9.7	7.8	7.5		—	—
160.1 to 162.5	12.9	7.8	5.7		3.8	6.0
162.6 to 165	19.4	9.8	9.4		9.4	8.0
165.1 to 167.5	6.4	5.9	20.8		7.5	6.0
167.6 to 170	22.6	9.8	15.1		17.0	10.0
170.1 to 172.5	12.9	11.8	20.8	(1)	20.8	18.0
172.6 to 175	3.2	19.6	5.7		11.3	14.0
175.1 to 177.5	6.4	13.7	7.5		11.3	20.0
177.6 to 180	3.2	7.8	—		15.1	10.0
180.1 to 182.5	3.2	1.2	—		3.8	2.0
182.6 to 185	—	—	1.9		—	—

¹ Compare the tables in my paper in the July-September number of the *American Anthropologist*.

CEPHALIC INDEX (*Males, Undeformed Heads*)

	OPATAS (31) Percent.	YAQUIS (49) Percent.	MAYOS (50) Percent.	SERIS (1)	PIMAS (51) Percent.	PAPAGOS (50) Percent.
70-70.9	—	2.04	—		3.9	—
71-71.9	—	2.04	—		1.96	—
72-72.9	—	—	—		3.9	—
73-73.9	—	2.04	—		9.8	2.0
74-74.9	6.4	4.1	2.0		11.76	2.0
75-75.9	3.2	2.04	6.0		14.73	4.0
76-76.9	6.4	14.3	6.0		16.7	6.0
77-77.9	19.36	18.36	4.0		14.73	10.0
78-78.9	9.7	14.3	8.0		7.8	18.0
79-79.9	9.7	8.2	14.0		5.9	16.0
80-80.9	19.36	12.2	20.0		3.9	28.0
81-81.9	9.7	8.2	16.0	(1)	1.96	6.0
82-82.9	9.7	6.1	8.0		5.9	2.0
83-83.9	—	4.1	6.0		—	10.0
84-84.9	6.4	—	2.0		—	—
85-85.9	—	2.04	8.0		—	—

LOWER FACIAL INDEX ($\frac{\text{menton-nasion} \times 100}{\text{diam. bizygom. max.}}$) IN MALES

	OPATAS (30) Percent.	YAQUIS (52) Percent.	MAYOS (53) Percent.	SERIS (1)	PIMAS (50) Percent.	PAPAGOS (50) Percent.
75-76.99	3.3	—	3.77		2.0	2.0
77-78.99	—	—	3.77		—	—
79-80.99	6.7	7.7	5.66		2.0	2.0
81-82.99	13.3	19.23	11.30		20.0	8.0
83-84.99	10.0	19.23	18.86		24.0	16.0
85-86.99	13.3	30.8	28.28		18.0	30.0
87-88.99	16.7	11.54	16.98		10.0	16.0
89-90.99	16.7	7.7	9.43	(1)	16.0	20.0
91-92.99	20.0	1.9	—		4.0	2.0
93-94.99	—	1.9	1.89		4.0	4.0
Aver. Menton-Nasion Height.	12.18	12.09	12.04	(12.6)	12.35	12.34
Aver. Diam. Bizygom. Max.	14.05	14.18	14.17	(14.0)	14.45	14.25
Aver. Lower Facial Index.	86.6	85.3	84.97	(90.0)	85.52	86.6

	NASAL INDEX (<i>Males</i>)				
	OPATAS	YAQUIS	MAYOS	SERIS	PIMAS
	(31)	(52)	(53)	(1)	(53)
Average	81.1	78.96	80.24	(71.9)	78.067
					79.85

MEASUREMENTS OF A SERI AT HERMOSILLO, SONORA

Name, Fernando.

Age, about 70.

Physical condition, fair; no deformation.

Height, 170.7 cm.

Head: diam. antero-posterior max., 18.7 cm.

diam. lateral max., 15.2 cm.

height, biauricular line to brëgma, 13.1 cm.

Face: menton-nasion height, 12.6 cm.

menton-crinion height 19.5 cm.

diam. bizygom. max., 14.0 cm.

diam. frontal minim., 10.0 cm.

diam. bigonial, 10.2 cm.

nose, height to nasion, 6 cm.

nose, breadth max., 4.35 cm.

mouth, width, 6.1 cm.

Nose moderately convex, septum horizontal. Forehead but slightly sloping; supraorbital ridges, malars, and alveolar prognathism quite prominent.

YAQUI SKULLS (Male)

DEFORMATION	CALVARIUM			FACE			ORBITS			NASAL APERTURE			
	Diam. antero- post-max.	Diam. lateral max.	Cephalic Index	Height, Nasion to Bregma	Menton- nasion Height	Diam. bi-zyg. max.	Index	Mean Height	Mean Breadth	Mean Index	Height	Breadth max.	Index
1.	18.05	13.65	73.78	13.4	12.4	13.25	93.58	3.3	3.9	84.62	5.2	2.85	54.81
2.	18.1	13.6	75.14	14.8	12.9	14.65	88.06	3.8	4.3	88.37	5.2	2.6	50.0
3.	18.3	13.7	74.86	13.9	11.9	13.85	85.92	3.55	3.9	91.02	4.95	2.75	55.56
4.	17.8	12.95	72.75	13.7	12.4	13.4	92.54	3.75	4.05	92.6	5.35	2.6	48.6
5.	17.3	14.0	80.92	14.4	13.0	13.9	93.53	3.75	4.0	93.75	5.5	2.65	48.18
6. Slight occipital compression.	(17.0)	(14.25)	—	(14.35)	?	13.3	—	3.7	4.0	92.50	5.05	2.25	44.55
7.	18.6	13.7	73.66	13.4	11.5	14.0	80.71	3.4	4.0	85.0	5.5	2.95	53.64
8.	18.1	13.4	74.03	14.2	11.8	13.4	88.06	3.3	3.85	85.73	4.7	2.75	58.51
9.	17.9	13.9	77.65	13.4	12.4	13.3	93.23	3.4	3.95	86.09	5.3	2.65	50.0
10.	17.7	13.4	75.71	13.8	12.3	13.4	91.79	3.4	4.0	85.0	5.2	2.65	50.96
11.	18.0	14.0	77.78	14.5	12.3	?	—	3.5	4.05	86.43	5.3	2.2	41.51
12.	17.5	13.4	70.57	13.6	12.9	14.15	91.17	3.5	4.05	86.43	5.4	2.55	47.22

DANISH MUSEUMS OF ARCHEOLOGY

By GEORGE GRANT MACCURDY

The National Museum at Copenhagen is composed of two departments, each being in turn subdivided. The first department, under the direction of Dr Sophus Müller, consists of three divisions: (1) Danish Antiquities, (2) Ethnographic Collection, (3) Classical and Egyptian Archeology. The chief division is that of Danish antiquities. Dr Carl Neergaard is the curator. The curatorship of the Ethnographic collection is at present vacant. This is one of the oldest and finest collections of its kind in Europe. To it now belong many valuable specimens from the old Museum Wormianum. Little or no effort is being made to increase the Ethnographic collection, it being the policy of the institution to concentrate its energies especially on the collection of national antiquities. The division of Classical and Egyptian Archeology is under the immediate charge of Dr Blinkenberg, another of Dr Müller's colleagues.

Dr W. Møllerup is director of the second department of the National Museum, which, like the first, is composed of three divisions, namely: (1) Coins, etc., (2) Middle Ages, (3) Historical Museum of the Kings of Denmark in the "Rosenborg Slot."

Of the combined collections, the chief interest is centered in the Danish antiquities. As a people the Danes are proud of their prehistoric past. No country has a more fruitful field of research for the periods covered by that past, and no country has been more fortunate in the amount and character of the service rendered in the domain of its national archeology. The traditions of a past, made glorious by such names as Thomsen and Worsaae, are being upheld by Sophus Müller, the present director. To the excellence of the work done for almost a hundred years is largely due the widespread interest in archeology which has led to the enactment of laws for the protection of monuments, and the control and disposition of museum collections. The best of the megalithic and other

prehistoric monuments, including kitchenmiddens, to the number of four thousand, now belong to the state, having been either bought or received as gifts from the owners of the land on which they are situated.

In addition to the great collection at the national capital, already mentioned, there are ten provincial museums of archeology in Denmark. Seven of these are in Jutland, the largest being at Aarhus and one each in Fünen, Laaland, and Bornholm. Each provincial museum receives annually 1000 kroner (\$280.00) from the state. In return for this subsidy, the museums may be called upon at any time to relinquish important specimens that may be wanted for the national collection at Copenhagen; and the director of the national collection is *ex officio* advisory director of all the provincial museums. This museum system has been in force only since 1880, so that important specimens obtained by the various museums prior to that date can never be appropriated by the Copenhagen Museum.

Dr Müller was making his annual tour of the provincial museums last summer at the time of my visit to Denmark. He had notified two of his colleagues of my coming—Drs Neergaard and Sarauw, who received me most cordially. To them I am much indebted for special facilities and many courtesies. The collections had increased largely since my visit in 1897, and new discoveries are being made constantly. One of last year's principal finds, dating from the early Bronze age, had just been placed on exhibition. It is a solar representation and dates from about the year 1000 B. C. The sun's disk is mounted on a chariot and represented as being drawn by a horse. Both figures rest on the six-wheeled chariot. One side of the disk was covered with gold-leaf, much of which is still intact. The spiral ornament was first chiseled in the bronze and then the gold-leaf applied by means of strong pressure. The other side is ornamented with a similar pattern, but the gold-leaf is lacking. The two figures were cast, the interior of the horse being filled with a fine, argillaceous paste. The chariot is executed with the same skill as the figures it supports, the style of the whole being purely northern. The fragments were found about six inches beneath the surface in a marshy district called Trundholm (Zealand). There

is no evidence that the locality was covered by water when the object was left there. The latter seems to have been intentionally broken and injured. The pieces were scattered over an area of about four meters square, and, in the opinion of Dr Müller,¹ had been left there as a religious offering and not as a hidden treasure. Dr Sarauw has brought together an interesting collection to represent the various grains, chiefly wheat and barley, encased in the paste of which some of the Neolithic pottery is made. He has in preparation an important publication on this subject.

Summer being the season for field work, one is fortunate to find as many as two members of the museum staff in the city at the same time. The day after I left Copenhagen, a party was expected to return from exploration in Jutland, and Dr Neergaard was to proceed immediately to another part of that peninsula (Viring) and resume excavations at an extensive prehistoric cemetery, dating from the first to the third century, A. D. The locality has already yielded a large amount of valuable material. In regard to explorations, provincial museums are not allowed to excavate without a permit from the National Museum authorities, but they are, of course, reimbursed for such specimens as are relinquished in favor of the Copenhagen collection. While the system is, on the whole, very satisfactory, it is defective in so far as it tends to discourage competition among the various museums. There is no incentive to local pride, hence provincial treasures are seldom if ever augmented by gifts from private citizens.

Antiquities of gold and silver found in Denmark are treated as a class apart. They must become the property of the state, which pays the finder a sum equal to their intrinsic value, to which a small bonus is added. The bonus lessens the temptation to sell to another purchaser than the state, or even to melt down precious relics for the mere value of the metal they may contain. Thus has the National Museum succeeded in bringing together an almost unrivaled collection of gold and silver ornaments and utensils. These treasures, once in its possession, are guarded with the utmost care. In 1802 the collection was robbed of its most valued possession,

¹ *Nordiske Fortidsminder*, 1903, p. 322.

the two celebrated gold horns found in 1639 and 1734. The loss was all the more serious in view of the fact that no casts had been taken of the originals, the only record left being unsatisfactory drawings. Such a theft would be impossible now. The curator, in person, opens and closes each day the special cases in which gold and silver objects are displayed.

Objects in bronze are also much prized, because of their comparative rarity and archeological bearing. The Copenhagen Museum alone has enough material from which to write a fairly complete history of the Bronze age in northern Europe. One of the most attractive cases is that containing twenty-one large bronze trumpets (Lure). These were made in pairs suggesting the paired horns of an ox. Half a dozen of the best preserved trumpets needed only slight repairs to put them in condition for use. And what could be more appropriate than to make use of them in connection with the celebration of the National holiday! This is precisely what Dr Müller has decided to do, the first annual concert having taken place on the 24th of last June.¹ This, it may be remembered, is the Feast of St John, supposed by some to be a relic of Baal worship, and still quite generally observed in the countries of Europe. While on an archeological excursion in France (departments of Indre-et-Loire and Dordogne), last June and July, my attention was attracted to evidences of numerous recent bonfires at crossroads and other convenient meeting places. My companions, Frenchmen, informed me that these bonfires were lighted on the eve (June 23) of St John's Day. Door lintels were also decorated with flowers and twigs. The same custom is said to exist in England and Ireland. In Denmark it is the national holiday. Returning to the bronze trumpets, the playing last June was done by two musicians from the royal opera, the ceremony taking place on the 24th at high noon. The performers stood on the low, flat roof over the entrance to the Museum. They turned first toward the inner court and blew a blast; then faced the throng of 10,000 spectators, and played the National hymn, the performance lasting about twenty minutes.

¹ Two or three concerts had been given previously, but at longer intervals than one year.

The national antiquities were formerly housed in the "Kristiansborg Slot"; were there, in fact, when the theft of the gold horns took place. After a disastrous fire which practically destroyed the palace, the Danish antiquities were transferred to the adjoining "Prinsens Palais," which still serves as their repository. It is an old structure, not perfectly adapted to museum purposes, but the curators have made the most of their facilities. The labeling (in Danish only) is thorough and leaves nothing to be desired in point of execution. Foreigners not familiar with the Danish language may procure a very satisfactory catalogue in German (*Führer durch die Dänische Sammlung: Vorgeschichtliche Zeit*). An English catalogue is in preparation.

It is unfortunate that such a large and systematically arranged collection should not be made the basis of university instruction in the subject of national archeology, and that the author of such an excellent text-book as Müller's *Nordische Altertumskunde* should not occupy a professorship in the neighboring university. Worsaae used to offer a course gratis, but now there is only an occasional (free) lecture.

THE CHAMORRO LANGUAGE OF GUAM — III

BY WILLIAM EDWIN SAFFORD

VII. — NUMERATION

1. ETYMOLOGY OF NUMERALS. — In the following table the first ten numerals of Chamorro are compared with languages of the Malay archipelago, the Philippines, the Island of Formosa, Melanesia, Polynesia, Madagascar, and Micronesia:

	ONE	TWO	THREE	FOUR	FIVE
Primitive roots. ¹	<i>sa, ta</i>	<i>rua, dua</i>	<i>tol, tel</i>	<i>fat, pat</i>	<i>lima</i>
Chamorro, Guam.	<i>hacha</i>	<i>hu-gua</i>	<i>tulu, tulo</i>	<i>fattat</i>	<i>lima</i>
Pampango, Philippines.	<i>isa</i>	<i>a-dua</i>	<i>a-tlo</i>	<i>a-pat</i>	<i>lima</i>
Tagalog, "	<i>isâ</i>	<i>dalaûâ</i>	<i>tatlô</i>	<i>apât</i>	<i>limâ</i>
Modern Malayan.	<i>satu</i>	<i>dua</i>	<i>tiga</i>	<i>empat</i>	<i>lima</i>
Tsu, Formosa.	<i>chuni</i>	<i>lusa</i>	<i>tulu</i>	<i>supat</i>	<i>lima</i>
Tsuihoan, Formosa.	<i>taha</i>	<i>tusha</i>	<i>turn</i>	<i>spat</i>	<i>hrima</i>
Sekhoan, "	<i>adadumat</i>	<i>dusa</i>	<i>turn</i>	<i>supat</i>	<i>hasub</i>
Tayal, "	<i>kotoch</i>	<i>sajin</i>	<i>shugal</i>	<i>païat</i>	<i>magal</i>
Ulawu, Solomon Ids.	<i>e ta</i>	<i>e rua</i>	<i>e'olu</i>	<i>e hai</i>	<i>e lima</i>
Fiji.	<i>e dua</i>	<i>e rua</i>	<i>e tolu</i>	<i>e va</i>	<i>e lima</i>
Samoa.	<i>e tasi</i>	<i>e lua</i>	<i>e tolu</i>	<i>e fa</i>	<i>e lima</i>
Hawaii.	<i>a kahi</i>	<i>a lua</i>	<i>a kolu</i>	<i>a ha</i>	<i>a lima</i>
Easter Id.	<i>ka tahi</i>	<i>ka rua</i>	<i>ka toru</i>	<i>ka ha</i>	<i>ka rima</i>
Maori, New Zealand.	<i>tahi</i>	<i>e rua</i>	<i>e toru</i>	<i>e wha</i>	<i>e rima</i>
Madagascar.	<i>isa</i>	<i>roa</i>	<i>telo</i>	<i>efatra</i>	<i>dimy</i>
Yap, Caroline Ids.	<i>rep, leb</i>	<i>ru</i>	<i>thulô</i>	<i>eninger</i>	<i>lahl</i>
Radack, Marshall Ids.	<i>duon</i>	<i>ruo</i>	<i>dillu</i>	<i>emmen</i>	<i>lallim</i>

In the above examples, with the exception of the Tayal, which is spoken by the aborigines inhabiting the mountain districts of northern Formosa, and the languages of Yap and Radack, which are classed as Micronesian, a wonderful correspondence will be seen. Practically the same system of numeration is used by natives of islands distributed from the north temperate to the south temperate zone of the Pacific ocean, and from Madagascar, off the east coast of Africa, to Easter island, which is situated in 109° 30' west longitude, almost on the meridian which separates Colorado and Utah.

¹ The primitive roots are selected from the languages of the primitive inhabitants of the Malay archipelago. See Wallace, *The Malay Archipelago*, New York, 1869, pp. 624-5.

The Chamorro, like the greater number of these languages, has a purely decimal system; in the neighboring Micronesian islands and in several of the languages spoken in Formosa this is not the case. Thus, in Yap *seven* is designated by 'six-and-one,' *eight* by 'six-and-two,' *nine* by 'six-and-three'; in Radack, of the Marshall group, *six* is expressed by 'three-three,' *seven* by 'three-three-and-one'; *eight* by 'double-four,' *nine* by 'double-four-and-one'; in Formosa the Tsu language, spoken by the inhabitants of the

	SIX	SEVEN	EIGHT	NINE	TEN
Primitive roots.	<i>un, an, on</i>	<i>fitu, pitu</i>	<i>walu</i>	<i>siwa, sio</i>	<i>pulu, hutu</i>
Chamorro, Guam.	<i>gunum</i>	<i>fiti</i>	<i>gualu</i>	<i>sigua</i>	<i>manot</i>
Pampango, P. I.	<i>anam</i>	<i>pitu</i>	<i>valo</i>	<i>siam</i>	<i>a-pulo</i>
Tagalog, P. I.	<i>anim</i>	<i>pitò</i>	<i>ualò</i>	<i>siyam</i>	<i>sang-pouò</i>
Modern Malayan.	<i>anam</i>	<i>tujoh</i>	<i>delapan</i>	<i>sembilan</i>	<i>sa-pulo</i>
Tsu, Formosa.	<i>nomi</i>	<i>pitu</i>	<i>mevaru</i>	<i>sio</i>	<i>massiki</i>
Tsuihoan, Formosa.	<i>sturu</i>	<i>pitu</i>	<i>kaspát</i>	<i>tamaro</i>	<i>maksin</i>
Sekhoan, "	<i>hasubudá</i>	<i>hasubidusa</i>	<i>hasubituru</i>	<i>hasubisupát</i>	<i>issit</i>
Tayal, "	<i>taò</i>	<i>pitu</i>	<i>s'pattle</i>	<i>taí-so</i>	<i>mu-po, pong</i>
Ulawá, Solomon I.	<i>e ono</i>	<i>e hi'u</i>	<i>e walu</i>	<i>e siwa</i>	<i>ta-nga-hulu</i>
Fiji.	<i>e ono</i>	<i>e witu</i>	<i>e walu</i>	<i>e thiwa</i>	<i>e tini</i>
Samoa.	<i>e ono</i>	<i>e fitu</i>	<i>e valu</i>	<i>e iwa</i>	<i>e se-fulu</i>
Hawaii.	<i>a ono</i>	<i>a hiku</i>	<i>a walu</i>	<i>a iwa</i>	<i>umi</i>
Easter Id.	<i>ka ono</i>	<i>ka hitu</i>	<i>ka varu</i>	<i>ka iwa</i>	<i>a-nga-huru</i>
Maori, New Zeal'd.	<i>e ono</i>	<i>e whitu</i>	<i>e waru</i>	<i>e iwa</i>	<i>tekau</i>
Madagascar.	<i>enina</i>	<i>fito</i>	<i>valo</i>	<i>sivy</i>	<i>folo</i>
Yap, Caroline I.	<i>nel</i>	<i>me-de-lip</i>	<i>me-rug</i>	<i>me-reb</i>	<i>ragath</i>
Radack, Marshall I.	<i>dildinu</i>	<i>dildimem-duon</i>	<i>eidinu</i>	<i>eidinem-duon</i>	<i>chabujet</i>

mountains southwest of Nitakayama, has a decimal system of numerals in nearly all of which the primitive Malayan roots can be recognized; in the Tsuihoan language, spoken in the vicinity of Lake Candidius (Sui-shako), *six* is expressed by 'double-three' and *eight* by 'double-four'; in the Sekhoan language, spoken by the "tame savages" living on the mountain spurs east of Shoka (Chang-wha), *six* is expressed by 'five-and-one,' *seven* by 'five-and-two,' etc.; and in the Tayal, or Atayal, scarcely any of the primitive Malayan roots can be recognized except *pitu* (seven), and perhaps *paíat* (four) and *s'pattle* (double-four, or eight).

The languages of Formosa are here mentioned to show how the systems of numeration serve to distinguish the aboriginal tribes from the more recent Malayan intruders.

The Chamorro numeral system is no longer used in Guam, but a few of the numerals are retained in derived words; thus, from *hugua*, two, we have *hugwayon*, two-handed (ambidextrous); from *maisa*, one (used in counting persons), we have *mamaisa*, to be alone, a single one.

2. CARDINAL NUMBERS. — The forms of the cardinal numbers in Chamorro differ according to the nature of the objects counted. Days, months, and years are counted by the simple numerals; measurements are expressed by numerals with the prefix *tak* or *tag*; in counting living things there is a certain tendency to reduplication; in counting inanimate objects there is a suffix appended to the numerals. Examples:

1. SIMPLE NUMERALS FOR TIME IN ANSWER TO <i>fia</i> ?	2. NUMERALS FOR LIVING THINGS IN ANSWER TO <i>fafia</i> ?	3. NUMERALS FOR MEASUREMENTS IN ANSWER TO <i>takfia</i> ?	4. NUMERALS FOR INANIMATE THINGS IN ANSWER TO <i>fiyai</i> ?
1. <i>hacha</i>	<i>maisa</i>	<i>takhachun</i>	<i>hachiyai</i>
2. <i>hugua</i>	<i>hugua</i>	<i>takhuguan</i>	<i>huguiyai</i>
3. <i>tulo, tulu</i>	<i>tato</i>	<i>taktulun</i>	<i>tolgiyai</i>
4. <i>fatsat</i>	<i>fatsat</i>	<i>takfatun</i>	<i>farfatai</i>
5. <i>lima</i>	<i>lalima</i>	<i>takliman</i>	<i>limiyai</i>
6. <i>gunum</i>	<i>guagunum</i>	<i>takgunum</i>	<i>gonmiyai</i>
7. <i>fiti</i>	<i>fafiti</i>	<i>takfitun</i>	<i>fetgiyai</i>
8. <i>gualu</i>	<i>guagualu</i>	<i>takgualun</i>	<i>gualgiyai</i>
9. <i>sigua</i>	<i>sasigua</i>	<i>taksiguan</i>	<i>siguiyai</i>
10. <i>manot</i>	<i>mabnot</i>	<i>takmaonton</i>	<i>manutai</i>
20. <i>hugua nga fulu</i>	<i>hugua nga fulu</i>	<i>takhugua nga fulu</i>	<i>huguiyai nga fulu</i>
30. <i>tulu nga fulu</i>	<i>tato nga fulu</i>	<i>taktulu nga fulu</i>	<i>tolgiyai nga fulu</i>
40. <i>fatsat nga fulu</i>	<i>fatsat nga fulu</i>	<i>takfatu nga fulu</i>	<i>farfatai nga fulu</i>
100. <i>gatus</i>	<i>gatus</i>	<i>manapo</i>	<i>gatus</i>
1,000. <i>chalan</i>	<i>chalan</i>	<i>takchalan</i>	<i>chalan</i>

The method of prefixing syllables or particles to the numerals is common to nearly all the languages in which this system is used. Thus we have in Hawaii, for one, *akahi* or *ekahi*; for two, *alua* or *elua*, etc.; in Samoa, *e tasi*, *e lua*, *e tolu*, etc.; in Easter island, *ka tahi*, *ka rua*, *ka toru*.

Numerals prefixed to spans, indicating measure of length, have the prefix *tak* and are followed by the unit *hinsantifi*:

One span, *takhachun nga hinsantifi* (a quarter of a yard).

Two spans, *takhuguan nga hinsantifi* (half a yard).

Numerals indicating finger-breadths are of the form used for inanimate objects and are preceded by the unit *hemlum*:

One finger-breadth, *hemlum hachiyai*.

Two finger-breadths, *hemlum huguiyai*.

3. COMPOSITE NUMBERS. — The word for *eleven* signifies, in all probability, 'a set which has one'; *twelve*, 'a set which has two'; *twenty-one*, 'two tens which have one'; *twenty-five*, 'two tens which have five'; and so forth. The differences between the forms of numbers applied to animate and inanimate objects and to units of time and measurement are retained in the composite numbers. Examples:

NUMBERS USED IN COUNTING TIME	NUMBERS USED IN COUNTING INANIMATE THINGS
11. <i>manot nga guai hacha</i> ;	<i>manutai nga guai hachiyai</i> ;
12. <i>manot nga guai hugua</i> ;	<i>manutai nga guai huguiyai</i> ;
13. <i>manot nga guai tulo</i> ;	<i>manutai nga guai tolgiyai</i> ;
20. <i>hugua nga fulu</i> ;	<i>huguiyai nga fulu</i> ;
21. <i>hugua nga fulu nga guai hacha</i> ;	<i>huguiyai nga fulu nga guai hachiyai</i> ;
25. <i>hugua nga fulu nga guai lima</i> ;	<i>huguiyai nga fulu nga guai limiyai</i> ;
33. <i>tulo nga fulu nga guai tulo</i> ;	<i>tolgiyai nga fulu nga guai tolgiyai</i> ;
301. <i>tulo nga gatus nga guai hacha</i> ;	<i>tolgiyai nga gatus nga guai hachiyai</i> .
352. <i>tulo nga gatus nga guai lima nga fulu nga guai hugua</i> .	

NUMBERS USED IN COUNTING FATHOMS

11. *takmaonton nga guai takhachun*;
22. *hugua nga fulu nga guai takhuguan*;
110. *gatus nga guai takmaonton*.

NUMBERS USED IN COUNTING LIVING THINGS

11. *maonot nga gual maiša*.
13. *maonot nga guai tato*.
33. *tato nga fulu nga guai tato*.
305. *tato nga gatus nga guai lalima*.

4. THE CONNECTIVE PARTICLE OR "LIGATURE" *nga* OR *na*. — It has already been shown that attributive adjectives are connected with their substantives by a connective particle *na*. This was originally *nga* and corresponded to similar particles in the Philippine dialects and in some of the islands of the Malay archipelago, which have been called by Spanish grammarians "ligatures," or "liga-

tions," since they bind the adjective to the noun they qualify. It has also been shown that many words are used as nouns, adjectives, or verbs, according to the meaning to be expressed. When these words are used as qualifying adjectives they must be connected with their substantives by this ligature; thus we have *patgon na lahe*, 'young male,' or *lahe na patgon*, 'male child.' All numeral adjectives are connected with their substantives by this particle; and it appears in certain derived numbers; as *hugua nga fulu*, 'twenty'; *tulu nga fulu*, 'thirty'; *hugua nga gatus*, 'two hundred.' It is an interesting fact that when languages like the Polynesian and Melanesian, in which these connective particles do not normally occur, have adopted this system of numeration, the derived numerals usually retain the particle, though its nature is not understood. Thus, in Samoa, though we have no particle in *sefulu*, ten, and *luafulu*, twenty, the connective particle has held its own in *tolu-nga-fulu* (thirty), *fā-nga-fulu* (forty), *tolu-nga-lau* (three hundred), etc. In Fiji, though *tini* (signifying 'limit,' or 'goal') is used for ten, yet in forming multiples of ten we have *rua sa-nga-vulu*, (twenty), *tulu sa-nga-vulu* (thirty), *sa-nga-vulu* having signified in the original language whence it came 'one ten,' an expression customary in modern Malayan, Tagalog, and many other dialects. This form is well shown in the language of Ulawa of the Solomon group, where *ta* signifies 'one' and *ta-nga-hulu* 'ten,' or 'one ten.' In the Samoan *sefula*, *se* is the indefinite article. The survival of the particle *nga* throws valuable light on the origin of this system of numeration, showing conclusively that it is neither Melanesian nor Polynesian, but that it was borrowed from a language in which attributive adjectives were connected to their substantives by ligatures. Such languages are spoken in Guam, the Philippines, and in many of the islands of the Malay archipelago. With these languages as a basis for comparison, the interpolated syllables in the Polynesian and Melanesian dialects at once become intelligible and need not be accounted for, as having been used for the sake of euphony;¹ and the *sangavulu* of the Fijians, who do not express 'one' by *sa*, need not be interpreted as possibly meaning 'a double set of

¹ See Pratt, George E., *A Grammar and Dictionary of the Samoan Language*, 3d ed., London, 1893, p. 167.

fingers.'¹ The use of the ligature is demanded by the genius of the Chamorro language, so that it is usually expressed with the Spanish numerals. Thus we now say *uno na manog*, 'one fowl'; *dies na uhañg*, 'ten shrimps.'

In the composite numbers the second *nga* (or, as it is sometimes written, *na*) is the indefinite or descriptive relative particle. (See § 8, c, under *The Pronoun*.)

5. MANOT.—The word for 'ten' is *manot*, which may be considered as expressing 'a set.' When more than one ten is expressed, *fulu* is used. In Hawaii *mano* indicates 4,000, and is used alone or reduplicated to signify multitudinous. In Samoa *mano* signifies 10,000, or a myriad, the limit of Samoan counting.² In the Chamorro this is expressed by *manutu*.

6. FULU.—The origin of *fulu* is not known. As has been shown in the table, its use to express the number 10 is common to the Polynesian, the Malayan, the Melanesian, and the language of Madagascar. Fornander identifies it with the Polynesian word for 'feathers, hair, wool,'³ which is *pulu*, *fulu*, *hulu*, or *huru*; but I think that this is a mistake. In Guam we have both *pulu*, meaning 'hair' or 'feather,' and *fulu* meaning 'ten' for all numbers between twenty and ninety.

7. GATUS.—This word is also used for 'hundred' in the Bisayan and other Philippine dialects. In the Ilocana it is *gasut*, in Malayan *ratus*, and in the Malagasy *zato*. It is possible that the Samoan *atu*, signifying a 'row, line, chain, or series,' as houses, mountains, islands, may have the same origin.

8. CHALAN.—This word, used in the Chamorro to express 'thousand,' becomes *dalan* in the Pampango and *dáan* in the Tagalog of the Philippines, and is in those dialects used to express 'hundred.' In the Tagalog the word for 'thousand' is *libo*; this becomes *ribu* in Malayan, *arivo* in the Malagasy, and in Hawaiian

¹ "It is possible to explain *sagavulu* in Fiji, *sanavul*, *hanavulu*, or whatever form the word may take in Melanesia. The word *vulu* may be shown to mean probably a set of fingers, and *saga* (*tanga*) double; if this be so, *sagavulu* corresponds to the Nengone *revve tuluvine*, two sets of fingers."—Codrington, R. H., *The Melanesian Languages*, Oxford, 1885, p. 247.

² Pratt, op. cit., pp. 9, 208.

³ Fornander, A., *An Account of the Polynesian Race*, 2nd ed., Lond., 1890, I, 156.

lehu, signifying in the last case 400,000, the highest number known to the Hawaiians.

9. METHODS OF COUNTING. — We have already seen (under *Interrogative Adjectives*, § 5) that in asking questions as to number or quantity the interrogative must correspond to the form of the numeral to be used in the answer. This may be regarded in the same light as the English expressions 'How many head of cattle?' 'How many fathoms of rope?' 'How many dozen of eggs?'

In Chamorro, days, months, and years are counted by the simple cardinal numbers, as—

hacha nga puenge, one day (literally 'one night') ;

hugua nga pulan, two moons, two months ;

tulo nga sakan, three harvests, three years.

The simple cardinals are used to express past time. In expressing future time, in answer to such a question as 'When will he come?' the ancient Chamorros would say :

agupa, tomorrow ;

i hacha, day after tomorrow ;

i telgua, in three days from now ;

i fata, in four days ;

i limiya, in five days ;

i gunma, in six days ;

i fitgua, in seven days ;

i gualgua, in eight days ;

i siguiya, in nine days ;

i manot, in ten days.

Fishermen count from three on with the numerals used for living things : *Fafia nga guihan sinipegmo?* How many fish have you caught ?

hatitip, one ;

atsgan, a pair ;

tato, three ;

fatfat, four ;

lalima, five ;

guagunum, six.

Fish are also counted in pairs :

atsgan, one pair ;

huguan maisa, a pair and a half ;

hugua nga atsgan, two pairs ; *tulum maisa*, two pairs and a half ;

tulo nga atsgan, three pairs ; *i usan*, ten pairs ;

hugua nga i usan, twenty pairs ;

i usan nga guai hatitip, ten pairs and a half ;

gatus nga i usan nga guai hatitip, a hundred pairs and a half.

In asking the length of a boat, the ancient Chamorros would say :

Takfian yini nga sagman? How long is this canoe?

Takhachun, takhuguan, etc. One fathom long, two fathoms long, etc.

10. ORDINAL NUMBERS. — The Chamorro ordinals are as follow :

- | | |
|---|-------------------------------------|
| <i>i fina mona, imena</i> , the first ; | <i>i fina haunum</i> , the sixth ; |
| <i>i fina hagua</i> , the second ; | <i>i fina hauti</i> , the seventh ; |
| <i>i fina hatu</i> , the third ; | <i>i fina haulu</i> , the eight ; |
| <i>i fina hafat</i> , the fourth ; | <i>i fina hasgua</i> , the ninth ; |
| <i>i fina halma</i> , the fifth ; | <i>i fina hanut</i> , the tenth. |
- i fina hanut nga guai maisa* (in counting living things), the eleventh ;
i fina hanut nga guai hacha (in counting time), the eleventh ;
i fina hanut nga guai hachiyai (in counting things), the eleventh.

Mona, or *fona*, signifies foremost, or front : from it we have *gi mena*, in front of, or opposite to ; *finenana*, the first ; *finenana na patgon*, first-born child.

In the same way we have *talo*, middle, mid ; *tate*, last or rear ; from which we have *kálolot talo*, middle finger ; *taloane*, noon, mid-day ; *tátalopuchge*, midnight ; *tátate*, hindmost, posterior.

11. DISTRIBUTIVE NUMBERS. — The particle *um* is inserted before the first vowel of the numeral, reduplicating at times the first or second syllable ; for example —

- | | |
|------------------------|--|
| <i>hatitip</i> , one ; | <i>umatitip</i> , one by one, or one at a time ; |
| <i>hugua</i> , two ; | <i>humugua</i> , two by two, or two at a time ; |
| <i>maisa</i> , one ; | <i>mumaisa</i> , one by one, or one at a time ; |
| <i>hugiyai</i> , two ; | <i>humugiyai</i> , two by two, or two at a time. |

The following are examples :

WITH HACHA	WITH MAISA	WITH HACHIJAI	
1. <i>humachu</i>	<i>mumaisa</i>	<i>humachiyai</i>	one by one
2. <i>humugua</i>	<i>humalgua</i>	<i>humugiyai</i>	two by two
3. <i>tumulo</i>	<i>tumato</i>	<i>tumelgiyai</i>	three by three
4. <i>fumatfat</i>	<i>fumafat</i>	<i>fumatfatai</i>	four by four
5. <i>lumima</i>	<i>lumalima</i>	<i>lumimiyai</i>	five by five
6. <i>gumunum</i>	<i>gumagunum</i>	<i>gumonmiyai</i>	six by six
7. <i>fumiti</i>	<i>fumafiti</i>	<i>fumitgiyai</i>	seven by seven
8. <i>gumalo</i>	<i>gumagualo</i>	<i>gumalguiyai</i>	eight by eight
9. <i>sumigua</i>	<i>sumasigua</i>	<i>sumigiyai</i>	nine by nine
10. <i>mumanot</i>	<i>mumaonot</i>	<i>mumanutai</i>	ten by ten

12. NUMERAL ADVERBS. — These are formed in most cases by prefixing the particle *faha* and abbreviating the primitive numeral :

HOW MANY TIMES?

FAHAGA?

<i>lacha</i> , once;	<i>fakaunum</i> , six times;
<i>fahagua</i> , twice;	<i>fahauti</i> , seven times;
<i>fafatu</i> , three times;	<i>fahaulu</i> , eight times;
<i>fahafat</i> , four times;	<i>fahasgua</i> , nine times;
<i>fahalna</i> , five times;	<i>fahanot</i> , ten times;
<i>fahanot nga guai lacha</i> , eleven times;	
<i>fahanot nga guai fahagua</i> , twelve times;	
<i>hugua nga fulu nga guai lacha</i> , twenty-one times;	
<i>tutu nga fulu nga guai fahagua</i> , thirty-two times;	

13. THE CHAMORRO CALENDAR.—The year was divided into thirteen moons, and the time was reckoned from harvest to harvest. The name for year, *sakan*, signifies 'harvest.' As in Samoa some months were named from a certain marine annelid, which appears each year at the same time,¹ so in Guam two of the months were named for fishing seasons: *Umatalaf*, corresponding to the month of March, and signifying 'to go to catch guatafi,' a kind of fish; and *Umagahaf*, the moon between December and January, signifying 'to go crayfishing.' *Mananaf*, or *Fananaf*, corresponding to June, is supposed to signify 'crawling time,' or 'to go on all fours'; but it is not understood how this name should apply to it. *Tenhos*, the month of August, signifying 'angry,' or 'out of patience,' is well named, as the weather then is unsettled, and the steady trade-wind of the good season ceases and is replaced by variable winds from the south and southwest. The September moon is appropriately called *Lamlam*, or *Lumamlam*, signifying 'lightning.' The October moon was named *Fagualu*, or *Fagualo*, 'planting time,' for it was then that the Chamorros planted their rice. The November moon was called *Sumongsung*, meaning 'to put in the stopper,' an expression probably meaning that the hard rains had ceased. Following is a list of the Chamorro names of the moons:

- | | |
|---------------------------------|-----------------------------|
| 1. <i>Tumeiguini</i> , January; | 3. <i>Umatalaf</i> , March; |
| 2. <i>Maimo</i> , February; | 4. <i>Lumuhu</i> , April; |

¹ This little animal, *Palola viridis*, appears in the openings of the coral reefs for only a few hours on the morning after the third quartering of the October and of the November moons, swarming in great numbers on the surface, where it is scooped up by the natives, who know just when to expect it. It resembles vermicelli in appearance, and is much relished by the Samoans. The first two months of the palolo half-year are named *Palolomua*, or 'First of Palolo,' and *Palolomuli*, or 'After Palolo.'

5. *Magmamao*, May; 9. *Lumamlam*, *Lamlam*, September;
 6. *Mananaf*, *Fananaf*, June; 10. *Fagualu*, *Fagualo*, October;
 7. *Semo*, July; 11. *Sumongsung*, November;
 8. *Tenhos*, August; 12. *Umayānggan*, December;
 13. *Umagāhaf*, *Omagāhaf*.

14. MODERN NUMERALS.—These have been derived from the Spanish. The primitive words in some cases have been modified, the *z* of *diez* changing to *s*, the *e* of *seis* to *a*, and *v* to *b*, in accordance with Chamorro pronunciation.

Cardinal Numbers

	SPANISH	CHAMORRO	ENGLISH
1,	un, uno, una,	<i>un, uno,</i>	one.
2,	dos,	<i>dos,</i>	two.
3,	tres,	<i>tres,</i>	three.
4,	cuatro,	<i>kuatro,</i> ¹	four.
5,	cinco,	<i>sinko,</i>	five.
6,	seis,	<i>sais,</i>	six.
7,	siete,	<i>siete,</i>	seven.
8,	ocho,	<i>ocho,</i>	eight.
9,	nueve	<i>nuebe,</i>	nine.
10,	diez,	<i>dies,</i>	ten.
11,	once,	<i>onse,</i>	eleven.
12,	doce,	<i>dose,</i>	twelve.
13,	trece,	<i>trese,</i>	thirteen.
14,	catorce,	<i>katorse,</i>	fourteen.
15,	quince,	<i>kinse,</i>	fifteen.
16,	diez y seis,	<i>diesisais,</i>	sixteen.
17,	diez y siete,	<i>diesisiete,</i>	seventeen.
20,	veinte,	<i>bente,</i>	twenty.
30,	treinta,	<i>trenta,</i>	thirty.
100,	ciento,	<i>siento,</i>	hundred.
1,000,	mil,	<i>mil,</i>	thousand.
1,000,000,	millon,	<i>miyon,</i>	million.

Modern Ordinals

PRIMITIVE WORD	CHAMORRO	ENGLISH
sono (front, foremost),	<i>i finenana,</i>	the first.
dos,	<i>i mina dos,</i>	the second.
tres,	<i>i mina tres,</i>	the third.

¹ The use of *k* instead of hard *c* is explained in vol. v, p. 295 (p. 7 of reprint).

From the above examples it will be seen that, with the exception of *finenana*, first, the ordinals are formed by adding the cardinals to the word *mina*. Thus, in giving the ten commandments, we have, *I mina sinko : muña mamuno*, 'Fifth : thou shalt not kill' ; *I mina siete : muña mañake*, 'Seventh : thou shalt not steal.'

Instead of these the Spanish ordinals are also used, *primero*, *segundo*, *tercero*, etc., modified to accord with Chamorro pronunciation.

Distributives

These are now expressed by the particles *fan-a-* prefixed to the cardinal numbers ; as, *fan-askino nu i āgā*, distribute the bananas five-by-five. In the indicative, past and present this becomes *man-a-* ; as *man-acuācuatro hulo*, they were coming up four-by-four ; *ufan-adiedies magi*, they will come hither ten-by-ten. Thus the numerals become verbs and are conjugated accordingly.

The Ligature na. — The ligature *na*, derived from the ancient *nga*, is used with the cardinal numbers when they are used adjectively ; as *bente na guihan*, twenty fishes ; *dies na uhañg*, ten shrimp. This may be omitted. If it is omitted with the numeral *uno* the ending *o* is omitted also ; as *uno na guihan*, but *un guihan*, one fish. As has been shown in discussing the article, the numeral *uno* never has the ending *a*, as in the case of the article before feminine nouns in Spanish. In the same way the ligature is used with the ordinals when used as adjectives ; as *mina sais na tinago*, sixth commandment. It may, however, be omitted. With Spanish ordinals it is used if they are not abbreviated, but if they omit the final vowel no ligation is used : *tetse ro natinago* (tercero mandamiento), but *tetset tinago* (tercer mandamiento).

VIII. — THE VERB

1. TRUE VERBS. — Almost any word in the Chamorro language may be used as a verb, but there are certain words expressing motion, condition, or action, which are essentially verbs in their primitive form. Examples :

<i>hanao</i> , go ; walk ;	<i>agañg</i> , call out ;	<i>hagō</i> , reach ;
<i>maila</i> , come ;	<i>fapos</i> , pass ;	<i>taga</i> , cut ;
<i>saga</i> , stay ;	<i>tunog</i> , descend ;	<i>tuge</i> , write ;
<i>falago</i> , run ;	<i>basnag</i> , fall ;	<i>taitai</i> , recite, read ;

<i>ason</i> , lie down ;	<i>fato</i> , arrive ;	<i>lil</i> , see ;
<i>omag</i> , bathe ;	<i>kano</i> , eat ;	<i>huñgog</i> , hear ;
<i>nañgo</i> , swim ;	<i>ginem</i> , drink ;	<i>pacha</i> , touch ;
<i>atog</i> , hide ;	<i>chogue</i> , work ;	<i>ñgiñge</i> , smell ;
<i>fato</i> , arrive ;	<i>fahan</i> , buy ;	<i>tamtam</i> , taste ;
<i>tañgis</i> , weep ;	<i>na'e</i> , give ;	<i>yute</i> , throw away ;
<i>chaleg</i> , laugh ;	<i>chule</i> , carry ;	<i>gote</i> , seize.
<i>ugong</i> , lament ;		

2. ABSENCE OF A COPULATIVE. — There is no copulative verb *to be*, the Chamorro language in this respect resembling the Hebrew. On this account there arises the necessity of denominative verbs, which are formed from names either substantive or adjective. Thus, when used predicatively, *tata*, 'father,' may be considered as a verb 'to be a father'; *mauleg*, 'good,' as a verb 'to be good'; *malango*, 'ill,' as a verb 'to be ill,' or 'to become ill.'

When the verb *to be* implies position, corresponding to the Italian *stare* and the Spanish *estar*, it is translated into the Chamorro by *gaige*; as, *gaige gi lancho*, 'he is at the ranch.' In this case the verb cannot be regarded as copulative.

The impersonal phrase 'there is' (French *il y a*, Spanish *hay*) is translated by *guaha*, as *guaha hānom*, 'there is water.'

3. DENOMINATIVE VERBS. — These verbs, which in their primitive sense are nouns or adjectives, are conjugated by particles and undergo reduplication, as in the case of intransitive or neuter verbs. They are used to express the identity, state, dignity, or office of an individual, or the substance, condition, attribute, or nature of a thing.

ROOT	USE AS DENOMINATIVE VERB
<i>tata</i> , father ;	<i>Tata yō</i> , I am a father.
<i>tata</i> , father ;	<i>Tumata yō</i> , I was a father.
<i>gaga</i> , animal ;	<i>Gaga i hilitai</i> , The iguana is an animal.
<i>magalahe</i> , governor ;	<i>Mumagalahe si Don Antonio</i> , Don Antonio was governor.
<i>malañgo</i> , sick ;	<i>Malañgo gui</i> , He is sick; <i>Manmalañgo siha</i> , They are sick.
<i>malañgo</i> , sick ;	<i>Umalango agupa</i> , He will be sick tomorrow.
<i>tata</i> , father ;	<i>Utata tiammam si Pedro</i> , Peter will soon be a father.

4. TRANSITIVE VERBS FORMED FROM NOUNS. — Just as in Eng-

lish we form a verb from the noun "box" or "bag," saying "Box the books," "The game is bagged," so in Chamorro transitive verbs are formed from nouns by adding to the primitive word *e* or *ye*:

ROOT	USED AS TRANSITIVE VERB
<i>kostat</i> , bag;	<i>kostate i maeis</i> , bag the corn.
<i>kamuti</i> , sweet-potato;	<i>kamutiye i guetta</i> , potato the garden.
<i>kottina</i> , curtain;	<i>kottinaye i altat</i> , curtain the altar.
<i>guma</i> , house;	<i>magumae</i> , housed, to be built in houses.
<i>fai</i> , rice;	<i>mafaiye</i> , riced, to be planted in rice.
<i>tupu</i> , sugar-cane;	<i>matupuye</i> , sugar-caned, to be planted in sugar-cane.
<i>hanom</i> , water;	<i>mahanme</i> , watered, to be irrigated.
<i>chupa</i> , tobacco;	<i>machupaye</i> , tobaccoed, to be planted in tobacco.
<i>maeis</i> , maize;	<i>mamaeise</i> , corned, to be planted in corn.

These verbs follow the same rules as primitive verbs in forming the plural. Examples:

Matupuye i sesonyan. The swamp is planted in sugar-cane.

Manmatupuye i sesonyan siha. The swamps are planted in sugar-cane.

5. INTRANSITIVE VERBS FORMED FROM ADVERBS. — Examples:

<i>huyoŋg</i> , outside;	<i>Huyoŋg</i> ! Go out !	<i>Tafanhuyoŋg</i> , Let us go out.
<i>halom</i> , in, inside;	<i>Halom</i> ! Come in !	<i>Tafanhalom</i> , Let us enter.
<i>hulo</i> , up, upward;	<i>Kahulo</i> ! Get up !	<i>Tafankahulo</i> , Let us rise.
<i>tate</i> , behind;	<i>Tate</i> ! Go behind !	<i>Tafanate</i> , Let us go behind.
<i>fona</i> , in front;	<i>Fona</i> ! Go ahead !	<i>Tafanmona</i> , Let us go ahead.
<i>halom</i> , within;	<i>Humahalom hao</i> ? Do you believe ?	
<i>guse</i> , quickly;	<i>Guse magi</i> ! Hurry hither !	

6. PRONOUNS USED AS VERBS. — Certain pronouns may be used as intransitive or neuter verbs:

PRONOUN	VERB
<i>guaho</i> , I;	<i>Guaguahohā</i> , I am quite alone.
<i>hita</i> , we (incl.);	<i>Humihita guine</i> , We are here (together).
<i>hita</i> , we (incl.);	<i>Utahita guato</i> , We shall go there (together).

7. VERBAL PREFIXES. — Various meanings are conveyed by prefixing to the primitive verb certain particles. These prefixes are not confined to verbs but are applied to other parts of speech as well. They are quite distinct from verbal particles used to mark tense, mood, and person, and from the plural prefix applied to intransitive and passive verbs, adjectives, and certain nouns. Examples:

nā-mañao, to cause fear, to make afraid, to terrify; from *mañao*, fear.
ma-poka, broken; from *poka*, break.

fan-lili, see (intransitive); from the transitive verb *lil*, see.

8. THE CAUSATIVE PREFIX *nā*. — This particle when prefixed to a verb has the significance of 'to make to do' or 'cause to be.' As has already been shown it is also used as an adjectival prefix; *nāgasgas*, to make clean, or to cleanse, may be used as an attributive adjective signifying 'cleansing'; *nāmaho*, to cause thirst, may also be the adjective 'thirst-causing.' *Hanābaba si Luis*, He made Louis crazy.

It may be prefixed to either an active or a passive verb; as —
hanāpunō, he caused to kill, he made some one kill something;
hanāmapunō, he caused to be killed, he had something or some one killed.

It has the effect of making certain intransitive verbs transitive:

INTRANSITIVE	TRANSITIVE
<i>Ason</i> , Lie down!	<i>nāason</i> , lay down, make lie down.
<i>Fatachoñg</i> , Sit down!	<i>nāfatachoñg</i> , set down, make sit down.
<i>Tunog</i> , Descend!	<i>nātunog</i> , lower, cause to descend.
<i>Hanao</i> , Go!	<i>nāhanao</i> , cause to go, eliminate.

In the same way it converts adjectives into transitive verbs:

ADJECTIVE	TRANSITIVE VERB
<i>bula</i> , full;	<i>nābula</i> , to fill.
<i>fotgon</i> , wet;	<i>nāfotgon</i> , to wet or moisten.
<i>añglo</i> , dry;	<i>nāañglo</i> , to dry.
<i>homlo</i> , well;	<i>nāhomlo</i> , to cure, to make well.
<i>masa</i> , cooked;	<i>nāmasa</i> , to cook.
<i>maipe</i> , hot;	<i>nāmaipe</i> , to heat.
<i>oda</i> , dirty;	<i>nāoda</i> , to soil.
<i>káfache</i> , muddy;	<i>nākáfache</i> , to muddy.

Combined with the particle *lā* it expresses a more modified effect:

<i>guse</i> , quick;	<i>nālāguse</i> , to shorten (in time).
<i>dikiki</i> , small;	<i>nālādikiki</i> , to lessen.
<i>guaguan</i> , dear (not cheap);	<i>nālāguaguan</i> , to make dearer.
<i>tailaye</i> , bad;	<i>nālātailaye</i> , to make worse.
<i>mauleg</i> , good;	<i>nālāmauleg</i> , to better.
<i>dididi</i> , little, few;	<i>nālādididi</i> , to diminish in quantity.

In the above examples the meaning is not necessarily to make a thing short or small or dear, but shorter, smaller, or dearer than before.

9. THE PREFIX OF CONDITION **ma**. — This prefix is also found in many adjectives expressing the nature or condition of a person or thing; as, *mañaña*, soft; *manēnghēng*, cold; *malañgo*, sick.

Prefixed to verbs it forms a word corresponding to the participle, but which should really be considered as an adjective. This adjective, like all others, can be used as a denominative, or attributive, verb, but such a verb is not really in the passive voice. For example, from *poka*, break, is formed *mapoka*, broken, an adjective used when the agent of the act is not designated. To express the passive voice the infix *in* must be used (*pineka*) if the agent is singular or dual; the prefix *ma* is used only to express the passive voice if the agent is plural, as, *magote hao nu i mañelumo*, you were seized by your brothers; but *ginete hao as Huan*, you were seized by John.

TRANSITIVE VERB	ADJECTIVE OF CONDITION
<i>poka</i> , break;	<i>mapoka</i> , broken;
<i>titeg</i> , tear;	<i>matiteg</i> , torn;
<i>tuno</i> , burn;	<i>matuno</i> , burnt;
<i>gote</i> , seize;	<i>magote</i> , caught.

This prefix should not be confounded with the indicative prefix of certain intransitive verbs beginning with the syllable *fa*. These are probably derivatives and change the initial letter *f* to *m*, just as the imperative prefix *fan* of derived intransitives is changed to *man* in the indicative:

IMPERATIVE	INDICATIVE
<i>Fatachong</i> , Sit down!	<i>Matachong yò</i> , I sat down.
<i>Falag</i> , Run!	<i>Malag yò</i> , I ran.
<i>Falingo</i> , Lose!	<i>Malingo hao</i> , You lost. ¹

10. *The Intransitive Prefix fan*. — This prefix, which in the indicative past and present tenses becomes **man**, must be added to a verb which is transitive in its primitive form if the verb has no object or if its object is not definitely indicated. It indicates spontaneity, or that the action is complete in itself, or that the verb has become intransitive. In the Chamorro language a verb with a vague or

¹ Similar modifications of the initial letter occur in all dialects of the Philippines and of Madagascar.

indefinite object is regarded as an intransitive verb. In the sentence *lū yuhe na modong*, Behold yonder ship! the transitive form is used, because the particular ship is indicated. In the expression *manilili*, I see, the intransitive form is used because there is no object. In the sentence *manilili pution*, I see a star, or I was seeing a star, the intransitive form is used, because the particular star is not indicated. The verb in the last case might be taken together with its object as an intransitive verb; 'I was star-seeing.'¹

11. ADVERBIAL PREFIXES. — Certain prefixes are used with verbs where in English an adverb or adverbial phrase would be used instead.

achā or *chā* signifies 'simultaneously,' 'equally,' or together with'; as, *hu-chāgote i tiftafan yan i saligao*, I seized the rice-husks together with the centipede; *achābasnak si Adan yan Eva*, at the same time fell Adam with Eve; *chāmalaŋgo hao yan i chelumo*, you are sick equally with your brother; *chāgilago gui yan tataña*, equally a Northman (Spaniard) is he with his father. In the latter cases *malaŋgo* and *gilago* are denominative verbs.

katna signifies 'nearly' or 'almost': *katnahamatmos si Huan*, John nearly drowned, or John came near drowning; *katnamatai si Tata gi paŋge*, Father nearly died last night.

kē signifies 'to be about to,' 'to be on the point of': *k(um)ēkahulo*, he was about to get up; *k(um)ēkefalago*, he is about to run away; *k(um)ēkemaego*, he is on the point of falling asleep.

chat signifies 'badly' (Malayan *jahat*), 'not well, imperfectly, insufficiently, poorly, a little': *ha-chatgote*, he seized badly, he took poor hold; *chatmalate gui*, he is badly brought up; *chatmasaolag i patgon*, the child has been insufficiently whipped; *chatāpaka i atgodon*, the cotton is not quite white; *chatmalago*, he ran little, he ran but poorly; *chatsulon*, he slipped a little, he slipped somewhat.

gōf, *gēf*, *gēs* have the opposite significance of *chat*. They have the force of adverbs signifying 'well, thoroughly, properly, sufficiently'; as *gōfmasaolag i patgon*, the boy was soundly

¹ In Fiji the same distinction is made between verbs having a definite and those having an indefinite object, as in the expressions 'to work the garden' and 'to work garden.' See Coltrington, *op. cit.*, p. 178.

whipped; *géfmalāgo*, he ran well; *gésyayas yô*, I am completely tired out.

lā signifies 'further,' 'a little more'; as, *lābābā i petta*, open the door wider; *lātunog*, descend lower.

sen signifies 'entirely' or 'quite'; It is also used with adjectives and adverbs to express the superlative degree: *senyutē i hagas bidamo*, leave entirely your former life; *senápaka i mānog*, the chicken is pure white.

12. OTHER PREFIXES. — Certain other prefixes can be rendered in English only by phrases.

é or *ô*. — These prefixes form an intransitive verb signifying 'to go in quest of something', as *éguihan*, to go fishing; *ékuto*, to go nutting (*huto* is the name of the nuts of the dugdug — *Artocarpus*); (*um*)*égagao*, he goes about begging (*gagao*, to beg); (*um*)*ôfatsen*, he goes about inquiring.

én. — When prefixed to the name of an object of personal use, *en* forms an intransitive verb signifying to use conjointly or by turns: *umēnguma si Luis yan Tomas*, Louis lived in the same house with Thomas; *umēnlupes si Rosa yan Rita*, Rosa wears Rita's skirt by turns with her.

fā. — This has two distinct significations. When prefixed to the name of something to eat it signifies 'to make into' or 'confection':

fābuñuelos i dāgo, make into dumplings the yam;

ha-fākarbon i abas, he made into charcoal the guava-wood.

Prefixed to the name of an office, occupation, a verb, or an adjective, it signifies 'to pretend to be,' 'to feign,' 'to play the part of,' or 'pass one's self off for':

ha-fāhatuño, he pretended to know.

ha-fādokto guí, he pretended to be a doctor.

ha-fātānga i guelōña, he passed his grandfather off as deaf.

ha-fālahen Huan si Dolores i lahña as Host, Dolores passed off as John's son the son of Joseph.

Exceptions. — To this rule the following exceptions may be noted: *fābābā*, signifies 'to make a fool of,' or 'to swindle.' *fāmauleg*, signifies 'to make good,' 'to repair,' 'to benefit.' In order that they should signify 'to feign to be a fool,' 'to feign

to be good,' the *a*'s of *baba* should be pronounced like that in 'father,' and the *a* of *mauleg* should be modified to *ã*, writing the words *fãbaba*, *fãmãuleg*.

fãmã. — This particle is used very much like the preceding. In connection with food it signifies to make or to prepare something. Before the name of an office or dignity, or before an adjective, it signifies 'to feign' or 'to pretend.' In the indicative it becomes **mãmã**.

fãmãamotsa, get breakfast, prepare breakfast.

fãmãatmondigas ni i bãbue, make sausage out of the pig.

fãmãsindalo, play soldier, pretend to be a soldier.

fãmãmãaãao, pretend to be afraid.

fãmãmãlango, pretend to be sick.

Before other nouns it signifies to turn into, to be converted into; as *mãmãããfog i ãcho ñaãae*, the coral stone turns into lime.

gẽ. — Prefixed to an adverb of place *gẽ* forms a verb signifying to put one's self into a certain position:

ADVERB

fona, in front;

hulõ, above;

VERB

gẽfena, put yourself forward;

gẽhilõ, put yourself on top.

13. **VERBAL SUFFIXES.** — Another way of expressing various shades of meaning is by means of suffixes. Some of these take the place of prepositions, others have the effect of modifying adverbs.

-e, -ye, and -ge. — These, when suffixed to certain intransitive verbs, have the effect of directing the action toward some object. If the word ends in a consonant, or in a guttural vowel, the suffix is *e*; if it ends in a simple vowel the suffix is *ye*, final *e* of the root being changed to *i* and final *o* to *u*; and if the root ends in *ae*, the final *e* is suppressed.

If it ends in *ao* the final *o* is suppressed and suffix *ge* is added.

adiãgan, speak;

saãgan, say;

chule, carry;

lõlõ, caught;

tola, spit;

basnak, fall;

adiãgane, speak to some one;

saãgane, say to some one;

chulie, carry to or for some one;

lõlõe, cough at some one;

tolõe, spit at some one;

basnakge, fall upon some one.

Nafunhayane si tata nu i sapatos, Finish for father the shoes.

Tayuyute yõ as Ynus, Pray for me to God.

Taitaye si guelamo un lebblo, Read to your grandmother a book.

<i>Sausage si nana nu i lamasa,</i>	Wipe off for mother the table.
<i>Tunoge si Luis,</i>	Lower for Louis.
<i>Chatage si Mariano,</i>	Be mean to Mariano.

When the same endings are suffixed to parts of the body, they form verbs signifying to turn toward or present the part of the body indicated; as *mataye*, to turn the eyes toward; *kalaguage*, to turn the side toward; *tatiye*, to turn the back.

Exceptions.—The last word signifies also 'to follow behind' a person. 'To turn the face' is *fana*.

The Suffix -hã.—This indicates that an action is continued or habitual, as *machochôchôhã*, he is working continually; *umôô-maghã*, he is always bathing, he bathes all the time. With a pronoun it signifies 'to be alone,' as *guiyahã*, he was alone; *guaguahohã*, I am alone.

The Suffix -ñaehon.—This suffix, appended to a verb or to the name of some article of apparel, signifies "to make use of," "to use for a moment":

<i>Huchachañaehon i tiherasmo,</i>	I used your scissors.
<i>Husapatosñaehon i iyomo,</i>	I used for a bit the shoes of yours.

Appended to a verb expressing momentaneous action it has the significance of depreciation:

<i>Huyetñaehon i pakiña,</i>	I threw away (in disgust) his gun.
<i>Hafakaetñaehon gi manmalaño,</i>	He divided away among the sick
<i>i salapiña</i>	his money.
<i>Mutañaehon,</i>	To vomit forth.

It sometimes is used to convey the meaning of "only a little," or "a bit":

<i>Panakñaehon,</i>	To whip but slightly.
<i>Balenñaehon i aposento,</i>	Brush up a little the alcove.
<i>Mafogñaehon,</i>	It was overturned by a slight touch.

With a reciprocal verb it signifies "by chance":

<i>Huasodañaehon si Pedro,</i>	I happened to meet with Peter by chance.
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14. REDUPLICATION.—Reduplication of the accented syllable of a verb in Chamorro has the effect of expressing sustained, continued, or suspended action. It makes indefinite the time of the completion of a verb's action. Thus there are two imperatives.

The first, in which the verb has its simple form, is called the URGENT IMPERATIVE OR DEFINITE IMPERATIVE. It expresses a command which is supposed to be executed forthwith. By reduplicating the accented syllable of the primitive verb the SUSPENDED IMPERATIVE OR INDEFINITE IMPERATIVE is formed. It expresses a request or counsel which may be complied with at any time. In the same way the preterite, or past definite, is formed from the simple root, while the present imperfect, or copresent, which represents a progressive or continuous action, is formed from the reduplicated root. There are in the same way two futures, one definite and the other indefinite or lax, differing from each other only in the reduplication of the accented syllable.

Exception.—In verbs expressing mental acts reduplication has the effect of weakening the force of the verb; as *hutungo*, I know; *hututungo*, I have an impression, I think I know.

In reduplicating the primitive word the tonic, or accented syllable, is usually doubled:

PRIMITIVE FORM	REDUPPLICATED FORM	
<i>ginem,</i>	<i>giginem,</i>	drink.
<i>kano,</i>	<i>kakano,</i>	eat (transitive).
<i>chocho,</i>	<i>chóchocho,</i>	eat (intransitive).
<i>agang,</i>	<i>āagang,</i>	call, cry out.
<i>omag,</i>	<i>óomag,</i>	bathe, take a bath.
<i>lii,</i>	<i>lilii,</i>	see.
<i>taga</i>	<i>tátaga,</i>	cut.
<i>ta^o,</i>	<i>táta^o,</i>	return.
<i>chule,</i>	<i>chúchule,</i>	carry.
<i>nâe,</i>	<i>nānâe,</i>	give.
<i>lalatde,</i>	<i>lálalatde,</i>	blame.
<i>fato,</i>	<i>fáfato,</i>	arrive.

If in the tonic syllable of the root another letter follows the accented vowel, the last letter is omitted in reduplication. If the tonic syllable begins with two consonants, the first consonant is omitted in reduplication:

PRIMITIVE FORM	REDUPPLICATED FORM	
<i>tasme,</i>	<i>tátasme,</i>	sharpen.
<i>saolag,</i>	<i>sassolag,</i>	whip.
<i>planta,</i>	<i>plalanta,</i>	place, plant.

If the primitive form be an intransitive verb derived from a transitive verb by prefixing the particle *fan*, the tonic syllable of the verb is reduplicated in its new form, as modified by the prefix. Thus, from *chule* (carry), is derived the intransitive verb *fañule*; from *taítai* (read, recite, or pray) is derived the intransitive verb *fanaitai*. In their reduplicated forms these verbs become *faññule*, *fanánaitai*:

ROOT	PRIMITIVE FORM	REDUPPLICATED FORM	
TRANSITIVE	INTRANSITIVE	INTRANSITIVE	
<i>chule</i> ,	<i>fañule</i> ,	<i>faññule</i> ,	carry.
<i>taítai</i> ,	<i>fanaitai</i> ,	<i>fanánaitai</i> ,	read.
<i>taga</i> ,	<i>fanaga</i> ,	<i>fanánaga</i> ,	cut.
<i>lilí</i> ,	<i>fanlilí</i> ,	<i>fanlilililí</i> ,	see.
<i>fáhan</i> ,	<i>famahan</i> ,	<i>famámahan</i> ,	buy.
<i>tuge</i> ,	<i>fanuge</i> ,	<i>fanúnuge</i> ,	write.
<i>tuge</i> ,	<i>fañge</i> ,	<i>fafañge</i> ,	write.

If the verb is a passive derivative form by the infix *in*, the tonic syllable of the root is added without considering the particle, as *pinápak* (primitive form); *pinápanak* (reduplicated form): from the root *pának*, whip.

Certain verbs which have the form of derived transitive verbs reduplicate the tonic syllable like them. If the verb is composed of several words it is always the accented syllable which is reduplicated:

PRIMITIVE FORM	REDUPPLICATED FORM	
<i>fatáchong</i> ,	<i>fatátachong</i> ,	sit.
<i>famókat</i> ,	<i>famómokat</i> ,	go-on-foot.
<i>kahulo</i> ,	<i>kahúhu/o</i> ,	rise, get up.
<i>falago</i> ,	<i>falalago</i> ,	go, run.
<i>falagisádog</i> ,	<i>falagisásadog</i> ,	go-to-the-river.
<i>falagihalomtáno</i> ,	<i>falagihalomtátano</i> ,	go-to-the-woods.

There are a few verbs which already have a reduplicated form. These do not further reduplicate their tonic syllable:

<i>kokolo</i> ,	go up.
<i>tetenog</i> ,	go down.

15. TRANSITIVE AND INTRANSITIVE VERBS. — There are two

principal classes of verbs, between which a sharp distinction is made. To the first class belong TRANSITIVE VERBS HAVING A DEFINITE OBJECT; as, *Taitai enao na lebblo!* Read that book! *Kano i äga,* Eat the banana.

In the second class are included INTRANSITIVE VERBS and TRANSITIVE VERBS WITH AN INDEFINITE OBJECT; as, *Fanaitai!* Read! *Fanaitai lebblo siha,* Read books (the books not specified). *Chocho!* Eat! *Chocho aga,* Eat a banana.

Such verbs as express motion or condition or simple action are naturally intransitive and have primitive roots; as, *hanao,* go; *maila,* come; *saga,* stay; *tangis,* weep; *nañgo,* swim; *chaleg,* laugh.

Other verbs may have a transitive meaning or an intransitive meaning, and as transitive verbs they may have either a definitely indicated object or an indefinite object. In the latter class the intransitive forms are for the greater part derived from the definite transitive form, or root, by prefixing the particle *fan* to form the imperative. In the indicative mode this particle becomes *man*. It should not be confused with the plural prefix *man*. Like that particle it influences the initial consonants of the primitive root according to the same rule.¹

The relationship between the transitive verbs and their corresponding derived intransitives may be compared with that of the English transitives 'set' and 'lay' and their corresponding intransitives 'sit' and 'lie.' Sometimes the intransitive verb differs radically from its corresponding transitive, as in the above case of *chocho* and *kano* (to eat). These verbs may be likened to the English intransitive 'to talk' and the transitive 'to tell.' In the English expressions 'to talk sense,' 'to talk politics,' the verbs may be compared to the Chamorro transitives with an indefinite object, which resemble the intransitives. In such cases the phrases may be considered as a compound intransitive verb; as, 'I read-books,' 'you eat-a-banana,' or 'I am book-reading,' 'he is corn-planting,' 'you are banana-eating,' which have a different sense from the verbs in which some particular book, corn, or banana is specified.

¹ See *American Anthropologist*, 1903, v, p. 303 (p. 15 of reprint).

DEFINITIVE TRANSITIVE	INDEFINITE TRANSITIVES OR INTRANSITIVES	
<i>kano,</i>	<i>chocho;</i>	eat.
<i>lii,</i>	<i>fanlii;</i>	see.
<i>fahan,</i>	<i>famahan;</i>	buy.
<i>chule,</i>	<i>fañhule;</i>	carry.
<i>taga,</i>	<i>fanaga;</i>	cut.
<i>tuge,</i>	<i>fanuge;</i>	write.
<i>tuge,</i>	<i>fañgge;¹</i>	write.

¹ Irregular by contraction. In the same way we have *Mañgge*, Where is it? or, Where is he? contracted from *Mano nai gaige*.

[To be continued]

THE VOCABULARY OF THE CHINOOK LANGUAGE¹

By FRANZ BOAS

The following description of the vocabulary of the Chinook language is based on material collected by me near the mouth of Columbia river.² A discussion of the Chinook verb, also based on this material, has been published by Dr John R. Swanton.³ To this paper the reader is referred. The laborious compilations and comparisons required for the following notes were made partly by myself and partly by Dr Swanton, Mr William Jones, and Mr H. H. St. Clair 2d, to all of whom I wish to express my thanks for their assistance.

The stems of the Chinook language may be divided into two great classes, the one that appears generally independently, without affixes, the other which occurs only with pronominal prefixes. The first class comprises attribute complements, adjectives, adverbs, conjunctions, and interjections; the second includes nouns, pronouns, and verbs.

I. STEMS USED WITHOUT PRONOMINAL PREFIXES

1. ATTRIBUTE COMPLEMENTS. — It is one of the most striking characteristics of the Chinook language that a few verbs of very indefinite meaning which require subjective and objective attribute complements are applied with great frequency. By far the greater number of these, and the most characteristic ones, are words that do not require pronominal prefixes. Many are clearly of onomatopoeic origin. In some cases it appears doubtful whether the words belong to the regular vocabulary of the language or whether they are individual productions. This is true particularly when the words do not form part of the sentence, but appear rather as independent

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² F. Boas, *Chinook Texts*, Bulletin 20, Bureau of American Ethnology. F. Boas, *Kathlamet Texts*, Bulletin 26, Bureau of American Ethnology.

³ Morphology of the Chinook Verb, *American Anthropologist*, N. S., II, pp. 199-237.

exclamations. Examples of this kind are the following: *oxuivā'yul kumm, kumm, kumm, kumm*, they danced, *kumm, kumm, kumm, kumm*, 167.5.¹ Here *kumm* indicates the noise of the feet of the dancers. *Hōmm, iguā'nat znilā'kux, hōmm*, I smell salmon, 67.3. *A'lta, pemm, temōtsa'nuks gō id'yacq̄t*, Now pemm, flies were about his mouth, 72.22. Here *pemm* indicates the noise made by flies. *Tcx, tcx, tcx, tcx, gō lkamelā'lsq*, there was noise of footsteps (*tcx*) on the sand, 75.3.

In a number of cases onomatopoeic terms which undoubtedly belong to the regular vocabulary are used in the same manner: *Tcxup, tcxup, tcxup, tcxup alē'xax lā'k̄t̄wax*, the torch flickered (literally: made *tcxup*), 50.24; *Ljāq, Ljāq, Ljāq, lā'xa nē'xax iske'epxoā*, out, out, out, out came a rabbit, 113.6. These cases make it plausible that most terms of this kind belong to the regular vocabulary. The frequent use of such onomatopoeic words and the occurrence of new words of the same kind, such as *t'ntin* clock, watch, time; *tsi'ksik* wagon, suggest that in Chinook the power of forming new words by imitative sounds has been quite vigorous until recent times.

Examples of onomatopoeic words of this class are *hē'hē* to laugh, *hō'hō* to cough, *pō* to blow, *t̄eq* to slap, *t̄āk* to break a piece out, *tō'tō* to shake, *cix* to rattle, *cāu* low voice, *tsēx* to break, *tcxup* to flicker, *tcxoap* to gnaw, *k̄ut* to tear off, *xwē* to blow, *lēp* to boil, *Ljāq* to crackle, *Ljlep* to go under water. It is difficult to say where, in this class of words, the purely onomatopoeic character ceases and where a more indirect representation of the verbal idea by sound begins. I think a distinct auditory image of the idea expressed is found in the following words: *il' Lj̄l* proud, *wāx* to pour out, *pāl* full, *temē'n* clear, *tell* tired, *tc̄pāk* loud, *gu'tgut* exhausted, *gē'cgēc* to drive, *ku'lkul* light (of weight), *k̄ā* silent, *q̄am* lazy, *q̄ul* fast, *lō'lō* round, *lēll* to disappear, *lāx* to appear, *tcxoap* to dig.

Most stems of this class occur both single and doubled, sometimes they are even repeated three or four times. Repetition indicates frequency of occurrence of the verbal idea; that is to say, it is dis-

¹ Figures appended to the examples given refer to the corresponding page and line in the *Chinook Texts*; thus, 167.5 means that the preceding example will be found in line 5, page 167. An explanation of the alphabet used will be found in the Bulletin of the Bureau of American Ethnology and in Dr Swanton's paper above cited, pp. 200-202.

tributive, referring to each single occurrence of the idea.¹ We have *wax* to pour out (blood) 68.1, *waxwax* to pour out (roots) 43.2; *pō* to blow once 66.25, *pō'pō* to blow repeatedly 129.20; *tell* tired, *tell'tell* to be tired in all parts of the body; *kjut* to tear off 89.25, *kju'tkjut* to tear to pieces 249.4.

A few stems, however, occur in duplicated form only, probably on account of the character of the idea expressed which always implies repetition. Such are *he'he* to laugh, *hō'hō* to cough, *tō'tō* to shake, *gu'tgut* exhausted, *ku'kul* light (of weight), *lolo* round.

Others do not occur in duplicated form, but take the distributive ending *-ma*. These are *pāl* full 39.1, distributive *pā'lma* 239.24; *wuk* straight, real 24.12, distributive *wuk/ma* 107.20.

Still others do not seem to undergo any change for the distributive: *teme'n* clean, empty; *tā'menua* to give up 61.18; *tqjēx* to wish 129.27; *stāq* war 272.5; *kjē* to disappear, nothing; *kjwac* afraid 90.5; *lqap* to find 140.1, 138.15. On the whole it would seem that those least onomatopoetic in character lack the doubled distributive.

In a few cases the doubled form has acquired a distinctive significance: *kjwan* hopeful 134.8, *kjwa'nkjwan* glad 38.20; *lax* sideways 267.3, *lā'xlax* to deceive 65.19, to rock 129.2.

It is probable that all these words are capable of forming substantives or verbs containing pronominal elements. I have found the following examples:

<i>i-yut/l</i> pride 74.11,	from <i>yūL/l</i> proud.
<i>tkj'waxema</i> torches 27.22,	from <i>wax</i> light, to shine.
<i>ikj'wax</i> flower 165.27,	from <i>wax</i> to bloom.
<i>ēwaxd'mi</i> copper,	from <i>wax</i> light, to shine.
<i>ikj'wac'd'mi</i> fear 213.10,	from <i>kjwac</i> afraid.
<i>igilqjup</i> cut 46.2,	from <i>lqjup</i> to cut.
<i>ig'ēLjmenl/men</i> syphilis,	from <i>Ljmen</i> soft, rotten.
<i>natsj'ēx</i> piece 69.3,	from <i>tsjēx</i> to tear.
<i>nalxoa'p</i> hole 23.7,	from <i>lxoa'p</i> to dig.
<i>nalō'lō</i> something round,	from <i>lō'lō</i> round.
<i>-xā'pēnic</i> a woman gives herself in payment for services of a shaman 203.11,	from <i>pā'nic</i> to give in payment for services of a shaman.

¹ Swanton, loc. cit., p. 233.

-gʷstəq;əam to go to war 270.1,	from <i>stəq;</i> war.
-xq;əam to be lazy,	from <i>q;əam</i> lazy.
ne-āxəxəme to notice 40.14,	from <i>xāx</i> to notice.
čʷkʷəlept it boils,	from <i>lep</i> to boil.
-xāgilq;up to cut oneself,	from <i>lq;up</i> to cut.

Nevertheless this series of stems is sharply set off from all others, since the latter never occur without pronominal elements excepting a few vocatives that will be mentioned later.

The most common verbal stem which is used in connection with these attributes is -x to be, to become, to do, to make. -ə(-i?) the general verb for motion is sometimes used with stems signifying motion. It seems difficult to classify these words except those that clearly express noises. Among a total of 126 words of this class 44 express activities or processes accompanied by noises; 16 are decidedly imitative; 22 designate states of the mind or body which may be expressed by imitative sounds, such as cold, tired, fear; 7 are terms of color; 45 express miscellaneous concepts, but some of these may also be considered as imitative. It seems likely that in a language in which onomatopoeic terms are numerous, the frequent use of the association between sound and concept will in its turn increase the readiness with which other similar associations are established, so that to the mind of the Chinook Indian words may be sound pictures which to our unaccustomed ear have no such value. I have found that, as my studies of this language progressed, the feeling for the sound value of words like *wāx* to pour, *kʷə* nothing, *kʷōmm* silence, *lə* calm, *pə'pə'* to divide, increased steadily. For this reason I believe that many words of the miscellaneous class conveyed sound associations to the mind of the Chinook Indian.

It will be noticed that verbs of motion and transitive verbs except such as are accompanied by decided noises are almost absent from the list of these words.

I have found very few cases only in which these words are clearly used as adjectives: *aqlə'əgam pčix lə'luwəlkluwəl* green mud was taken 30.21, *lə'lo ikta* something round 127.5. This is possibly due to the rarity of adjectives except numerals and a few others in the texts. It would seem, however, that in most cases derivatives

of these stems are used whenever the substantive or adjective is to be used; for instance: *ma'nix ka'ltac ila'yul:l klā'qewam* when a shaman only has pride 203.18.

In quite a number of cases these words seem to be rather adverbs than attribute complements: *ca'ucan naxay'llk'le* she told him in a low voice 40.21, *lux nula'tax-it* it fell down broken 49.2, *lke'plkep atcid'egam* it took it in its talons 137.15. If I remember rightly the cadence of the spoken sentence, these words must rather be considered as standing alone, the auxiliary verb *-x* being omitted.

LIST OF ATTRIBUTE COMPLEMENTS

a. Actions and Processes Accompanied by Noises

- (*wā* a noise under water 217.15) *ts;Ex* (*tc;Ex*, *tc;ux*, *tsEx*) to break
uhū' noise of an arrow striking a body 49.3 a piece of wood, antlers, etc.,
 (*hemm* noise of wind 41.25) with hands 60.7; to split wood
hōmm smell 67.2 27.2, sinews 138.19, roots 95.14
 (*hā* noise of an arrow breaking 49.4) (not used for splitting planks out
 of trees); to skin a bird 136.23;
hē'hē to laugh 12.22 to bark a tree 164.16; *ts;E'xts;Ex*
hō'hō to cough 45.19; *nats;Ex* a piece of flint
pemm noise of flying 72.22 flaked off 69.3
pō to blow 66.25, *pō'pō* 129.20 *tcxup*, *tcxep* to extinguish 51.2, to
pā, *pā*, *pā* 175.3 flicker 50.24, *tcxē'ptcxep* 28.8
 (*dall* noise of bursting 49.19, noise *tcx* noise of footsteps on sand 75.3
 of bear spirit 217.14) *tcxoa'p* to gnaw, *tcxoa'ptcxoa'p*
t;eq to slap 40.25, *te'qteq* 26.8 175.23
tō'tō to shake 194.1 *gumm* a noise under water 217.16
tumm noise of fire 45.16, noise of *gōm* noise of something heavy fall-
 bear spirit 217.13 ing down 27.9
temm noise of feet 133.17 *kumm* noise of dancing 167.5
t'ak to break a piece out of some- *gē'cgēc* to drive 15.5
 thing *k;ut* to tear off 89.25; *k;u'tk;ut* to
cix noise of rattles 22.5 clear up (sky) 249.4
cill noise of rattles on a blanket *ku'tcūā* to sneeze 64.24
 61.22; *c'illeill* rattling of breath *qull* noise of falling objects 67.1,
 of one choking 150.7 noise of heels striking the ground
ca'ca to break, to wreck 198.7 65.13
cāu low voice 162.11, *ca'ucan* 40.21 *q;ā'lq;āl* to beat time
cxx noise of flying birds 137.14 *q;ē* door creaks 66.14

- xx* to blow 113.20
xā'xā to rub 65.9
xwē to blow nose 113.21; to blow on water before drinking 213.13
*LEK** to break 165.19, *LE'kLEK* 68.16
LE'kLEK to burrow 95.13
LEX to split (planks) 27.1, to burst 204.4, *Ljē'xLjēx* to tear 145.20
LE'xLEX noise of scratching 153.7
Lap noise of shooting 272.20
LUX to come out 49.2, 201.1, *LU'XLUX* to pull out (of ground) 138.9
Lkē'pLkēp to grasp in talons 137.15
Lk;ōp to squeeze 9.8, *Lk;ō'pLk;ōp* with eyes run out 29.20
Lq;ōp to cut 114.3
Lxoa'p to dig 23.5, *Lxoa'pLxoa'p* 115.15
LjLj to titter 177.15
Ljēq to hit, to strike 156.23
Ljāq, Ljāx to crackle 38.1, 185.8
Ljlep under water 14.8

b. Descriptive Words

- pāl* full 39.1, *pā'lma* 229.24
wāx to pour out 68.1, to take across river in canoe 23.24, *wā'xwāx* 43.2
wāx to light, set afire 28.2, to bloom 165.26
temē'n empty, clean
te'te to stop doing something
tuwā'x to light, shine 12.1 (see *wāx*)
ku'llkull light of weight 199.9
kjam, kjem no, none 37.15
k;ōmm no noise
k;ā'ya no, none
k;ē no 128.5, nothing 14.1, to disappear 128.28
q;ēl strong, *q;ē'lq;ēl* hard, 139.8; too difficult 204.12
lep to boil 173.1
lō'ld round 186.23
Ljāk spread out 178.7
Ljmen to break into small pieces, soft 130.4; *Ljme'nLjmen* 17.9

c. Words Expressing States of Mind and Body

- iū'Ljl* proud 93.16
pēt quiet 177.24
p;alā' quietly, safe 198.4
tāl, tāl tired 62.14, *te'llte'll* tired all over = rheumatism
tq;ēx to like 129.27
t'ayā' well, healthy 165.21
tes cold 41.9
te'xtēx unwell, feeling uncomfortable
txap to hesitate 27.15
te;ē'kē;ēk almost choked 151.1
lāx lonesome 22.3
gū'tgut exhausted
kjēx cloyed 46.24, *kjē'xkjēx* grease smell 137.7
kjā silent 37.9, 129.2
kjwan hopeful 134.8, *kjwa'nkjwan* glad 38.20
kjwac afraid 211.15
k;cō stiff in joints
qjam lazy 138.4

q/at to love 41.6
xāx to notice, observe 75.17
LEk/, Lāk/ weak 212.21

Ljōya stingy (?) 139.11
Ljā to fear 212.11
Ljpaq to recover 196.22

d. Color Terms

Lēl black 25.11
kjās yellow
cpeq gray (dry?) 109.10
tkjōp white 124.25

ptcix green 30.21
Lpil red 185.20
tsjēmm variegated

e. Miscellaneous Words

id'e to let alone 187.13
ux to take a chance
wukj straight 24.12, *wukjēma'*
 107.20
pēnka afoot 217.8, 107.6
pānic to give secretly payment to a
 shaman 200.7
pā' to divide, *pā'pa'* 248.4
pāx unlucky 264.13
pōx foggy 37.4
pux lukewarm
pōxoiē to make a mistake
mēl/ wet 37.5
manō'x to learn a secret 200.10
lā'mēnuā to give up 61.18
tkē'ltkēl dull
tkjē to sit looking on
tjānuwa to exchange 228.8
nēkō to keep, to retain 277.14
stāq/ war, attack 272.5
stux to untie, to unwrap 135.13;
stuxstux 116.10
(tctāx around a point)
tskjēs to stoop
tcjpaḥ strongly 164.9, 110.1
kjau to tie 123.19, *kjau'k/au* 118.6
qōw't reaching 48.6, high water
 0.5

qul to hang, to fish with gaff hook
 27.16, to put on garment 136.23
qjē'cqjēc dry 14.19 = thirsty 21.1
(qjōd'p near 40.9)
qjūl low water 198.26
qjūl fast, *qjūl'ēcgam* hold fast
 44.15, see *qul*
xuēt half full 166.8
xōp streaming
lāx sideways 267.3, afternoon
 63.18, to miss 13.19; *lāx/lāx* to
 rock 129.2, to deceive 65.19
lu'xlux slick
lu'xpamē adultery
lēx to sit still
lāq to step aside 146.14; to turn
 137.12, 63.4; to cut off, to fall
 off 154.28, 194.1; to take out
 65.11; *lāq'lāq* zigzag, also plural
 for other meanings
lāx to appear, become visible 23.13,
lāx/lāx to emerge
lēx' to cohabit 228.16, *lēx'lēx'* to
 prepare corpse for burial 253.3
lō calm 25.18
luwā' freshet
ljap to find 261.8
ljāp fitting 154.8

2. ADVERBS. — The dividing line between attribute complements and a number of adverbs cannot be drawn very definitely. I am particularly doubtful how *!aya'* 'well' should be classed, and a few others which are placed in parentheses in the preceding list. The word *acuwa'tka* unsuccessful 96.7 may really be *ac-wat-ka* 'and that just ended it.' At least this is suggested by the analogous word *kawa'tka* 'and then it just ends' 117.16.

Adverbs are formed from adjectives by the suffix *-t*, for instance *môket* two, *mô'ketē* twice; *iñ' Lqat* long, *iñ' Lqtē*. Besides these, there are a considerable number of adverbs which seem to consist of radicals that do not undergo any changes. A few of these are probably compounds. Many of them perform the functions of verbal moods, such as are expressed in many American languages by derivatives of the verb. In Chinook a very few modal ideas only are expressed by derivation. There are three tenses, a potential, an inchoative (*-tck*), a number of frequentatives and usitives, and a few local terms.¹ Accordingly we find that the corresponding adverbs are almost entirely missing. Most adverbs expressing space relations are derived from nouns, but a considerable number of temporal and modal adverbs occur, the latter expressing certainty, compulsion, intention, etc. These cannot be derived from simpler forms.

<i>ai'ag</i> can ²	<i>pət</i> really
<i>xa'oxat</i> cannot	<i>năket</i> not
<i>qəi</i> will	<i>na</i> interrogative particle
<i>qə'xtcē</i> without reaching the desired end	<i>Ləqs</i> almost
<i>ka'llas</i> in vain, only	<i>qald'tcx-i</i> hardly
<i>qə'doxuē</i> must	<i>ā'nga(tē)</i> already, before
<i>atsuwā'</i> probably	<i>ā'lla</i> now
<i>Lx</i> may (implying uncertainty)	<i>ā Lqē</i> later on
<i>kjōma</i> perhaps	<i>kawa'tka</i> soon
<i>Lō'nas</i> I don't know (expression of uncertainty)	<i>anā'</i> sometimes
<i>pōc</i> contrary to fact	<i>nau'i</i> at once
	<i>lē, lē' lē</i> a long time
	<i>qīaste'n</i> for the first time

¹ See Swanton, loc. cit., pp. 217 ff.

² Evidently the original significance of this word is "quickly"; for instance *ai'ag nē'ya* (if you tell me to go) I go quickly, i. e. I can go.

<i>tax</i> for a while	<i>te/pāk</i> quickly
<i>wixt</i> again	<i>lawā'</i> slowly
<i>kulē'ts</i> once more	(<i>a'ag</i> quickly)
<i>alā tēwa</i> again in this manner	<i>txul</i> too much
<i>guā'nsem</i> always	<i>manig;ā'</i> too much
<i>wāx</i> next day (<i>wux-i'</i> to-morrow)	<i>t;ā' qea</i> just like
(<i>kawū'x'</i> early)	<i>ā'la</i> even
<i>q;ōā'p</i> near	

A number of exhortative particles form a peculiar group of words. They are applied so regularly and seem to be so weak that I do not quite like to class them with interjections. It would seem that the meanings conveyed by some of these have very nice shades.

<i>wuska</i> a somewhat energetic request: now do; let us make an end of it and — 37.12	<i>tayax</i> oh, if he would! 22.4
<i>nixus</i> please, just try to — 130.3	<i>hō'ntcin</i> be quiet
<i>txux</i> since this is to do (or let us) 24.10	<i>tca!</i> well! introducing a new idea (<i>qā't;ōcxem</i> look out!)
	(<i>nau'itka</i> indeed!)
	(<i>tgt;ō'kti</i> good!)

The last three of these hardly belong here. They are derivatives; *qā't;ōcxem* is probably derived from *t;ō* well; *nau'itka* perhaps from *nau'i* at once; *tgt;ō'kti* from *t;ō* well and *-kta* thing.

3. INTERJECTIONS. — The line between the last group of words and true interjections is very indefinite. As might be expected the number of interjections in this language which has such strong onomatopoeic tendencies is considerable.

<i>ā, ā, ā</i> oh!	<i>nā</i> disapproval 145.12
<i>adē'</i> surprise 29.13	<i>nāq;</i> contemptuous rejection of an offer 124.11
<i>ē</i> pity for hardships endured 187.19	<i>hohū'</i> derisive rejection of a remark 23.25
<i>nā</i> pity 116.15	<i>ahā'</i> ridicule, disbelieve 166.23
<i>and'</i> pain, regret, sorrow, pity 22.4, 161.13	<i>ehēhiū'</i> derision 45.1
<i>ahaha'</i> pain 177.16	<i>lē</i> derision of weakness 60.14, 146.1
<i>and'x</i> pity 153.8	<i>iā'</i> reproach for foolishness 117.9
<i>hē</i> call 12.2, indeed 38.22, 186.8	<i>nāxaxax</i> anger 186.16
<i>hē</i> a long distance 28.3, 123.13	<i>texā</i> that is nothing! 47.4
<i>hō, hohō', ohō'</i> surprise at the success of an action 24.3, 25.22, 67.14	

<i>lxuā</i> disgust 46.26	<i>kuc</i> good! 89.4 (also used by the
<i>ha'ūm</i> , <i>ha'ū</i> now I understand!	Chihelish)
39.27, 100.23	<i>kje</i> oh! (?)

As mentioned before, many of the imitative attribute complements may be used as interjections. This may, indeed, be their original function. Such are *hemm* noise of wind, *kumm* noise of dancing. A few differ so much in form and use from the attribute complements that I include them among the interjections:

<i>ha'lelelelelele</i> noise of flight of an arrow 62.21
<i>wu'lelelele</i> noise of flight of coaches 77.16
<i>wa'tsetsetsetset</i> cry of bluejay 31.2, 157.25
<i>qa'nawulewulewulewule</i> cry of gull 88.21
<i>wō</i> bark of dog 23.9
<i>wā</i> cry of child 185.24
<i>hā</i> cry of a person weeping 118.8
<i>wāūū</i> low voice 162.3
<i>kukuku</i> voice of bluejay after he had become a ghost 166.19

In this group belong also the burdens of songs, a few of which occur in the texts.

4. CONJUNCTIONS. — A number of invariable words perform the function of conjunctions. The meanings of a few of these are not quite certain. The most important are the following:

<i>ka</i> and, then, connecting sentences 26.18	<i>talj</i> although I did not expect it, still 74.9
<i>cka</i> and, while, connecting sentences 25.4	<i>d'olel</i> although I did not intend to, still 13.3
<i>kja</i> and, connecting nouns	<i>take</i> then 135.6
<i>tex'i</i> a little while passed, then 37.4 (often following <i>qiā'x</i> if)	<i>a'lta</i> now 135.5
<i>teu</i> or 276.1	<i>taud'lta</i> otherwise 134.8
<i>tateja</i> although it is so, still 44.4	<i>manix</i> when 253.14
	<i>qiā'x</i> if 127.20 (<i>qē</i> , <i>qēc?</i>)

5. ADJECTIVES. — Color terms, the plural of small, the numerals from two to nine, and the indefinite numerals are used without pronominal prefixes. The color terms were enumerated among the attribute complements,¹ because they are generally used in that

¹ See page 124.

form. *gen'em* small 38.17 is used only for plurals. The cardinal and indefinite numerals of this class are —

<i>mōkct</i> two	<i>te'xem</i> six	<i>ka'nauwe</i> all
<i>lōn</i> three	<i>si'namōkct</i> seven	<i>kap'e't</i> enough
<i>la'kit</i> four	<i>kstō'xtkin</i> eight	<i>qāmx</i> part
<i>qu'nem</i> five	<i>kod'itst</i> nine	<i>mank</i> few
	<i>teā</i> several	

All the cardinal numbers of this group when used as distributives take the suffix *-mtga*; when used as adverbs they take the adverbial suffix *-ē*. The ordinals are formed by the third person pronominal prefix and the possessive form, for instance: *ē' Lalōn* its third one (masculine) 217.21, *alā' lōn* (feminine) 211.20, and from these again ordinal adverbs *ē' Lalōnē* the third time 134.23. When counting human beings all these numerals, cardinals as well as indefinite, take the prefix *a-* and the plural suffix *-kc*. *mōkct* two may also take the dual prefix *c-*.

To the groups of indefinite numerals belongs the peculiar form *kanem* each, all, together, which occurs alone only in its distributive form *kanē'mtgeṃa* 157.23, while generally it appears as a prefix of numerals: *kanemqoa'nem* five together 201.22, *kanemqoa'nemiks* 176.8. With *mōkct* two it seems to lose its *m*: *skanasmōkst* both 76.14.

II. STEMS USED WITH PRONOMINAL PREFIXES

1. NOMINAL STEMS. — Substantives have always pronominal prefixes which determine their gender, *ē-* masculine, *ō-* feminine, *l-* neuter, *c-* dual, *t-* plural.¹ Apparently all these prefixes, except that of the feminine, agree with the corresponding gender of the third person intransitive, but a closer inspection shows that originally a nominal prefix *w-* must have preceded them. This still occurs in a few nouns, like *wē'wulē* interior of house 46.24; but particularly in geographical names: *Wale'mlem*, ordinarily *ole'mlem* rotten wood; *Waple'tcin*, ordinarily *ōple'tcin* salal-berries on stump; and also in songs: *welx* for *ilē'ē* 16.17. This prefix is retained in many cases in the upper Chinook dialects.

The number of nouns derived directly from verbs is remarkably small. While most American languages abound in affixes, by

¹ See Swanton, loc. cit., p. 208.

means of which terms denoting the actor, the instrument, result, place, time of action, and many other derived ideas may be expressed, such derivatives are very rare in the Chinook texts. We do not even find any form expressing the instrument, and the actor and the results of an action are expressed by purely participial forms.¹ Consequently the number of nominal stems is large, for many ideas which in other languages are expressed by words derived from verbal stems, are here expressed by separate stems.

On the whole the derivation of the numerous polysyllabic nouns in Chinook is obscure, since evidently a considerable number of nominal affixes exist which, however, occur so rarely that their significance cannot be determined. Examples are the derivatives from the stem *ilx* land, country: *il'ē* country (the *x* disappears when the vowel following *lx* carries the accent), *igōlē'lxēm* person, *ē'lxam* town, *tē'lxēm* people. From the stem *xē* we have *iqoatē'xēxē* bullfrog; from the stem *kon*, *iqō'konkon* woodpecker.

A few affixes only occur fairly frequently, but even in these cases it is sometimes impossible to classify the words satisfactorily.

-kē-. I presume this prefix is the same as, or at least related to, the verbal prefix *-ki*, *-gi*, which signifies that a verb usually transitive is used without object.² This explanation would be satisfactory in *ogilqjup* a cut, *igē'ljmenljmen* something rotten, *igilē'matk* store, *ogūē'pxatē* alder (= wood for dying), *ikjē'wulelql* food, *ē'kēit* payment for a wife, *lkjē'wax* torch, flower, *tkipalē'wul* word, *tkimō'cxēm* toy, *ikjēlē'nax* game.

-qē-. This seems to be a nominal prefix corresponding to the verbal reflexive *-x-*:³ *ōqōgū'nklatk* club from *-xgunk* to club, *lqē'tcamēlē* comb from *-xellciam* to comb one's self, *lqēlē'tcuwa* hat from *-xēnlē'tcuwa* to hang a round thing on top of one's self, *iqatjēlē'lxak* panther and *ōqōtsid'yulxak* ants from *-atsēlē'lxakō* to have a notch around one's self.

Judging from these examples it would seem plausible that most nouns beginning with *-gi-*, *-ki-*, *-kē-*, *-qē-*, *-qjē-* contain these prefixes; for instance: *igē'luxcutk* arrowhead, *igē'mxatk* burial,

¹ See Swanton, loc. cit., 231.

² Ibid., 218.

³ Ibid., 219.

igē'l'otē elkskin, *oquē'uxak* plank, *ōkjuē'lak* dried salmon, and other similar ones. Here may also belong *oquēwi'qe* knife, *oqjwēdā'wulx* maturing girl (the one who is moved up, hidden?), *iqēyō'qxut* old. The extensive use of these prefixes is also illustrated by *iqēk/ē's* brass, but *ik/ē'sa* gall, both from *k/ēs* yellow; *iqē'pjal* doorway (probably from *-pja* into = that into which people always enter).

na- is a local prefix; *naLxoa'p* hole from *Lxoa'p* to dig.¹

-tē a suffix signifying tree, wood: *ogūē'paxatē* alder = wood for dying.

-tk is a nominal suffix the significance of which is quite obscure.² In a few cases it indicates the point of an object, but in many cases this explanation is quite unsatisfactory. It seems possible that this suffix is the same as the verbal stem *-tk* to put down, to deposit, so that its meaning might be something on the ground, or something attached to something else, or a part of something else. This explanation would be satisfactory in words like *i'potitk* forearm, *igē'luxatētk* arrowhead, *iwa'nematētk* belly cut of a fish; while *ilemē'tk* bed may be derived from *-ēlx* ground and may mean put down on the ground, *ikaLxē'lematētk* dish = put down to eat from.

The following list contains some stems with their nominal and verbal derivatives. It will be noted that in a number of cases the verb is derived from the noun:

<i>-pXa</i> alder bark	<i>-Lx</i> around neck
<i>ō-pXa</i> alder bark	<i>-Lx-ōt</i> it is around the neck
<i>ō-guē'-pXa-tē</i> alder	<i>i-qjē'-Lx-ōt</i> necklace
<i>L-gē'-pXa-tē</i> alder woods	<i>-tēwa</i> to bail out
<i>-al-ō-pXa</i> to dye in alder bark	<i>x-tēwa</i> to bail out canoe
<i>L-q-L-al-ō-pXa</i> dyed cedar bark	<i>ō-i-tēwā'-Lx-tē</i> bailer (= for bailing out into the water)
<i>-ts/tēLx</i> to notch	<i>-kamōt</i> ³ property
<i>i-qa-ts;ē' Lx-ak</i> what has a notch around itself = panther	<i>-x-ēmōta</i> to barter
<i>ō-qo-ts;ā'yōLx-ak</i> those with notches around themselves	<i>t-kamōta</i> property
<i>-s-x-ts;tēLx-akō</i> to make a notch around a thing	<i>-kema(tē)</i> ³ baton
	<i>ō-kumatētk</i> baton
	<i>-xematētk</i> to beat time with baton

¹ See Swanton, loc. cit., p. 209

² Ibid., p. 210.

³ Probably a derivative

<i>-kjanxā'tē</i> ¹ drift net	<i>-lē</i> to catch with herring rake
<i>ō-kjunxā'tē</i> drift net	<i>-x-lē-n</i> to catch with herring rake
<i>-xēn-kjunxā'tē-mam</i> to go to catch in drift net	<i>i-qa-lē-ma-tk</i> herring rake
<i>naud'itk</i> ¹ net	<i>-mōcx'Em</i> to play, to fool
<i>-xe-naud'itgē</i> to catch in net	<i>i-ki-mōcx'Em</i> toys
<i>-wiuc</i> urine of male	<i>-m'cx</i> wood
<i>l-ō-wiuc</i> urine	<i>ō-m'cx</i> tree
<i>-xa-wiuc</i> to urinate	<i>ō-m'ēcx</i> kettle
<i>o-wiuc-matk</i> chamber	<i>-xel-mēqi</i> to gather wood
<i>-kxamit</i> to pay attention	<i>-lētcuwa</i> to put hollow thing on top of something
<i>i-ka-kxamit</i> mind	<i>l-qē-lētcuwā-ma</i> hat
<i>-a-kxamit</i> to pay attention	<i>-qet</i> louse
<i>-gunk</i> to club	<i>ō-qet</i> louse
<i>ō-qō-gūnk-lā-tk</i> club	<i>-gē-qet-a</i> to louse
<i>-x-gunk</i> club	<i>-k'tck</i> to knit net
<i>-tciam</i> to comb	<i>i-k'tck-mātk</i> net shuttle
<i>l-qē-tcam-ē-tē</i> comb	<i>-xel-gē-k'tck</i> to knit net
<i>-Lxē</i> to crawl	<i>-tciakt</i> to point
<i>l-qa-Lxē-lā</i> one who crawls	<i>-gēn-tcia-ktē</i> to point at something
<i>much = crab</i>	<i>gi-tēd'aktē-l</i> pointer = first finger
<i>-utca</i> ear	<i>-mq</i> to spit
<i>ō-utca</i> ear	<i>ō-mqo-it</i> to spit
<i>-x-wu'tca-tk</i> to hear	<i>ō-m'a</i> to vomit
<i>-Lxel(Em)</i> to eat	<i>l-mx-tē</i> saliva
<i>i-ka-Lxel-matk</i> dish	<i>-kta</i> thing, something, what
<i>-ōic</i> to break wind	<i>i-kta</i> thing, something, what
<i>-xel-l'ōic-qc</i> to break wind	<i>-gēm-ō-kti</i> to pay
<i>ō-ōic-qc</i> wind broken	

On the other hand we find many cases of words, which in most American languages are derived from the same stem, but which are not etymologically connected in Chinook.

blood <i>-qawilqt</i>	to bleed <i>wax</i> (= to pour out)	<i>-lpat</i> (= to come out)
arrow <i>-kalaitan</i>	to shoot <i>-lata</i> (= to pull)	to hit <i>-ma'</i>
bucket, cup <i>-cgan</i>	to drink <i>-qamct</i>	thirsty <i>-mēqtit</i>

¹ Probably a derivative.

paddle - <i>ski</i>	to paddle - <i>klēwa</i>	
hook - <i>kiē</i>	to fish with hook - <i>lē</i>	
shaman - <i>qēwam</i>	to conjure - <i>gēlait</i>	shaman's guardian spirit - <i>kawōk</i>
knife -(<i>qe</i>) <i>wigē</i>	} to cut - <i>xc</i>	
carving knife - <i>Lkjik</i>		
(= crooked)		
dagger -(<i>qe</i>) <i>wigē</i>	} to stab - <i>gēlqla</i>	
lance - <i>squl' LjEm</i>		
spear - <i>moLjanē</i>		
dead - <i>mēqt</i>	to kill - <i>wa*, -lēna</i>	murderer - <i>kjaukja</i>
excrement - <i>xalē</i>	to defecate - <i>wētxa</i>	
disease - <i>tc/a</i>	to send disease - <i>qēwam</i>	shaman who sends disease - <i>Lafa</i> (= to shoot)
thief - <i>ōleu</i>	to steal - <i>xtk</i>	
grease - <i>qatcau</i>	to grease, to oil - <i>tigō</i>	
harpoon - <i>kulkulōl</i>	to harpoon - <i>kēca</i>	
rain - <i>ʔLxatē</i>	to rain - <i>qawilxt</i>	
whetstone - <i>tcā'la</i>	to sharpen - <i>kēla</i>	
tears - <i>laqt</i>	to weep - <i>gē' tsax</i>	
digging stick - <i>Lq</i>	to dig roots - <i>lap</i>	
wedge - <i>tcā'nix</i>	to split wood - <i>LEX, tsEx</i>	

In this connection may also be mentioned the curious words designating various occupations, which are formed not from the verb designating the occupation, but from the guardian spirit presiding over it. Thus we have *tqē'qlax* hunter's protector, *ktiā' xēqlax* one who has a *tqē'qlax* i. e. a hunter; *igē'tal* whaler's protector, *giā'gital* a whaler; *iqamia'itx* fisherman's protector, *giā'qamia-itx* fisherman; *ikawōk* shaman's protector, *giā'xawōk* shaman; *itsxid'n* gambler's protector, *giā'ts/xian* gambler.

The Chinook vocabulary possesses a great many nouns of onomatopoeic origin. All of these contain the imitative group of sounds doubled. Since in onomatopoeic words, when used as verbs, duplication of the stem signifies repetition, the doubling of the stem in nouns may be interpreted as meaning that the particular sound is uttered habitually by the object designated by the onomatopoeic term. Some nouns contain other phonetic elements in addition to the doubled group of imitative sounds.

This class of nouns includes particularly names of birds, of a few other animals, and a miscellaneous group of terms among which are found names of parts of the body and a few terms of relationship. Some of these are not strictly onomatopoeic, but may be included in the class of doubled stems for the sake of convenience.

Birds

<i>t/ə</i>	<i>it/ə t/ə</i> hawk	<i>tsiās</i>	<i>otsiā' stsiās</i> robin
<i>qoəl</i>	<i>iqoəl' lqoəl</i> owl	<i>qul</i>	<i>ə' qulqul</i> heron
<i>pōē</i>	<i>ipōē' pōē</i> sp?	<i>lōt</i>	<i>iqsō' tlotlōt</i> sp?
<i>qēs</i>	<i>iqē' sqēs, ə' ə' c' ēc</i> bluejay	<i>ts/ək</i>	<i>ōmunt/ə' kts/ək</i> teal duck
<i>qoās</i>	<i>iqoā' sgoās</i> crane	<i>koāē</i>	<i>otc/ə' nakoāēkoāē</i> sp?
<i>qonē</i>	<i>iqonē' qonē</i> gull	<i>tcxən</i>	<i>tq/ə' ptcxən tlcxən</i> sprit tail ducks
<i>tsən</i>	<i>ə' tsən tsən</i> humming-bird	<i>qēt</i>	<i>cənqētqēt</i> hawk
<i>goēx</i>	<i>ogoē' xgoēx</i> female mallard duck	<i>kon</i>	<i>iqstō' konkon</i> woodpecker
<i>tc/āk</i>	<i>utē' aktē/āk</i> eagle		

Mammals

<i>pən</i>	<i>ə' pən pən</i> badger	<i>cēlq</i>	<i>ə' cēlqcēlq</i> porcupine
	<i>ə' pən pən</i> skunk	<i>kōtc</i>	<i>ukō' tckōtc</i> porpoise
<i>nam (?)</i>	<i>enand' muks</i> otter	<i>tcēp</i>	<i>sē' ntcēptēp</i> shrew

Other Animals

<i>qo</i>	<i>ə' qogo</i> pike	<i>xē</i>	<i>iq/oaē' xēxē</i> bullfrog
<i>lōx</i>	<i>ilō' xlox</i> oyster	<i>mən</i>	<i>ōlatsē' mēnmēn</i> newt
<i>lēx</i>	<i>iqalē' xlēx</i> a small fish (see: <i>lēx</i> scales)	<i>lō</i>	<i>sēq/alōlō</i> butterfly

Plants

<i>ma</i>	<i>emā' ma</i> pewter grass	<i>cāq</i>	<i>ucā' qcaq</i> pteris
<i>qəl</i>	<i>ə' x/qəl</i> polypodium		

Parts of Body

<i>p/ōx</i>	<i>up/ō' xp/ōx</i> elbow	<i>kuc</i>	<i>ckucku'c</i> testicles
<i>tcxōl</i>	<i>utcxō' ltcxōl</i> lungs		

Terms of Relationship

<i>ga</i>	<i>iā' gaga</i> his mother's father	<i>ma</i>	<i>tiā' mama</i> his father
<i>qac</i>	<i>iā' qacqac</i> his father's father	<i>ta</i>	<i>tiā' tata</i> his mother's brother
<i>cga</i>	<i>oyā' cga cga</i> his mother's mother	<i>k/āc</i>	<i>ik/ā' ckc</i> boy
<i>k/ē</i>	<i>oyā' k/ēk/ē</i> his father's mother		

Miscellaneous

<i>pāl</i>	<i>ipā'ipāl</i> net	<i>qōm</i> (?)	<i>iqō'mxōm</i> cedar-bark
<i>tcēl</i>	<i>ʔ'tcēl'tcēl</i> brass buttons		basket
<i>ʔeq</i>	<i>ʔsE'qsEg</i> buckskin	<i>Lk;EN</i>	<i>ʔLk;ENLk;EN</i> open basket
<i>tsEx</i>	<i>LtsE'xtsEx</i> gravel, thorn		ket
<i>k;oyē</i>	<i>ok;oyē'k;oyē</i> fingering	<i>qula</i>	<i>Lqulā'uula</i> egg
<i>gac</i>	<i>ogō'cgac</i> sealing spear	<i>lEx</i>	<i>ʔ'lExlEx</i> scales
<i>kup</i>	<i>ikupku'p</i> short dentalia	<i>Lluwalk</i>	<i>ʔLluwalkLluwalk</i> mud
<i>qāl</i> (?)	<i>iqā'lxāl</i> gambling disks	<i>lEm</i>	<i>ʔlEmlEm</i> rotten wood (-ʔlEm rotten bark)
<i>Llal</i>	<i>ilLalLlal</i> gambling disks		
<i>qāl</i>	<i>iqiā'iqāl</i> short baton	<i>qot</i>	<i>iqi'qotqot</i> fever
<i>qwis</i>	<i>ʔ'wisqwis</i> breaking of wind		

Among other groups of substantives which are expressed by stem words I mention the following :

Terms of Relationship

L-icx singular, *t-cōlal* plural, relation by blood.

-*xkun* all those older than self, particularly elder brother and sister, cousins in elder lines, i. e. father's elder brother's and mother's elder sister's children,¹ and all generations preceding that of grandparents.

kā'pxō elder brother ! elder sister ! addressed.

-*wux* all those younger than self, particularly younger brother and sister, cousins in younger lines, i. e. father's younger brother's and mother's younger sister's children,¹ and all generations following that of grandchildren.

au young brother ! addressed

āts younger sister ! addressed

-*qāc* (doubled) father's father

-*qcEN* man's son's child

qāc son's child ! addressed

-*ga* (doubled) mother's father

-*kxagan* man's daughter's child

qāc daughter's child ! addressed

-*k;ē* (doubled) father's mother

-*kxin* woman's son's child

ka'ē son's child ! addressed

-*ega* (doubled) mother's mother

-*tkin* woman's daughter's child

ka'ē daughter's child ! addressed

¹ This classification of cousins is not quite certain. I am also not quite sure if this term is confined to children of brothers and to those of sisters.

- <i>paa</i> n. nape	- <i>pute</i> f. anus
- <i>atsx</i> f. chest	- <i>itex</i> m. tail
- <i>mokue</i> f. throat	- <i>list</i> n. tail of fish
- <i>kutcx</i> f. back	- <i>pote</i> m. arm
- <i>mxte</i> m. heart	- <i>kci</i> f. finger
- <i>to</i> m. breast	- <i>wit</i> n. leg
- <i>wan</i> m. belly	- <i>pe</i> n. foot

Names of Animals

In discussing the onomatopoeic nouns we found that many names of animals, particularly of birds, are of this character. A few names of animals are descriptive. These were probably used as alternates in case one name of an animal became tabooed through the death of a person bearing its name, or a name similar to it. Examples are:

iqats;?lxak panther = having a notch around itself, i. e. with a thin belly

ogots;ia'yotxak ants = those having notches around themselves

itcä'yau ä'yagtq dragon fly = snake's head

ä'galELx mink = going into the water

otcö'itxul spider = dipnet maker

eqä'wam a fish sp. = the sleepy one

okö'lxul mouse = thief

ik;u'th;ut (Kathlamet dialect) dog = the one who always breaks (bones)

It is very doubtful if many of the other animal names can be considered as stems. I am inclined to think that most are descriptive names, although we cannot at present give their derivations. This seems plausible, particularly on account of the great dialectic differences between animal names in upper and lower Chinook.

	CHINOOK.	KATHLAMET.
black bear	- <i>ä'tsxul</i> m.	- <i>sqä'ntxoä</i> m.
badger	- <i>ä'penpen</i> m.	- <i>plä'cxac</i> m.
deer	- <i>mä'cän</i> m.	- <i>lä'lax</i> m.
mink	- <i>ä'galELx</i> m., - <i>pö'sta</i> m.	- <i>kö'sa-it</i> m.
rabbit	- <i>skä'epxoä</i>	- <i>kanaxmE'nä</i> m.
raccoon	- <i>q;öala's</i> m.	- <i>latä't</i> m.
chipmunk	- <i>ä'tsikin</i> f.	- <i>gusgu's</i> f.
crow	- <i>k;unö</i> f.	- <i>ä'ä'ntsa</i> f.

mouse	-kō'lxul f.	-'cō f.
seal	-'lxaiu f.	-qē'sgoax f.
bird	-lā' lax n.	p-/k'cp/ɛc n.
dog	-kē'wicx n.	-kju'tk/ut n.

Other animal names are :

bear, cinnamon -t'ēk m.	snake -tē'yau m.
bear, grizzly -cā'yim m.	sperm whale -'mōk'txi m.
beaver -'ēna m.	squirrel -kja'utēn m.
-goa-inē'nē m.	sturgeon -nā'qōn m.
(-qā'muk m. <i>Kathlamet</i>)	sturgeon, green -kalē'nax m.
coyote -tjā'lapas m.	swan -qelō'q m.
rat -qā'lapas m. <i>Kathlamet</i>	turtle -'Laxoa m.
buffalo -tō'iha m.	whale -'kolē m.
crow (mythical name) -Laqjō' m.	lynx -puk m.
duck (sp?) -wē'guic m.	wolf -lē'qjam m.
eagle, bald headed -ninē'x'ō m.	beetle -'bic f.
elk -mō'lak m.	a bird sp. ? -pē'qciuc f.
fish hawk -'ltcap m.	chicken-hawk -'npite f.
flea -'napō m.	mud clam -'i'e f.
grass frog -qjēnō'nēqēn m.	fresh-water clam -'sala f.
heron -qjōd'skjoai	coatch -'waniō f.
horse -kē'utan m.	crane -qjucpalē f.
kingfisher -pō'tsēlal m.	killer whale -ga'z'at m.
lizard (?) -kinē'pēt m.	dogfish (see shark) -qjōd'icx f.
mallard duck -cimē'wat m.	sea bird sp. ? -Lqek f.
mountain goat -cē'xq m.	sea bird sp. ? -cxulē'x f.
mussel, small -tguē' (matk) m.	fawn of deer -qjē'xcap f.
mussel, large -niā' (matk) m.	trout (?) -qjē'xonē f.
panther -kjoa'yawa m.	flounder -'pkicx f.
a bird sp? -tcu'yam m.	frog -cuē'e f.
raven -koalē'xoa m.	halibut -Ltcjaldē f. (said to be borrowed from Quinault)
salmon, fall -qēlēma m.	louse -'qet f.
salmon, spring -gu'nat m.	maggot -'moa f.
salmon, steel head -goanē'x' m.	mole -cē'ntan f.
sea-lion -gē'pix' l m.	mosquito -'pjonats/ēkts'ēk f.
sea-otter -lā'kē m.	newt -qosā'na f.
shag -'paowē m.	screech owl -'cxux f.
shark -kja'yicx m.	pheasant (?) -nē'ctxuic f.
skate -aiā'iu m.	

pigeon - <i>qamən</i> f.	fish sp? - <i>k/otaqə</i> f.
porgy - <i>galxt!e'mx</i> f.	trout - <i>p/ā'lō</i> f.
salmon, calico - <i>'laatex</i> f.	fish sp. ? - <i>'LElō</i> f.
salmon, silver side - <i>'qawən</i> f.	woodpecker - <i>'kxulpa</i> f.
salmon, blue back - <i>tsoyeha</i> f.	woodpecker - <i>ntciawol'et</i> m.
sea-lion, young - <i>'xolē</i> f.	wasp - <i>'pa</i> f.
snail - <i>ts!Emē'nxan</i> f.	shell-fish sp? - <i>kji-La'ta</i> n.
snail - <i>ts!Emō'ikxan</i> f.	eel - <i>kā'kolē</i> dual
snail - <i>L!ē'xtan</i> f.	codfish? - <i>lā'ta-is</i> pl.
snipe - <i>'xsa</i> f.	flounder? - <i>mē'n'a</i>
fish sp? - <i>nā'wan</i> f.	grasshopper - <i>ts!ē'laq</i>

On account of the intricate derivation of Chinook nouns and our unfamiliarity with the component stems it is impossible to describe the phonetic characteristics of nominal stems. The list of names of parts of the body, given above, contains a number of stems consisting of consonants only, while most of the others are monosyllabic stems. It is doubtful if the purely consonantic stems have originated entirely through phonetic decay. A comparison of the upper and lower Chinook dialects gives no decisive answer to this question.

On the whole I am under the impression that a considerable number of monosyllabic nouns, and perhaps a few of two syllables, may be considered as stems. I give here a brief selection of such words:

- <i>'pquux</i> m. large round spruce root basket; f. small round spruce root basket	- <i>'lx</i> m. ground, earth
- <i>etē/ē'et</i> m. clam basket	- <i>'lan</i> m. short thong, string, pin for blanket
- <i>'mat</i> m. bay, sea, river	- <i>'egan</i> m. cedar
- <i>'ō'k</i> m. blanket	f. bucket, cup
- <i>'lk'au</i> m. cradle	n. plank
- <i>'qēl</i> m. creek, brook	- <i>'tsōl</i> m. harpoon shaft
- <i>'ktcxEm</i> m. dance of shaman	- <i>'msta</i> m. hat
- <i>'Lq</i> m. digging stick	- <i>'tōl</i> m. heat
- <i>'am</i> m. dish	- <i>'k'ik</i> m. hook
- <i>'pqōn</i> m. down of bird	- <i>kā'pa</i> m. ice
- <i>'qeil</i> m. fish trap	- <i>'paqē</i> m. boil, itch
- <i>ci'ke</i> m. friend	- <i>'kxōn</i> m. leaf
- <i>'pxil</i> m. grease	- <i>'m'etx</i> m. log, tree, wood; f. kettle

'kala m. man	-mā'p f. plank
'LkuiLx m. mat	-gā'wē f. raspberry
-pā'kxal m. mountain	'mopa f. rushes
'sik m. paddle	-gu'nksun f. salal berry
'a'pta m. roe	'skL f. sinew
'pa-it m. rope	'tcin f. stump, foot of tree
'nxat m. plank	-ā'Lax f. sun
-gā'cax m. sky	-ē'xatk f. trail
-lai'tix m. slave	-mō'tan f. twine of willow bark
'texa m. point of sealing spear	'pcam f. piece of twine
-kā'wōk m. shaman's guardian spirit	-hā't'au f. virgin
'c'ō m. horn spoon	-tcā'nix f. wedge
'makte m. spruce	'pLx f. well
-gā'nake m. stone, f. large bowlder	-qLq n. armor
'kta m. thing	-qōuq n. blanket
'qat m. wind	-a'teau n. grease
'pxa f. alder bark	'skuic n. mat bag
'lē'm f. bark	'tō n. milk, breast
'pL'ikē f. bow	-tcuq n. water
-L'qtsEn f. box	-kckui' n. pitch wood
'pā'utē f. crabapple	-mtk d. spit
'a'leptekix f. fire	'kemōm pl. ashes
'gaL f. fish weir	-pēō pl. grass
'latx f. camass	-quL pl. house
'tcala f. grindstone	-xt pl. smoke
'mala f. marrow, kernel	'skō pl. tattooing
'pul f. night, darkness	

Nouns Expressing Adjectival and Verbal Ideas

In Chinook a great many adjectives and verbs are expressed by substantives. In these expressions the quality or action becomes the subject or object of the sentence, as the case may be. The Chinook will say: "The man's badness killed the child's poverty," meaning that the bad man killed the poor child. It is true that such expressions are not entirely unfamiliar to us, for we can say, "he went the whole length of the way," or "he mastered the difficulties of the problem," in which we also treat a quality as objective. In Chinook this method is applied to a greater extent than in any other language I know. Many qualities are used only as abstract

nouns, while others may be transformed into adjectives by the prefix *g-* which expresses possession; for instance, *id' qjatxal* his badness, *gid' qjatxal* the one who has his badness, i. e. the bad one. In the same way verbs appear as nouns. This also is a mode of expression not unfamiliar to us, although the frequent application of such expressions and the ideas they express appear very strange. We can say, like the Chinook, "he makes a hit" and "he has a sickness," instead of "he hits" and "he is sick"; we can even use the verbal idea as the subject of a transitive verb or form analogous passive constructions; for instance, "sorrow filled his heart," "he was seized by a fit of anger," but the absence or rarity of the corresponding verbal forms and the strong personification of the verbal idea in the noun appear to us quite strange.

Most of the nouns of this class are always used with the possessive pronoun. The following examples illustrate their uses:

A' lta (1) *itsano' kstx* (2) *ðlkj' ð' nLkj' En* (3) *agid' lðtk* (4) *ikj' Enð' tan* (5)
now (1) she put (4) potentilla roots (5) into (4) the smallness of
(2) a clam basket (3) 43.22

Ohð' (1) *itci' qðqcin* (2) *Li a' xauyam* (3) ! *ohð'*, (1) my wife's relative's
(2) poverty (3) ! i. e. oh, my poor relative ! 67.21

Taqð' (1) *eð' tæxðt* (2) *id' lkuile* (3) just like (1) a bear's (2) similarity
(3) 275.11

Qulð' te (1) *igð' lgele* (2) *teæxt* (3) *Iði* (4) once more (1) her lie (2) has
done her (3) *Iði* (4) i. e. *Iði* has lied again 163.14

Ølð (1) *aktð' x* (2) *eð' lx' Em* (3) hunger (1) acts on (2) the people (3)
260.16

Ka' nauwə (1) *təlalə' xuke* (2) *ð' tam' ð* (3) all (1) birds (2) their chewed
thing (3) i. e. all birds eat of it 40.18

Tu' kE (1) *a' yate/ə* (2) *nixð' lax* (3) then (1) his sickness (2) came to be
on him (3) i. e. then he became sick

Qa' da (1) *itxð' a' lqf* (2) *qtgi' a' xð* (3) ? how (1) shall we make (3) our
wailing (2) ?

Following is a list of these nouns:

Qualities

-nu' kstx m. smallness

-(k/ɛ) ðL m. sharpness

-(xalx' tE m. flatness

-(pik m. heavy weight

-(ti/axan m. large belly

-(te/pux m. round head (= fore-head)

-(p/aga m. flat head

-(mEnuk m. blackened face

-(ki) matck m. spots, painted face

- <i>'wa</i> m. expense	- <i>'teke</i> m. stench
- <i>'qiatxal</i> m. badness	- <i>'q'Es</i> m. sweet smell
- <i>q'el'atex'ena</i> m. meanness	- <i>'ts'ēmEn</i> m. sweetness
- <i>lq'el'atex'ita</i> m. quiet	- <i>'l'l</i> m. bitterness
- <i>'yul'el</i> m. pride (see p. 120)	- <i>'l'lam</i> m. ten
- <i>'kjoac</i> ('ōmit) m. fear (see p. 120)	- <i>'k'amōnak</i> m. hundred
- <i>kā'kxuL</i> m. homesickness (subject of transitive verb)	- <i>'t'ōwil</i> m. experience (from <i>t'ō</i> — good)
- <i>kanā'tē</i> m. life	- <i>'(ke)t'ōi</i> m. } skill
- <i>tsā'tsa</i> m. cold (see p. 123)	- <i>'t'ōxōtskin</i> m. }
- <i>'lkuilē</i> m. similarity	- <i>t'ōxakamit</i> m. cleverness (= good mind)
- <i>'tukLtx</i> m. good luck	- <i>x'ti</i> f. cataract of eye (= smokiness)
- <i>'tēla</i> m. sickness	- <i>xax</i> n. sadness
- <i>'p'onEnkan</i> m. blindness	- <i>'xauyam</i> n. what excites sympathy
- <i>(ki)ma'tet(amt)</i> m. shame	- <i>'patseu</i> n. red head
- <i>'Ljkin</i> m. bowlegs	- <i>'k^uLil</i> pl. custom
- <i>'Lkjōp</i> m. being squeezed out (= one eyed)	- <i>'k-ilau</i> pl. taboo
- <i>qē'wam</i> m. sleepiness (subject of transitive verb, and possessive)	- <i>(ki)pā'lau</i> pl. witchcraft
	- <i>'katakox</i> pl. cleverness

Verbs

- <i>L'mē'nxut</i> m. lie of a male	} subjects of transitive verb	- <i>'galqt</i> m. a wail (= to wail)
- <i>gō'lgēlē</i> m. lie of a female		- <i>'kux</i> m. smell (= to smell)
- <i>ma'</i> m. act of hitting (= to hit)		- <i>'lō</i> f. hunger (subject of transitive verb)
- <i>kakamit</i> m. mind (= to think)		- <i>'m'ō</i> f. what is chewed
		- <i>'qōtch</i> f. cold in head

It will, of course, be understood that these words, from the Chinook point of view, do not form a separate class, but that they are simply concrete or abstract nouns, as the case may be. They are in no way different from similar constructions in English, in which the quality of an object is expressed as its *property*. We find, therefore, also, that many ordinary concrete nouns perform the functions of adjectives. *Ayā'pxela* (1) *icimē'wat* (2), literally: the duck (2) its fat (1) means the duck had (much) fat or the duck was fat. The only peculiarity of Chinook in this respect is, that certain ideas, which we consider as qualities or activities, are always

considered as concrete or abstract nouns. A glance at the list shows clearly that quite a number of these words cannot be considered as stems. Some are derivatives of unchangeable words and others are evidently compounds.

It may be mentioned in this connection that substantives are often used to qualify other substantives. In this case the qualifying substantive takes the gender of the one qualified: *o'kxola o'o'wun* a male silver-side salmon 109.3, *e'ikil i'mo'lak* a female elk 264.3. These qualifiers remain true substantives, as is shown by the feminine prefix *o-* which is characteristic of substantives.

2. PRONOUNS. — It does not seem necessary to treat personal and possessive pronouns fully in this place, since this subject has been treated by Dr Swanton.¹ I must, however, add a few remarks on the demonstrative pronoun, which has been made the subject of a special study by Mr William Jones. He finds that the demonstrative series consists of two series of three forms. The first series denotes objects visible and present in time, the second objects invisible and belonging to the past. Each series embraces those forms for objects near the speaker, near the person addressed, and near the person spoken of. The first series is characterized by the prefix *x-*, the second by the prefix *q-*. These prefixes are followed by an element indicating gender and corresponding to the personal pronouns of the third person. The locations corresponding to the three persons are indicated for the first person by the suffix *-k*; for the second person partly by the suffix *-u*, partly by the vowel *-i* (*-e*) following the prefix; for the third person partly by the suffix *-x*, partly by the vowel *-o* following the prefix. The series seems to be defective, probably for the reason that the combination of invisible and near first or second person is rare.

The following table illustrates the use of these demonstratives:

	<i>Present, Visible.</i>					
	Masc.	Fem.	Neutr.	Dual.	Plural.	Plural, Human beings.
Near 1st Person	<i>x'ik</i>	<i>x'ak</i>	<i>x'itlik</i>	<i>x'ictik</i>	<i>x'itik</i>	<i>x'itike</i>
Near 2d Person	<i>x'iau</i>	<i>x'au</i>	<i>x'ila</i>	<i>x'icta</i>	<i>x'ita</i>	<i>x'itac</i>
Near 3d Person	<i>x'ix</i>	<i>x'ax</i>	<i>x'ola</i>	<i>x'octa</i>	<i>x'ota</i>	<i>x'otac</i>

¹ Loc. cit., pp. 210-211.

Past, Invisible.

Near 1st Person	—	—	—	—	—	—
Near 2d Person	<i>qiau</i>	—	<i>qēla</i>	<i>qēta</i>	<i>qēta</i>	<i>qētac</i>
Near 3d Person	<i>qix'</i>	<i>qax</i>	<i>qōla</i>	<i>qōcta</i>	<i>qōta</i>	<i>qōtac</i>

Demonstrative adverbs seem to exist in two similar series, for instance, *x'igō* here, *qigō* there.

3. VERBS. — The onomatopoeic stems which do not readily form true verbs, and the nouns used for expressing verbal ideas — so far as they are not derivatives — reduce the total number of true verbal stems considerably. These are very brief, consisting sometimes of a single sound, often of a group of consonants, or of a single syllable. Stems of this character are relatively so numerous as to arouse suspicion that all dissyllabic stems may be compounds.

I doubt if it is quite correct to consider the local suffixes enumerated by Swanton¹ as real suffixes. Forms like *a'yoptek* he goes inland may very well be explained as verbal stems with the directive prefix *-ō*.² That this interpretation is correct is also suggested by forms like *ni'lxla-it* he goes to the beach and stays there which is evidently compounded of *-lx* motion toward the beach, and *-la-it* to be, to remain. Compounds of nouns and verbs are *-mōk'oya* to choke = to be between the throat (*-mōkuē* throat, *-ō'ya* to be between); *emō'laktexict* elk nose (*-mōlak* elk, *-tēxict* nose). We have also compounds of two nouns; for instance, *aqagē'lakte* woman's things (*-qagē'lak* woman, *-kte* thing).

In many cases it is very difficult to determine the stem of the verb, because it remains often doubtful whether an initial *-x*, *-k*, and *-g* belong to the stem or to a prefix. The following list contains only such stems the phonetic character and significance of which appear reasonably certain. The stems are arranged according to their initial sounds; first vowels, then labials, dentals, palatals, and finally laterals:

<i>-ā'newa</i> first	<i>-ēxt'</i> one (for animals and inanimate objects)
<i>-ā'nux</i> others, apart	
<i>-ā'mka</i> only, alone	<i>-ē'xat</i> one (person)

¹ Loc. cit., p. 225.

² Ibid., p. 218.

- o||i* to go. The forms of this verb are irregular. Some are derived from a stem -*i*, while others seem to have the stem -*ə*. It may be, however, that the latter is only the directive prefix -*ə*. The stem -*i*, which is absent in forms like *ə'yə* he goes, *ə'lə* it goes, reappears in *ayə'yam* he arrives, *ayə'ix* he is in the habit of going *nə'ya* I go
nə'yam I arrive
nə'gemoya he goes along it
nigələ'ya I go for a purpose, i. e. I go hunting
ayə'wulxt he goes up
-*xəl||ə||ma* other, different
-*wa* to pursue
-*ə||wa* to pursue trans. 217.7
-*xə||wa* to run pl. intr. 276.9
-*xə'l||wa|ko* to follow around
-*u||wə'x||it* to flee = to be pursued 223.10
-*u||wə'ko* to demand 157.19
*ə'wa** to kill sing. obj.
-*a||wan* pregnant 186.6 (= belly)
-*ə||wul** to swallow 46.12
-*ə||wintsx* to melt
-*u||wə'** raw, unripe 93.26
-*pəna* to jump
-*o||pəna* trans. with dual object. to jump 192.13
-*palau* to talk
-*o||palaw|u'* to address someone, trans. 213.15
-*h||palau* substantive to bewitch = word
-*o||pə'l|x* to gather, to pick 245.5
-*o||pəqla* to scratch 26.21
-*o||pəll* to stretch out 109.12
-*pə* to close, to shut
-*ə||pə* to shut a box
-*n||pə't* to shut in = to shut eyes 47.18
-*x||pəna* to carry food to wife's relatives 249.7
-*o||pən|it* to put up 29.8
-*pə't* darkness, night
nə'pənəm it gets dark 23.5
-*ə||pəut* to hide 9.10
-*o||pəca* to lead by hand 130.6
-*o||pətx* to mend
-*o||pəna* to pronounce, to utter 253.21
-*o||m|ako* to distribute, to give presents 98.8
-*l||m|ako* 77.17
-*o||mə'inx* rotten 199.26
-*o||mə'tck* to find, gather up 162.21
-*l||məctx* to loan, to lend; trans. with two obj.
-*o||məql* to lick 42.8
-*o||məla* to scold 93.24 (= bad? Kathlamet)
-*məxa* one more
-*o||mət* to grow up 224.4
-*ə||məl* to buy 94.20
-*ə||məqt* to die sing. 114.3 to faint 239.6
-*ə||məqtit* thirsty 71.1
-*məq* to vomit, to spit
-*ə||məq|o-it* to spit
-*ə||mə'a* to vomit 13.6
ə' ||mə'a|ql qualmish
-*xən||mə'sx-em* to play, to fool, to make fun of 178.18
-*ə||t* to give 164.6
-*t* to come
-*t* to come 15.18

- t|ē|mam to arrive coming 161.14
 -x||t|akō to come back 28.21
 -x||t|akōm to arrive coming back 16.17
 -ga||t|ōm (for -gatqōm) to meet 94.11
 -gēl||ta to leave 250.8
 -xēl||ta to leave 250.10
 -xēl||ta|qL to leave sing. obj. 123.15
 -ē||ta|qL to leave plur. obj. 128.7
 -l||ta|tke to leave to somebody 177.5
 -l||taqt to meet 164.26
 -o||tēna to kill plur. obj. 23.22.
 -l||tigō to oil, to grease; trans. with two objects, the direct object -L- standing for "grease"
 -xēl||tōm to accompany 135.20
 -o||tuke to suck
 -tk to put down
 -o||tk to put away 177.6, to snow 42.1
 -xēm|o||tk to stake 30.16
 -o||tg|akō to step (= to put down around) 240.29
 -o||tēin||tk to put first = to begin
 -o||tx to give away
 -tx to stand sing.
 -o||tx|uit to stand 184.20
 -g|ō|tx to stand on, to strike 191.20
 -o||tx|uit|tcu to fall down
 -o||tx|amit to place upright 48.5
 -o||tx|uitk to make ready 42.17
 -xēl||tx|uitk to get ready
 -tcam to hear
 -x||tēmaqt to understand 165.16
 -l||tēmaqt to hear 24.18
 -o||tēna to lay down 98.6
 -o||tēqLkⁿ to be crosswise 266.13
 -gēl||tēim to strike, to hit 66.4
 -tet to move on water
 -o||tet|tcu to go down river by canoe 277.3
 -o||tet|amit to push into water 74.22
 -o||tetxōm to finish 46.23
 -naxē||tetxōm to finish one's own (breath), to faint
 -o||tēkē to wash 39.22
 -o||tsgat short
 -xēl|o||tēx to observe 25.1
 -o||tēxēm to boil 23.4
 -c to be somewhere sing.
 -o||c to be 219.7
 -l|o||c to be in 151.3
 -k|o||c to be on 39.12
 -x|o||c to be on ground 39.18
 -o||ci to roast in ashes 185.4
 -o||ctx to carry on back 114.20
 -cg to take
 -o||cg|am to take 134.1
 -o||cge|Lx to take to water
 -x||cg|am to take away
 -gēl|ge||cg|am to help 28.6
 -x||cg|al|il to play 17.4
 -o||iko|it warm 174.14
 -ckta to search on beach 88.4
 -o||ckⁿ|L to turn over fire
 -'||nata on the other side, across
 -naxL to miss something that is needed
 -o||naxL|atck to lose 43.17
 -o||naxLx to wipe

- ni* to tie (?)
 -*kjē||ni|ako* to tie around 253.2
 -*x||ni|ako* to tie around 115.24
 -*ngo* to run sing.
 -*xa||ngo* to run 23.23
 -*xa|tēngo* to come running 28.3
 -*o||ngō'mit* to cause to run =
 to carry away 27.16
 -*o||nguē* to flutter
 -*kēl* to see
 -*²ēl||kēl* to see sing. obj. 115.1
 -*²ē||kēl* to see pl. obj. 66.11
 -*ka* to fly
 -*o||kō* to fly
 -*l||ka* to come flying
 -*l||ka|mam* to arrive flying and
 coming
 -*kim* to say
 -*gē'xa* to swim
 -*o||guēxa* to swim 14.15
 -*gēl||gē'xa|xē* to swim across
 217.11
gēxē (-*guēxē* ?) to sweep
 -*o||guēxē* 172.5
 -*kō* to go home, to pass
 -*x||kō* to go home 25.9, to go past
 -*xa|l||kō* to come home 212.2
 -*ka* (-*kō* ?)
 -*o||kō* to order 129.29
 -*gōn* another
 -*x||kxuē* to throw away 17.11
 -*o||kuman* to look at 47.2
 -*o||kula* to sharpen 15.21
 -*gēta* to pursue, to meet, 197.24,
 23.19
 -*o||ktik* to lie down on side 76.8
 -*kto|mit* to take revenge on relative
 of a murderer 203.10
 -*ktug* to enslave
 -*o||ktē* to carry 66.4
 -*ktax* (-*gk'tax*) to cry 275.2
 -*o||ktcan* to hold in hand 271.10
 -*o||ktciht* roasted, done 134.10
 -*o||ktciht|amit* to roast 93.26
 -*o||kē* to harpoon 92.9
 -*o||kēt* to see 217.22
 -*o||kēt|am* to go to see 187.10
 -*o||kēt* (probably the same as -*ktē*
 above) to carry 38.18
 -*x||o||kēti* to lie down, to sleep
 76.20
 -*xa|o||kētgo* to throw down 16.8
 -*o||kē'ek* to make net 95.4
 -*o||kēL* to carry 129.19
 -*l||kēL* to bring 127.13
 -*l||kēL|am* to arrive bringing
 67.6
 -*kēL* to tell
 -*x-l||guL|itēk* to tell 37.17
 -*x||kēL|ēl* 41.4
 -*kēLēwa* to paddle 135.1
 -*o||kēpa* to miss 271.13
 -*k/a* to haul, to pull
 -*x||k/a* 117.19
 -*ga|l||k/a* to haul here
 -*kjōL* to glue
 -*a||q* to meet
 -*ga||²ōm* to arrive meeting
 117.24
 -*a||qamt* (-*a||q|amit* ?) to look
 218.11
 -*a||qamt* to drink
 -*l||qamx* to shout
 -*qana|it* to lie
 -*o||qana|it* to lie down 16.23
 -*k||qana|it* to lay on top of
 -*o||qunā'|it|x-it* to fall down
 -*qā'yagt* between
 -*o||ga-it* large
 -*qēna* orphan

- ēm* to give food
 - l||ēm* to give food
 - l||ēm* to come to give food
 - gē||qoim* 240.28
- ōya* between
 - n||ōya* to put between into 172.20
 - a||ōya|mit* to leave meanwhile 93.26
 - a||ōya* days = time between
- a||wēwul* to invite 176.18
 - l||lēwul* to invite here 41.6
- a||wīlx* to hit, to strike 65.12
- a||ōptit* to sleep 255.16
- a||ōpk* to steam on stones 97.25
- a||qāt* to bathe
 - x||ōt* to bathe sing.
 - x||ōyut* to bathe pl.
- a||ōtē* to awaken sing.
 - a||ōyute* to awaken pl. 137.23.
- a||ōnim* to laugh at 184.3
- a||qē* to split wood 45.18
 - to bite 100.13
- a||qēti* to be satiated 172.12
- qLa* to count
 - qLā'x'it* to menstruate = to be counted
- o||xun* to drift, 200.7
- o||xtē* to steal 163.12
- o||x'tkin* to research 12.5
- xgō* to be transformed
 - xgō|mit* to transform 30.23
- a||x* transitive: to do; intr.: to become, to be
 - ||x|ōm* to arrive
 - a||x|ōtē* to work = to begin to do
- xauwē* many
- xāyal* common man
- xēna* to stand pl., to place upright 23.6
 - xēna|x'it* to stand pl. 235.19
- xomem* to show 41.2
- gēn||xoten* to help sing. 235.5
- ||oxogte* to invite 60.4
- xōL, t* dizzy
- xōL, t* to finish
- o||xtē* to swim (fish) 63.13
- xg|aka* to surpass 245.13
- a||xs* to cut
- l* to move
 - o||l|a* to move
 - x||l|l* to shake, intr. 156.14
 - o||l|atē* to lift 25.21
- lap* to dig
- ā -laxta* next
- o||lēkte* to roast 124.19
- o||lxam* to say to; trans. 13.17
- LEMāt* next to last
- La* to sit, to remain
 - o||La|it* to be, to sit 22.10.
 - gēm||La|it* to wait for 128.5
 - xē' ||La|it* dead pl.
 - k||La|it* to be in canoe
- o||Lata* to pull back 38.13
 - o||Lā'ta|x'it* to fly about 269
- Lk|ik* crooked
- o||Lqat* long
- o||Ll' (-o||Lq)* to win, to surpass 30.15
- Lqla* to strike
 - gē||Lqla* to stab 89.1
 - xēl|o||Lqla* to hammer
- xēl||Lxēlem* to eat
- L, ala* foolish
- L!E!Ex* lean

ABORIGINAL REMAINS IN NEVADA AND UTAH

By M. S. DUFFIELD

It should be of interest to students of ethnology to learn of a new field that awaits exploration and study. The writer is a mining engineer by profession and not versed in ethnologic or archeologic research, consequently he made no study of the many evidences of former aboriginal occupancy which he encountered during an extended investigation of the mining possibilities of the country to be traversed by the new San Pedro, Los Angeles and Salt Lake Railroad; yet it seems to be worth while to note a few observations in the hope that they may interest others with time and facilities for systematic study of the remains encountered.

The field noted lies mainly in Lincoln county, Nevada, and in Washington county, Utah; it is quite accessible either from the Santa Fé Railroad system or from Salt Lake City via the new San Pedro, Los Angeles and Salt Lake Railroad as far as its present terminus, Calientes, thence by stage to Las Vegas ranch. Or if one goes by the Santa Fé, the main line is left at Blake, San Bernardino county, California, whence he proceeds northward on a spur to Manvel, thence by stage to Las Vegas ranch. The stage distance is about the same by either route. Manvel, Good Springs, and Las Vegas ranch form good stopping places.

In Spring mountains, a monoclinic block-tilting of enormous thicknesses of red sandstones (Devonian) and limestones, there are numerous aboriginal remains to be studied. On the higher slopes of the mountain are many mescal-pits and old dwelling places in the cavernous limestone bluffs. The cavities have been formed by erosion along shear zones and fracture planes. About many of these are found fragments of pottery, stone implements, etc. No one has ever investigated them and little is known about them. There are only two small ranches in the entire Las Vegas valley, and the ranchmen know only what they see in crossing the moun-

tains by an old trail. Nor have many prospectors ever been over the range.

The strata of the main axis of Spring mountains, contrary to the rule of the Great Basin ranges, dip to the west; thus the eastern face of the range presents a precipitous front, in which the red sandstones, graywacke, and limestones can be readily distinguished. In the southern end of the range the red sandstone rises from the level of the mesa toward the north, reaching a perpendicular height of about 2,000 feet opposite Cottonwood Springs, an abandoned ranch at the base of the great red bluff. Above this red sandstone rise gray sandstones for about 1,200 feet, forming precipitous bluffs similar to those of the red sandstone; and lastly above this graywacke tower are imposing strata of limestone which culminate toward the north in Charleston peak (13,000 feet). Although the mountain presents a formidable appearance from the valley, when once the sandstone cliffs are surmounted, which is done by ascending favorable cañons, the upper limestone areas are easily traversed.

But by far the most interesting data for ethnological study are the picture-writings that occur so numerous in the faces of the bluffs. Particularly are they noticeable in the red sandstone. These cliffs have been elevated by orogenic movements from the level of the mesa along some grand line of faulting, and the friction caused by this elevation has resulted in large, smooth faces in the cliffs. The slickened surfaces of these spaces have resisted erosion and presented favorable opportunity for primitive man to perpetuate his records. In many cases the picture-writings are so high up the face of the bluff that it seems as though they had been made only by means of lowering from the heights above, a not inconsiderable undertaking. Higher up in the white sandstone strata there are similar inscriptions, but their meaning must remain unknown until some student of aboriginal petroglyphs deciphers them.

As may be judged by their name, Spring mountains have numerous springs, but these are rare in the neighboring desert region; in fact, these mountains afford the only water within sixty miles to the east and for great distances to the south and west. The greater elevations are covered with a dense growth of piñon, the nuts of which were no doubt a great luxury. The cliffs and precipitous

heights afford shelter from wind and storm. At the base of the mountains the dry arroyos are thickly grown with mesquite and mescrew brush, which affords edible beans. In fact there not only is evidence that the mountains were long peopled, but every reason that they should have been.

Not far from Spring mountains, in the igneous region to the southeast, and also farther south in the western foothills of Providence mountains, are several producing turquoise properties. In every case the discovery of these was due to the finding of old pits and workings, near which many stone implements have been found. Chalchihuitl and calaite, the minerals so greatly prized by the Aztecs and by the Pueblo tribes of New Mexico and Arizona, are found here in paying quantities.

Along the cliffs of Virgin river southward to the Rio Colorado and northward to the Mormon settlements are found a few picture-writings; but the Spring Mountain region affords the largest area for the ethnologist, as well as the least known. In the summer the climate is too hot for successful investigation, except in the higher levels of Charleston mountain, but the early spring months, or the fall, should be favorable seasons for exploration. There are easy stage routes to Las Vegas ranch, and the new San Pedro, Los Angeles and Salt Lake Railroad will pass within eight miles of some of the best picture-writings. The possibilities of the field seemed to me to be such as to warrant systematic investigation.

BOOK REVIEWS

Where did Life begin? A Brief Inquiry as to the Probable Place of Beginning and the Natural Courses of Migration therefrom of the Flora and Fauna of the Earth. A Monograph. By GILBERT HILTON SCRIBNER. New edition. New York: Charles Scribner's Sons, 1903.

This little book, which first appeared in 1883, is now republished without change except a new preface and a short appendix. The polar origin of life is so obvious a corollary from the nebular hypothesis that Kant or Laplace ought to have been the first to suggest it. It is possible that Buffon, who seems really to have been the first to propose it, in 1788, may have reached the idea through Kant's *Theory of the Heavens*, published in 1755. The strange thing is that the great biological thinkers, such as Huxley, Haeckel, and Herbert Spencer, did not at least discuss it. Professor Marsh in his presidential address to the American Association for the Advancement of Science at Saratoga in 1879, gave it a passing mention as confirmed by paleontological discoveries in America. This was about all the attention that the theory received down to the date of the first edition of this book. For the question of the origin of the flora and fauna of Europe, Asia, and America, which has indeed been long discussed and their migration from the arctic regions virtually proved, is quite a different question, as is also that of the southward migration of the human race, which has also been under discussion for about twenty years.

To any one who is convinced that the earth was once too hot to support life and gradually cooled down to its present state, there is no escape from the conclusion that life-supporting conditions first made their appearance at the poles. It would be rather gratuitous to maintain that, notwithstanding this, life did not in reality begin until such conditions had reached some lower latitude. It is much more rational to suppose that life began at the same time and place that the conditions favorable to it first made their appearance. Of the time we know very little, but the place was certainly at one pole or the other, and ultimately at both poles. And here arises a somewhat disquieting element for the confirmed monogenist. If life began at both poles, we certainly have two independent

series, and as there is practically no possibility that a north-pole type should be identical with a south-pole type, there must exist at least two great lines of descent for both the animal and the vegetable world. As to the former, if we assume that the vertebrate type coming down from the Vermes through Amphioxus, was a north-pole type, why may not the molluscan or the crustacean type be a south-pole type? As regards plants the case is more obscure, but it is at least a fair hypothesis that the remarkable "*Glossopteris flora*" of the southern hemisphere that flourished in late Paleozoic and early Mesozoic time, may have originated at the south pole.

As regards the polar, or at least northern origin of the human race, the readers of the *Anthropologist* do not need to have their attention called to the articles of the Marquis Saprota, based chiefly on the facts brought forward by De Mortillet, which appeared in the *Revue des Deux Mondes* in 1883, nor to the address of Prof. Edward S. Morse before the Section of Anthropology of the American Association for the Advancement of Science in 1884. But Mr Scribner has not ignored the human aspect of the question, though this, like the rest of the book, is purely theoretical, and no facts whatever are adduced. This is not a criticism of the book. In fact it is one of the beauties of it. The book is not large enough to record the facts, and its style and character would have been changed, I had almost said spoiled, by their introduction. Any one who reads the book can see that the author's head was full of facts, and that all he was trying to do was to reason from a store of facts to certain large conclusions. Those who speak disrespectfully of this method are often unable to make any use of their facts, however many they may possess. I do not hesitate to say that, if approached in the proper spirit, pages 51 to 53 of this book may be read with profit by all anthropologists.

LESTER F. WARD.

A Guide to the Antiquities of the Bronze Age. By CHARLES H. READ. British Museum. Printed by order of the Trustees. London: 1904. 8°, 160 pp., 148 figs.

This is a sequel to the volume published in 1902, under the title *Stone Age Guide*. The present book is devoted to remains in England, but it illustrates also the connections with the Continent. Again, the Bronze Age stands between the Iron Age on the hither side and the Stone Age on the far side. Well does the author say that metallurgy was the most important step in human progress between the invention of fire-making and the development of steam and electricity. The arguments

for a Copper Age preceding the Bronze are carefully examined and found wanting. Quite as futile are attempts to find a very ancient Iron Age as compared with Bronze. In this connection Dr Walter Hough makes the suggestion that in his explorations in Arizona he found that the confined heat in the potters' kilns has been sufficient to fuse and distort the clay and produce vitreous slag. The heating of pit ovens for roasting roots was another device for intensifying heat, and pit furnaces were well known to ancient bronze-workers. However the combination of copper and tin may have been brought about, it was not a sudden discovery. Mr Read follows this earliest metallurgy throughout Britain, France, Germany, Switzerland, Austria-Hungary, Denmark, the Russian Empire, Italy, Spain, Egypt and the eastern Mediterranean, Mesopotamia, Persia, and China, as illustrated in the marvelous collections of the British Museum, in myriad forms of tools and weapons, vessels and utensils, jewelry and insignia, trappings and vehicles. In the introductory chapter, after reviewing the first appearance of metals in human industry, Mr Read takes up the ethnology of ancient peoples inhabiting those parts of the world with which the British Isles and the adjacent countries are most intimately connected. After reviewing the Aryan question and deciding upon Ripley's Alpine race as the one that forced the Aryan language upon the aboriginal inhabitants of Europe, the author examines the graves and their contents for evidence, with the following conclusions: Bronze was introduced into the southern counties of England from the continent; in the mounds only the simplest tools and weapons occur; the Phœnicians probably obtained tin from Cornwall 1500-1200 B. C.; 1800 B. C. is a probable date for the beginning of bronze in Great Britain and Ireland. At the close of the introduction Mr Read presents an interesting example of bringing historical chronology and early culture history together in the establishment of probable dates. The bulk of the volume is devoted to the description and illustration of specimens in the cases.

O. T. MASON.

Comparative Philology. A Comparison between Semitic and American Languages with a Map and Illustrations. By ARNOLD M. LEESEBERG, *Dr. Juris.* Leyden, 1903. Late E. J. Brill. 8°, pp. i-viii, 1-83.

In these days of exact philological science, it is difficult to understand how such a work as this was permitted to see the light. The title alone would be sufficient to make competent philologists look askance, but when the contents are carefully examined, the reader is lost in won-

der that a man trained in an exact branch of learning (a doctor-juris!) should venture to bring forward such wild comparisons as Dr Leesberg has done. The book deserves notice only as a philological *curiosum*.

In his introduction (pages 1-15) the author gives a rambling and pitifully inadequate account of the Colla (formally known as Aymará), Khetsua, Chiapanec, Mayan, Taino-Carib, and Chukchee languages, devoting but a single page to each. He dismisses the idioms of North America with the remark (page 15): "As to North America, different languages have been considered, but race similarities are to be found, the many migrations through the immense territories not having favoured lasting settlements. It is well known that all these tribes originated in Central America, moving northward." This last statement is quite in keeping with the general tone of the book.

It is in his comparative dictionary, however, that the author really exceeds all canons of true linguistic science. He discusses here about nine hundred words representing some twelve hundred Semitic compounds, comparing American words selected at random, chiefly from six distinct languages, with supposed Hebrew-Aramaic equivalents. The utter futility of any such attempts to connect American with Asiatic languages will be seen from the following examples, which really need little comment: On page 22 he compares Khetsua *ñañuk*, Chiapanec *nasungi*, with Aramaic *ianûk*(â), 'baby.' He compares the Colla *kori*, Khetsua *cori*, with Hebrew *xârûç*, 'gold'; the Taino-Carib *bana*, *bauna*, with Hebrew *binān*, 'building,' 'house.' These examples I have purposely chosen because there is a faint (of course accidental) similarity between some of the words. When, however, we compare the following, we see how far the author has wandered afield in his vain search for word similarities: Colla *payla*, Khetsua *paylla*, Hebrew *pâr*, 'pot' (?); does he mean the stem from which comes *p'ôr*, 'turban'? Colla *sarcha-hata*, Khetsua *chura*, Hebrew *sârâk*, *îârâ*, 'reject'?' I think these examples are sufficient to demonstrate the method of the work.

The author's chief conclusions (page 83) are as sadly amusing as are the rest of his statements. I. "The unity of the American peoples may be demonstrated by their languages." II. "The Maya, Colla and Khetsua languages . . . show a greater resemblance with the Semitic ones than with any other old linguistic family."

It is hardly necessary to point out that sporadic resemblances in vocabulary between languages belonging to groups far apart from each other are no evidence whatever as to interrelationship, even when these

¹ Hebrew *sârâk* and *îârâ* = 'scatter' and 'sprinkle', never 'reject.'

resemblances are really striking and not forced, as is the case with so many of those cited by Dr Leesberg. *À propos* of this, why did he not cite the Khetsua first personal pronoun *hoka* 'I,' as being cognate with the Hebrew *anoki*? Here was a good opportunity lost! Sporadic similarities of this sort are not uncommon. Thus we have Mandshu *shun* = Eng. *sun*; Mandshu *sengi* = Latin *sanguis* 'blood'; Khetsua *inti* 'sun'; *munay* 'love'; *weypul* 'great' = Sanscrit *indra*, *manyu*, *vipula*.¹ In the same way there are occasional accidental resemblances between Hebrew and Celtic. Thus, Irish *leaca* 'cheek,' Hebrew *l'xi* 'jawbone'! All this proves nothing at all, because sound etymology has little to do with sound itself, but with certain fixed laws which must be carefully studied in every individual language and language-group. Even the most casual observer of the Khetsua postpositional polysynthetic noun system must be convinced at once that this idiom is radically different from the prepositional inflexional Semitic noun. Compare the following Khetsua paradigm:

Nom. *hatun rumi* 'big stone' (*hatun* 'big' *rumi* 'stone').

Gen. *hatun rumij*.

Dat. *hatun rumipaj*.

Acc. *hatun rumita*.

Illat. *hatun rumiman*.

Ablat. *hatun rumimanta*.²

Dr Leesberg's book is only another futile attempt to show a race relationship between the American Indians and the ancient Hebrews, although he disclaims the theory that the American aborigines were the Ten Lost Tribes. It is a pity that the author ever undertook such a task without first seeking competent philological advice. Finally, it may be stated that his English throughout the entire work is nearly as faulty as are his philological conclusions.

J. DYNELEY PRINCE.

Metallic Ornaments of the New York Indians. By WILLIAM M. BEAUCHAMP. (Bulletin of the New York State Museum, No. 73. Archeology, No. 8.) Albany: 1903. 8°, 111 pp., 36 pl., 414 figures.

Dr Beauchamp gives in this, the latest of his publications, numerous figures of ornaments made from brass, iron, copper, bronze, pewter, and silver. The different types illustrated comprise a variety of objects, which afford ample materials for speculation concerning fashions in jewelry among the American Indians after first contact with the whites during the

¹ Compare Humboldt, *Travels*, Eng. transl., 1, p. 322, and Sayce, *Science of Language*, 1, pp. 148-9.

² Compare Middendorf, *Die Ketsua Sprache*, p. 59.

colonial period. The monograph furnishes much food for thought to the student of archeology, and contains a great deal of information for the general reader relating to the manners and customs as well as to the ornamentation of the American Indian to the beginning of the last century. The hundred pages of text are replete with references to colonial publications, most of which are practically inaccessible to the general reader. Both the medals and the coins indicate the period covered to have begun with the first contact of the Caucasian and Indian races, and even in their absence the figures would support the same belief. Wire wristlets and bangles or tinklers of copper or other metal are illustrated by the side of brass bells and arm-bands, or wristlets are shown with head-bands of silver which, judging from their appearance, were made quite recently. Very primitive beads of copper of different types are shown with tubes of the same metal; the first of these may be ancient, the latter are possibly quite modern. Animal figures and gorgets remind one of the precolumbian period, while the sacred medals speak with equal strength of the sacrifices made by the Jesuits to aid in the conversion of the heathen. Ear-rings remind us of ornamentation equally as strongly as do the bronze finger-rings inscribed with sacred emblems, and the crosses and crucifixes of brass and silver are suggestive of the priest and the convent. Brooches of all kinds, emblematic, artistic, and religious, are impressive reminders of the variety in colonial life, and with the Indian this type of ornament was probably one of the most popular, since it enabled him to readily hold together his skin clothing and at the same time to exhibit an ornament which, as shown here, evinced his artistic appreciation.

A study of these early designs is necessary to a proper appreciation of the difference between aboriginal and European workmanship, and though another writer has made reference to these brooches in a highly poetic vein, Dr. Beauchamp certainly affords us a good opportunity to study the subject seriously.

It were hardly fair to close our review of this very deserving work without again expressing regret that the illustrations are not of a more satisfactory character.

JOSEPH D. MCGUIRE.

The Arapaho Sun Dance: The Ceremony of the Offerings Lodge. By GEORGE A. DORSEY, Curator, Department of Anthropology. Field Columbian Museum, Publication 75; Anthropological Series, Volume IV. Chicago: 1903. 8°, xii, 228 pages, 137 plates.

In this volume is given for the first time a full account of the elaborate and composite ceremony popularly known as the "Sun Dance."

The account is compiled from the author's notes taken while attending the ceremony among the Arapaho in 1891 and 1892, when he was permitted "to witness the secret as well as the public rites without interference." These observations were supplemented later by explanations made by the "Director of the Dance," to whom and to other "active participants" Dr Dorsey makes cordial acknowledgment in his introductory note.

The difficulties attendant upon the task of setting forth so involved a ceremony as the "Sun Dance" can best be appreciated by those who have made similar efforts, and for the success achieved in the present instance the author is to be congratulated. The work bears testimony to Dr Dorsey's energy and perseverance and to his appreciation of the value of a careful observation of details. The book is a noteworthy contribution to the study of the so-called "Plains Indians."

The author has divided his account into fifteen parts or sections. The first contains the scant bibliography of the ceremony. The following six sections deal with the preliminaries, the articles used, the participants, the time, and the assemblage. Section VIII gives an index of the rites and duties appointed for each of the eight days and nights of the "dance." In section IX the ceremony is given in detail and covers 125 pages of text; it is illustrated with 103 photographic reproductions and two colored drawings. Section X is devoted to the exposition of the designs painted on the dancers; these are reproduced in 22 colored figures and 10 photographic half-tones. The next three sections deal with some of the phases of the ceremony; section XI, with the relation of the Transferrer to the Lodge-maker's wife; section XII, with the Offerings Lodge songs, and section XIII with Torture. In section XIV the social side of the ceremony is presented and three children's games are noted. The account closes with section XV, the "Sun Dance" myths, of which two are recounted — "The Origin" and the "Little Star."

It is impossible within the limits of a review to give an analysis of the ceremony; its composite character forbids, for in it are interwoven parts or fragments of older ceremonials which embody phases of beliefs as to the relation of man to the cosmos, both as to the giving and to the maintaining of life, as well as other ceremonies which pertain to man's social relation to man. Nevertheless, the "Dance" has a well-devised form and orderly structure, and throughout all its complexity the fundamental idea and teaching — namely, the existence of an unseen power within the cosmos which controls the events of man's life and with which man has direct relations — are never lost sight of, but are kept constantly before the participants and the spectators.

"The Sun Dance," to quote Dr Dorsey's words, "is performed in compliance with a vow, . . . in the nature of a pledge, that the speaker will make provision for the erection of the lodge for the proper performance of the ceremony if the Man Above will grant him his wish in regard to some particular matter." The occasions on which such vows are made are sickness, lunacy, dreams, personal danger, etc., and several instances showing the circumstances under which such vows have been made are given. The author points out that the ceremony "may not be considered as a healing ceremony, nor is sickness believed to be cured" by its performance, for "the performance of the ceremony is carried on just the same, even though the individual (in whose behalf the vow was made) should not recover." The fact that the denial of the man's petition or wish, which was the cause of the vow, could not affect his obligation to fulfill his vow, presents a view of man's relation to the unseen powers which should be kept in mind by the student when considering some of the symbolic acts of this ceremony.

Among the objects used in the "Dance" is the one spoken of as the Sacred Wheel; while its use is not confined to this ceremony, it being tribal property, yet it so epitomizes the cosmic symbolism of the "Dance," in which it plays an important part, that it may be well to quote from the description given. It "is about eighteen inches in diameter, . . . made of a rectangular piece of wood; one end . . . tapers like the tail of a serpent, the other . . . represents a serpent's head, . . . near which . . . are several wrappings of blue beads. . . . At four opposite sides of the Wheel are incised designs, two . . . in the form of crosses, the other two resembling the conventionalized thunder bird. . . . Attached by . . . buckskin thongs are four complete sets of the tail feathers of an eagle. . . . The inside of the Wheel is painted red, . . . the periphery is stained black. Concerning the symbolism of the Wheel a considerable amount of information was obtained, which, however, may not be regarded as complete or entirely satisfactory. . . . The disc itself represents the sun, while the actual band of wood represents a tiny water snake, called *henige*, and which is said to be found in rivers, in lakes, near ponds and in buffalo wallows. Later in the ceremony, this lake or pool of sweet water is represented, while near by, on a forked stick, is the owner of the pool, a little bird. . . . The blue beads about the neck of the snake represent the sky or heavens. . . . The four inside markings (*hitanni*) on the Wheel represent the Four-Old-Men who are frequently addressed in the ceremony and who stand watching and guarding the inhabitants of this world. . . . The Four-Old-Men are also spoken of as the Thunder-

bird, . . . and in their keeping is the direction of the winds of the earth. . . . They are Summer, Winter, Day and Night, who, though they travel in single file, yet are considered as occupying the four cardinal points. . . . *Hitanni* is also applied to certain markings, . . . the meaning of which is given variously as the four elements of life, the four courses, the four divides. . . . The four clusters of feathers represent the Four-Old-Men, the feathers collectively . . . the Thunderbird which gives rain. The Wheel . . . may be said to be symbolic of the creation of the world, . . . the sun, earth, the sky, the water and the wind. In the Sun Dance dramatization the Wheel itself is represented in the person of . . . the Transferrer."

Although the ceremony takes place as the result of a vow made by a single person, its performance involves the entire tribe. The Star society leads in many of the preparatory acts and during the "Dance" the warrior societies lend their aid. The active participants are divided into four groups: First, the chief priest, who personates the sun; a woman, the Peace Keeper, who personates the Moon; the keeper of the straight-stem-pipe. Second, the director, who personates the Arapaho tribe; the assistant director; the woman director; these three were assisted by five pupils or neophytes. Third, The Lodge Maker of the Sun Dance, the one who had made the vow; his wife, who personates the Maid; the Transferrer, who had been the Lodge Maker of the preceding Dance and is spoken of as the Grandfather of the Lodge Maker; a woman who personates the earth, and is called the Grandmother of the Lodge Maker's wife. Fourth, all those who fast and dance during the ceremony; twenty-five persons formed this group in the Dance witnessed by the author.

The first four days of the ceremony are devoted to preparatory rites held in secret within a tent set up to the west of the center of the wide camp-circle; during the last four days the public Dance takes place in a circular enclosure which has been ceremonially prepared in the center of the encampment.

Of the details of this elaborate ceremony no mention can be made; its cosmic character is evidenced in many of the rites incident to the acts of preparation and also in those of the Dance itself. Much of the symbolism mentioned in connection with the Wheel reappears in the movements and in the decorations of the dancers.

The benefit derived from the ceremony by those who take part in the rite and endure the long fasts and the stress of the Dance, is through the opening to them of the straight road wherein they and their families may

walk protected from disease and from sorrow, while the gathering of the people in the interest of a common religious belief promoted tribal unity and strength and also afforded opportunity for social interchange and pleasure.

In so full an account as that given by Dr Dorsey, one cannot but regret the omission of the songs, both words and music, from their stated place in different parts of a ceremony — an omission the more to be regretted because of the important place that music fills in all phases of Indian life. Through song the Indian gives expression to emotions that are manifested in no other way, consequently the omission from the record of a ceremony of its attendant songs leaves a blank that seriously injures the integrity of the portrayal.

The term used in the various prayers of the rite and translated "Man Above" would seem to imply that the Arapaho attributed personality to the unseen power. While research has shown that the Indian's conception of this power is more or less anthropomorphic, it has been equally demonstrated that this conception has never, so far as known, crystallized into the idea of personality. The term "Man Above" raises the interesting question as to the exact nature of the Arapaho belief on this subject.

It is doubtful if the relationship between the myths, given in section xv, and the ceremony is so close as the heading of the section would imply. Among other considerations which might be mentioned in this connection is the fact that they do not adequately explain the underlying motive of the rite, while they play about some of the details of the ceremony in picturesque fashion.

To one who, like the reviewer, witnessed the Sun Dance more than twenty years ago, making all allowance for the difference of tribal version, the picture presented in this volume shows how rapidly aboriginal color is fading from Indian life, even from the sacred ceremonies, and it marks the importance of gleaning in the ethnological field while yet something of the past remains.

ALICE C. FLETCHER.

Annual Archaeological Report. 1903. Being part of Appendix to the Report of the Minister of Education. Ontario. Toronto: 1904. 8°, 150 pp., ill.

In this his latest report Mr David Boyle has added another to the series of valuable contributions to Canadian archeology, published under the auspices of the Minister of Education. In addition to twenty pages devoted to a résumé of Museum accessions made during the year, there

are more than a hundred pages of illustrated text covering an interesting discussion of American archeology and technology, which cannot fail to be of value to students on both sides of the Atlantic. The illustrations show an improvement on those in the earlier reports, but they do not yet attain that degree of excellence which is rather expected in scientific publications of the present day.

The origin and workmanship of the effigy stone pipes and of those of clay are fully discussed by Mr Boyle, who argues that they are mostly ancient, and by others who hold the contrary view. A number of illustrations of partly finished pipes add greatly to our knowledge of aboriginal technology. It is believed that Mr Boyle's reports have given the fullest information concerning pipes that we possess from any single locality in America. Copper and bone implements are also interestingly treated as to origin, age, and type. But one of the most valuable features of the report is that which pertains to aboriginal village sites, their location, characteristics, and contents; these are enumerated by definite modern survey maps, on which one may rely for data regarding the subject. This opens up a subject deserving of the most careful attention by archeologists throughout the continent, for the time is already at hand when, owing to increase in population and the tillage of cultivable lands, much that would be valuable to early history is now annually obliterated by the plow. Mr Boyle and the Museum which he represents deserve great credit for inaugurating this most laudable work.

JOSEPH D. MCGUIRE.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE.—Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending direct to Dr A. F. Chamberlain, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages.—EDITOR.]

Ahlenius (K.) Kaffe, te och rörsocker, deras ursprungliga hem och viktigaste produktionsområden. (Ymer, Stockholm, 1903, xxiii, 243-268, 2 maps.) Treats of the original homes of coffee, tea, and cane-sugar, and their principal centers of production. Arabia was probably the place where coffee was first cultivated, Africa possibly the home of the coffee-tree. The original home of tea may have been in Assam or southwestern China. The sugar-cane was native to some part of northeastern Hindustan or Assam, as Ritter thought.

Anutchin (D. N.) O zadachach' i metodach' antropologii. (Russk. Antrop. Zhur., Moskva, 1902, iii, No. 1, 62-88; 13 figs.) General discussion of the problems and methods of anthropology, with reference to the question of the variability of races, the rôle of sociological-anthropological factors, etc. (Ranké, Ripley, Broca, Livi, etc., are drawn upon for maps.)

Baum (Hr) und Kirsten (Hr) Vergleichend-anatomische Untersuchungen über die Ohrmuskulatur verschiedener Säugetiere. (Anat. Anz., Jena, 1903, xxiv, 33-74, 14 figs.) Treats of ear-musculature of horse, cow, sheep, goat, deer, swine, rabbit, etc., with bibliography. The muscles of the human ear correspond not to individual muscles of the animal ear, but to groups of these. The high degree of reduction carries with it the abolition of the ability to move the ear.

Beddoe (J.) De l'évaluation et de la signification de la capacité crânienne. (L'Anthropologie, Paris, 1903, xiv,

267-294, 9 tables.) After discussing the data of Barnard Davis, Flower, Broca and Topinard, Pearson and Lee, Manouvrier, Fawcett, etc., Dr Beddoe gives the results of his special study of 526 heads (estimation of capacity from circumference) of living individuals, chiefly from various parts of the British Isles, of whom at least 60 are men of "superior intellectuality." The conclusion reached is that "an evident correlation exists between head volume and intellectual power."

Colareau (E.) Le problème scientifique d'une langue artificielle. Fondements et progrès de l'Esperanto. (Rev. gén. d. Sciences, Paris, 1903, xiv, 947-958.) Gives general account of the nature and progress of "Esperanto," put forward by Dr Zamenhof as an international language. The Esperantist literature comprises more than 150 works, including a translation of *Hamlet* by the father of this Latinophile speech.

Coupin (H.) Les funérailles singulières, (Rev. Scientif., Paris, 1903, 4^e s., xx, 621-628.) Treats of funeral rites and customs among the Bagas-Foreth of French Guinea, the Australians, New Caledonians, New Hebrideans, Malaccan negroes, Mincopis, Congo negroes, Zambian Banyai, Makwas, Kaffis, Khevers of the Caucasus, Ostiaks, Hindus, Todas, Ainu of Japan, Cambodians, Tibetans, Samoyeds, Kalmucks, Giliaks, Mongols, Sakalavas and Hovas of Madagascar, etc.

Feindel (E.) Le gigantisme chez l'homme. (Rev. gén. d. Sciences, Paris, 1903, xiv, 209-216, 7 figs.) General discus-

sion of giantism based on Brissaud and Meige. Two chief types are recognized, the infantile and the acromegalic with numerous intermediary varieties. The coexistence of infantilism and giantism is not rare. Giantism is acromegaly of the period of growth proper; acromegaly is giantism of the period of completed growth. Macrosomia may occur at any age and giantism may be quite transitory; the latter is often the case with adolescents.

Flashman (F. F.) External features of the brain of a microcephalic idiot showing absence of corpus callosum. (Rep. Pathol. Lab. Lun. Dept. N. S. W. Gov., Sydney, 1903, 1, 1-18, 10 pl.) Detailed description of brain (wt. 554.25 gr.) of male idiot aged 17 years, died of diphtheria.

Friedrich (Dr.) Einige kartographische Aufgaben in der Wirtschaftsgeographie. (Globus, Brnchw., 1903, LXXXIV, 69-72, 85-87.) Author outlines for accompaniment of distribution-map his four economic stages: Animal, instinct, tradition, science, which correspond to the four "culture-stages of Vierkandt. The use of maps is emphasized. He holds that a true picture of the internal condition of man is given by the outward expression in economy of the process of growing freedom from the restraint of nature.

Glufrieda-Ruggeri (V.) Considerazioni antropologiche sull'infantilismo e conclusioni relative all'origine delle varietà umane. (Monit. Zool., Firenze, 1903, XIV, repr. pp. 21.) Discusses the anthropological characters of "infantilism," the so-called "infantilism" of woman, and the origin of human varieties, with references to recent studies of Manouvrier, Godin, Papillault, etc. The author agrees with Manouvrier and Topinard in attributing the "female defect" (e. g. in brain-weight) to the less active life of woman. Woman is, somatically, less primitive and conservative and more variable than man and her so-called "infantilism" is a chimera. The fixation of somatic characters in the higher races is of recent origin and in spite of invariability of cranial form, they are relatively young, having been really species in process of formation.

— Sulla plasticità delle varietà umane. (Ibid., 158-167.) Holds that a certain

plasticity (shown in the proportion of different skull-types, etc.) exists in the Eurasian and Mediterranean varieties of mankind. Argues against the theory of Boas (followed by Fishberg) that no new type can arise through mingling of two different types.

— La maggiore variabilità della donna dimostrata col metodo Camerano, coefficiente somatico. (Ibid., 204-304.) From the examination by the method of the "somatic coefficient" of 55 male and 55 female bodies of Bolognese, the author finds that the variability of the latter is much greater as to lower limbs, considerably greater as to width of shoulders, and somewhat greater as to upper limbs. By reason of her greater variability woman has an advantageous reserve of plasticity, which is lacking to man. The morphologic superiority of woman, if it exists, removes her even more from the infantile condition than is man. The "superiority" of infantilism rests on an equivocal.

— Crani e mandiboli di Sumatra. (A. d. Soc. Rom. di Antrop., 1903, IX, repr. 64 pp., 5 figs.) Describes in detail, with tables of measurements, etc., 10 male and 4 female crania and mandibles from Sumatra, now in the Museum of Prehistory and Ethnography, Rome. They represent a mixed race with abundant Malayoid elements. The skeleton of the face exhibits also "Indonesian" features. Hindu and Chinese traces are also, perhaps, discernible. In these skulls the bones of the face are very important. Robustness of the masticatory apparatus and volume of mandible are in evidence, signs of morphologic inferiority. The capacity of the female crania ranges 1095-1405 and of the male 1235-1635 cm., the cephalic indices 80-90.2 and 71.5-92.9 respectively.

— La posizione del bregma nel cranio del "Pithecanthropus erectus" e la tendenza neo-monogenista in Germania. (Ibid., 1904, X, repr. 21 pp.) Discusses the arguments of Schwalbe, Macnamara, and Manouvrier as to the position of bregma in the cranium of the *Pithecanthropus erectus*, accepting the opinion of the last. The neo-monogenistic view is represented by Klaatsch, Schreienack, Alsborg, etc., who favor "an autonomous precocious evolution of the human

- stock, eliminating the anthropoids from the series of our ascendents." On the other side is Manouvrier who upholds the earlier theory of the anthropoid origin of man. In Germany polygenism can hardly make proselytes. Giuffrida-Ruggeri has elsewhere discussed the Pithecanthropus and the gibbon as probable ancestors of man.
- Goerth (A.)** Das sittliche Gefühl beim männlichen und beim weiblichen Geschlecht. (Die Deutsche Schule, Leipzig, 1903, VII, 166-174.) General discussion. Concludes that women are not "political animals" like men, and consequently should not be placed above the latter in office.
- Hall (G. S.)** The relations between lower and higher races. Proc. Mass. Hist. Soc., Boston, 1903, 2 s., XVII, 4-13.) Treats of extermination, contamination by the touch of civilization, effects of disease, colonization, etc. Appeals for the preservation of the lower races as needful for the complete development of the higher — "an ounce of heredity is worth a hundred-weight of civilization and schooling."
- James (W.)** A case of automatic drawing. (Pop. Sci. Mo., N. Y., 1904, LXIV, 195-201, figs.) Brief account of development of automatic drawing in a man of fifty, accelerated by hypnotic exhibition.
- Joteyko (J.)** A propos des femmes mathématiciens. (Rev. Scientif., Paris, 1904, 5^e s., I, 12-15.) Critique of an article by Loria in a previous number. Mlle Joteyko points out that women can do and have done good work in science, both in their own right, as well as masked behind husbands or brothers.
- Lissauer (A.)** Bericht der vorbereitenden Commission zur Herstellung von Typenkarten. (Corr. Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 123-125.) Reports organization and briefly discusses objects of committee (appointed at the Dortmund meeting) on the making of maps of types of prehistoric objects, etc.
- Lockyer (N.)** The influence of brain-power on history. (Pop. Sci. Mo., N. Y., 1903, LXIV, 71-86.) From Address of President, British Association, Southport meeting, 1903.
- Loisel (G.)** Les corrélations des caractères sexuels secondaires. (R. de l'Éc. d'Anthr. de Paris, 1903, XIII, 325-340.) General discussion. Author holds that secondary sexual characters appear or are exaggerated at the moment of sexual impulse; decrease or disappear when the genital glands are no longer in sexual activity; are modified when the genital glands are diseased; decrease generally or disappear completely after direct castration. The formation of secondary sexual characters may also be influenced by causes (diseases, traumas) having nothing, apparently, to do with the activity of the sexual glands.
- Lönnborg (S.)** Historisk geografi. (Ymer, Stockholm, 1903, XXIII, 298-310.) Discusses the nature and province of historical geography, its problems, etc.
- Loria (G.)** Les femmes mathématiciennes. (Rev. Scientif., Paris, 1903, 4^e s., XX, 385-392.) Historical sketch. Author agrees with Möbius that mathematics lie "outside the nature of woman." Still, obstacles are not to be placed in her way.
- Manouvrier (L.)** Les marques sincipitales des crânes néolithiques considérées comme reliant la chirurgie classique ancienne à la chirurgie préhistorique. (R. de l'Éc. d'Anthr. de Paris, 1903, XIII, 431-436, 4 figs.) Author argues that the "sincipital marks" on neolithic skulls are due to surgical operations performed for the same purpose by the physicians of ancient classic times — cauterizations or scarifications for affections of the head.
- Conclusions générales sur l'anthropologie des sexes et applications sociales. (Ibid., 405-423.) General discussion. The masculine supremacy of today has deeper roots than man's opinion of the intelligence of woman, but an eternal and fixed social subordination of the one sex is not implied in this. Feminism is an aspect of socialism, from which it is separable neither theoretically nor practically. Evolutionary adaptation of the sexes must produce the lasting social reform.
- Martin (R.)** Ueber einige neuere Instrumente und Hilfsmittel für den anthropologischen Unterricht. (Corr.-Bl. d. deutschen Ges. f. Anthr., München 1903, XXXIV, 127-132, 9 figs.) Brief descriptions of useful new and improved

anthropometer, callipers, instrument-box, goniometer, parallelograph, diptograph, craniophore, etc. Also a series of glass eyes to serve as color-table. A color-table for the skin is in preparation.

- Minakov (P. A.)** *Znachenie antropologii v' meditsinu.* (Russk. Antrop. Zhur., Moskva, 1902, III, No. 1, 89-101.) General discussion of value of anthropology to medicine — race-pathology, nervous diseases, suicide, significance of anatomical characteristics for identification of criminals, etc., Bertillon system.

- Modena (G.)** *L'acromegalia.* (R. Sper. di Fren., Reggio, 1903, XXIX, 629-640.) First part of critical résumé of literature. Acromegaly occurs oftener in women, is most common at the age of 20-40 years in both sexes, few cases occur before 20.

- Müller (H.)** *Essais de taille du silex. Montage et emploi des outils obtenus.* (L'Anthropologie, Paris, 1903, XIV, 417-436, 8 figs.) Gives the results of interesting experiments (subsidized by the French Association for the Advancement of Science) in the production and use of flint hatchets — wood and bone working, trepanning, etc. — after the fashion of primitive man. In 11 hours and 45 minutes the author produced a polished axe; in an hour and 13 minutes (2,200 blows) cut down an oak 0.73 meters in circumference. M. Müller seems unaware of the previous experiments of J. D. McGuire and the late F. H. Cushing along similar lines.

- Patrick (G. T. W.)** *The psychology of foot-ball.* (Amer. J. of Psych., Worcester, 1903, XIV, 104-117.) Treats, among other things, of the anthropological and "recapitulatory" aspects of such games as foot-ball. The author does not see therein a "return to savagery." The game acts, for both players and spectators, as "a sort of Aristotelian catharsis."

- Pearl (R.)** *On the mortality due to congenital malformations, with especial reference to the problem of the relative variability of the sexes.* (Medicine, Detroit, 1903, IX, repr. 15 pp.) From consideration of the data as to malformation-mortality in the United States in 1899-1900, given in the reports of the Twelfth Census, the author concludes "in intensity or degree of the malformations woman is more variable than man."

The sex more subject to the abnormalities is less variable with regard to them. These mortality data exemplify the action of natural selection upon man "by the elimination of unfavorable variations."

- Poncet (A.) et Leriche (R.)** *Nains d'aujourd'hui et nains d'autrefois.* (Rev. Scient., Paris, 1903, 4^e s., XX, 587-593.) Treats, with 2 figures, of modern and ancient dwarfs. Gives data concerning two dwarfs (brother and sister) from a village on the river Ain — cases of achondroplasia, true examples of which are becoming more and more rare. Dwarfs of today, of the ethnic sort met with in Germany, Switzerland, France, etc., are, like the ancient pygmies, not examples of pathological, but of atavistic achondroplasia.

- Ranke (J.)** *Die im Studienjahr 1902-3 an den Universitäten Deutschlands, Oesterreichs und der Schweiz abgehaltenen Vorlesungen und Curse aus dem Gesamtgebiete der Anthropologie: Somatische Anthropologie, Ethnologie und Urgeschichte zusammengestellt nach Ascherson's Universitätskalender.* (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 53-58.) These statistics of lectures and courses in anthropology in the universities of Germany, Austria, and Switzerland, show that Berlin, Zürich, and München offer the most courses. Special courses relating to American anthropology appear at Berlin, Leipzig, Tübingen, Bern.

- *Wissenschaftlicher Jahresbericht des Generalsekretärs.* (Ibid., 116-123.) Contains critical résumés of Heger's *Alte Metalltrommeln aus Südost-Asien* (Leipzig, 1902), Retzius' *Crania Suecica antiqua* (Stockholm, 1900) Retzius and Fürst's *Anthropologia Suecica* (Stockholm, 1900), von Luschan et al. *Ausgrabungen in Sendikirch* (Berlin, 1893-1902), etc.

- Reinach (S.)** *L'art et la magie à propos des peintures et des gravures de l'âge du renne.* (L'Anthropologie, Paris, 1903, XIV, 257-266.) Compares man of the reindeer age, in the matter of "homeopathic magic," with the Australians (Spencer and Gillen). While not excluding imitation, ornament, the social uses of expression and communication, etc., as factors in the development of art, Reinach holds that the art

- of the primitive hunters and fishers of France and Spain owes its great extension to "magic," the idea being that the possessor of an image of an object or a living being could thereby influence it.
- Ridgeway** (*Prof.*) The origin of the thoroughbred horse. (*Proc. Cambr., Philos. Soc.*, 1903, XII, 141-143.) The blood-horse of today does not go back to the small horse of Europe from which came the cart horse, nor is its home in Arabia, where, before the Christian era, horse-breeding was not common. Professor Ridgeway suggests that "the Barbary horse, from which all the fine horses of the world have sprung, was derived either from the zebra of north-east Africa, or, as is more likely, from some very closely allied species now extinct." Zebra markings occur on Arab foals at birth.
- Schaefer** (*F.*) Einzelentwicklung und Gesamtentwicklung. (*Die Deutsche Schule, Leipzig*, 1903, VII, 156-165, 226-237.) Treats of individual and mass-development from the standpoint of philosophy, biology, pedagogy, etc., also the Ziller "Kulturstufen." The author is an individualist and notes that advance in culture and intellectual development do not mean always the same thing.
- Scheppegrell** (*W.*) Voice, song and speech. (*Pop. Sci. Mo., N. Y.*, 1904, LXIV, 261-273, 10 figs.) General discussion of organs of speech in health and disease.
- Seger** (*Hr.*) Der Schutz der vorgeschichtlichen Denkmäler. (*Corr.-Bl. d. deutschen Ges. f. Anthr., München*, 1903, XXXIV, 125-126.) Argues for a committee to consider questions relating to the protection of archeological monuments. Committee of society appointed.
- Siebs** (*T.*) Zur vergleichenden Betrachtung volkstümlichen Brauches: Der Kuss. (*Mitt. d. Schles. Ges. f. Volksk., Breslau*, 1903, 1-19.) Interesting study of the kiss in folk-thought, symbolism, etc. The words for kiss and kissing in various European languages (Teutonic, Slavonic, Latin, Greek, Romance) are investigated and eight groups of kiss-words distinguished, the most common terms being those named after the mouth or the lip. The kiss of love, friendship, relationship, reconciliation, peace, grace, reverence, ceremony, etc., is considered.
- Singer** (*H.*) Tharschisch und Ophir. (*Globus, Brunschwg.*, 1903, LXXXIV, 245-248.) Résumé and criticism of the article of Oppert (see *Amer. Anthr.*, 1903, N. S., V, 708). Singer considers that Ophir was not a fixed place, but "an Eldorado, like Peru or Australia," and agrees with the location of Tarshish in southern Spain.
- Vaschide** (*A.*) Recherches expérimentales sur l'olfaction des vieillards. (*C. R. Acad. d. Sci., Paris*, 1903, CXXXVII, 627-628.) In sensation and (less) in perception, woman is superior to man in old age with respect to smell. Anosmia increases with age in both sexes.
- Walkhoff** (*O.*) Die menschliche Sprache in ihrer Bedeutung für die funktionelle Gestalt des Unterkiefers. (*Anat. Anz., Jena*, 1903, XXIV, 129-139.) Discusses views of Fischer and Roux. Concludes that the speech-function and not the masticatory produced the trajectory.
- Wilser** (*L.*) Die Namen der Menschenrassen. (*Globus, Brunschwg.*, 1903, LXXXIV, 303-307.) Discusses the various race names in use from the time of Linnaeus down - Blumenbach, Retzius, Cuvier, Topinard, Lapouge - for the peoples of Europe. Wilser expresses himself against language as a race distinction. He recognizes Linnaeus' *Homo Europaeus* (North European), *Homo afer* (better *Homo niger*), *Homo asiaticus* (better *Homo brachycephalus*), *Homo alpinus*, and besides these *Homo mediterraneus* (including the *Homo priscus* or *H. speleus*, and also, as dwarf variety *H. nanus*) and *Homo primigenius* (Neanderthal, etc.). According to Wilser Europe was earliest occupied by dolichocephalic races.
- Wibling** (*C.*) Ett samlingsfynd från steinalderna i Helsingborg. (*Ymer, Stockholm*, 1903, XXIII, 314-318, 3 figs.) Brief account of the finds of the stone age (five flint "saws") in a sand deposit at Helsingborg.
- Zaborowski** (*M.*) Association française pour l'avancement des Sciences. Congrès d'Angers (Août, 1903). Compte rendu de la section d'Anthropologie. (*R. de l'Éc. d'Anthr. de Paris*, 1903, XIII, 341-363.) Gives brief résumés of papers read at the Anthropological section of the French Association. Archeology still engages the attention of most of those contributing to the program.

EUROPE

Andrae (H.) Hausinschriften aus Dänemark. (Globus, Brnswgw., 1903, LXXXIV, 53-56.) Contains numerous house inscriptions from all over Denmark, in Latin, Danish, High German, and Low German (a few); also house-marks.

Andree (R.) Die Becherurnen. (Ibid., 129-130, 6 figs.) Brief account of the so-called "beaker" urns, based on the article of Abercromby. See *American Anthropologist*, 1903, N. S., V, 560.

Ashley (W. J.) Early Teutonic society. (Int. Quart., Burling., VI, 1903-4, VIII, 236-261.) Discusses works of Stubbs, Waitz, Maine, von Maurer, Fustel de Coulanges, Denham Ross, Seelohm, Meitzen, Hildebrand, Wittich, Earle, Maitland, Baden-Powell, etc. Professor Ashley concludes that "the mark theory in its attractively idyllic form has gone; the villa theory can hardly take its place." The question is what was the "common freeman," who remains.

d'Azevedo (P. A.) Exogamia em Gibões no século XV. (Portugalia, Porto, 1903, I, 860-862.) Cites documentary evidence as to the practise of exogamy in the Portuguese frontier town of Gibões Portugal, in the latter part of the 15th century.

Boteibo (H.) Instrumentos de bronze no conselho de Villa Real, Trazos-Montes. (Ibid., 825-827, 7 figs.) Describes bronze hatchets, socketed and unsocketed, a bronze key and other objects.

Brenha (J.) Dolmens ou antas no conselho de Villa Pouca d'Aguiar. (Ibid., 691-706, 16 pl., and 10 figs.) Describes the various groups of dolmens in Villa Pouca d'Aguiar, Traz-os-Montes, and the objects found in connection with them, sculptures, pictographs, flints, stone implements, pottery, "amulets" and symbolic objects, zoomorphic and anthropomorphic stones of a curious sort (plates XXXIV-XXXVI) and of great interest. The animal forms represent the rhinoceros (?), elephant (?), deer, pig (?), cock, etc. Some of the stones, besides pictographs of animals have graphic signs or inscriptions, one of which the author interprets as a prayer to the sun. Note-worthy are three scenes of primitive life: A man with bow and arrow shooting a deer, and another similar picture; a man

seated on a deer holding bow and arrow in left hand while seizing the animal's horns with his right. Such signs of burial as were observed pointed to inhumation with occasional cremation. The pictographic and alphabetic (?) data of Villa Pouca d'Aguiar are an important addition to our knowledge of neolithic art in western Europe.

Breuil (L'Abbé) L'âge du bronze dans le bassin de Paris. (L'Anthropologie, Paris, 1903, XIV, 501-518, 8 figs.) This fourth section treats of bronze arrows and lances from the Somme basin, their geographical distribution, classification, workmanship, ornamentation, etc. In the Somme region bronze arrowheads are rare and the lances there found are generally inferior in form and strength to those from the rest of the Paris basin.

Burmeister (Dr) Gross-Dimon. (Globus, Brnswgw., 1903, LXXXIV, 219-223, 6 figs.) An account of the Faroe island Great Dimon and its bird-catchers from Capt. Daniel Bruun's book, *Det Høje Nord* (Copenhagen, 1902).

Cabanès (M.) et Nass (L.) Les poisons employés au seizième siècle. (Rev. Scient., Paris, 1903, 4^e s., XX, 559-562.) Chapter from a forthcoming book on *Poisons et sortilèges*. Based on Ambroise Paré, Jérôme Mercurialis, Brantôme, etc.

Capitan (L.), Breuil (L'Abbé), et Peyrony (M.) Une nouvelle grotte à parois gravées à l'époque préhistorique. La grotte de Teyat, Dordogne. (R. de l'Éc. d'Anthr. de Paris, 1903, XIII, 364-367.) Brief account of the cave of Teyat in Dordogne and the animal-figures made on its walls by prehistoric man (horses, bisons, cows, antelopes, etc.) Teyat is the ninth cave in which Quaternary sculptures and paintings have been discovered.

Cartailhac (É.) Les stations de Bruniquel sur les bords de l'Aveyron. (L'Anthropologie, Paris, 1903, XIV, 129-150, 295-315, 133 figs.) Treats of the Chateau rock-shelters, the Grotte des Batuts, the Grotte du roc du Courbet, etc., and the art remains of prehistoric man there discovered: nicked flints, stone beads, horn harpoons, bâtons, carved and figured pieces and objects of horn and bone, fish-bones (?), amulets, etc. Certain objects of bone are thought

- to be throwing-sticks or something of the sort, which paleolithic man may have used. Some others may be like the Australian "message-sticks."
- Chesneau (M.)** Sur la composition de bronzes préhistoriques de la Charente. (C.-R. Ac. d. Sci., Paris, 1903, CXXXVII, 653-656.) Chemical analysis of three bronze implements from an urn-deposit at Venat shows the composition of each to be such as to confirm the opinion that the objects belong to the "cache" of a bronze-caster. An axe from Maison-Blanche is of different provenance.
- Cooley (A. S.)** The bronze Hermes from Antikythera. (Rec. of Past., Washington, 1903, II, 207-213, 2 ills.) Description and appreciation of the bronze statue, thought to be Hermes, brought up from the bottom of the sea by Syrean divers off the coast of Antikythera in 1900-1901. Based on the account in the *Ephemeris Archaeologica*. The statue was "restored" by M. André.
- D'Arbois de Jubainville (M.)** Le pantalon gaulois. (Rev. Archeol., Paris, 1903, 337-342.) Ethnographic study of the *bracæ*, or trousers, of the ancient Gauls, which bear a name of Teutonic origin. Under the empire the Romans adopted to a considerable extent this Gaulish garment.
- Etnier (Ruth S.)** Iceland the heroic nation. (So. Wknn., Hampton, Va., 1903, XXXII, 473-481, 6 figs.) General account of history, education, literature, industries, houses, etc. According to the author the Icelanders "are scarcely second to the Russians in linguistic ability, many of them speaking five or seven languages."
- Fortes (J.)** A necropole dolmenica de Salles. (Portugalia, Porto, 1903, I, 665-686, 14 figs.) Describes the neolithic dolmen burial-place of Salles, north of Barroso. Poverty in content and lack of osseous remains are noteworthy. The megaliths are of variable orientation. No metal objects. The pictographs are parallel and undulating lines, etc.
- Ginfrida-Ruggeri (V.)** Cause probabili della bassa statura in Italia. (Arch. di Psichiatria, etc., Roma, 1903, XXIV, repr., pp. 4.) Among the normal causes of the low stature of the Italians are to be reckoned race and economic conditions, as Lombroso and Livi have noted. To these the author would add a third, *local endogamy* with consanguineous marriages. The effect of island environment in apparently decreasing the stature of their inhabitants (*e. g.*, Sardinia), and the results of subtraction (by war, etc. and emigration) are also to be considered.
- Ilberg (G.)** Das Gewicht des Gehirns und seiner Theile von 102 an Dementia paralytica verstorbenen männlichen Sachsen. (Allg. Z. f. Psychiatrie, Berlin, 1903, LX, 330-374, tables.) Details of examination of weight of brain and parts of 102 male Saxons dying of *dementia paralytica* (max. 1,367 gr., min. 915 gr.), aged 20-59 years. The Meynert method was used.
- Ivanovski (A. A.)** Ob' antropologicheskoi izyachenii inorodcheskago naeleniya Rossii. (Russk. Antrop. Zhur., Moskva, 1902, III, No. 1, 112-134.) Brief account of anthropological investigations among the 96 foreign (and aboriginal) peoples of Russia. The bibliography (pages 119-134) relates to 96 tribes and peoples, small and great, from the Abadzek of the Caucasus to the Yakuts. The Ainu, Armenians, Jews, Kalucks, Kirghis, Ossetes, and Tatars are well represented in the list of titles.
- Jaeger (J.)** Speier am Rhein. (Globus, Brnschw., 1903, LXXXIV, 37-41.) Contains notes on man's activity from the time of the Rhine valley *flint* down to the present day.
- Kallstenius (G.)** Värmländska bergslagsmålets ljudlära. (Svenska Landsmälen, Stockholm, 1902, XXI, 1-216, 1 pl., map.) This valuable monograph, devoted to the phonology of the mountain dialect of Värmland, is based on material obtained in 1898-1900. It was accepted as a thesis for Ph.D. at Upsala in 1902. A number of speech-curves, after the "graphic method," are given.
- ten Kate (H.)** Neuere Publikationen von Dr Robert Lehmann-Nitsche. (Globus, Brnschw., 1903, LXXXIV, 48-49.) Brief notes on Dr Lehmann-Nitsche's articles on the Cryptotherium, Patagonian craniology, pathological phenomena in Peruvian ceramic ornamentation, etc.
- Keller (L.)** Ueber den Geheimbund der Vehme und der Vehmgenossen. (Monatsh. d. Comenius-Ges., Berlin,

- 1903, XII, 27-34.) General discussion utilizing and supplementing Lindner's *Die Vehm* (Münster, 1888), Philippi's *Das Westfälische Vehmgericht* (Stettin, 1888), and Thudichum's *Vehmgericht und Inquisition* (Giessen, 1889). The ecclesiastical use of these secret organizations deserves special attention.
- Lissauer (A.)** *Legende zur Typenkarte für die Radnadeln.* (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 49-52, 10 figs.) Lists the finding places of "wheel" needles without "ears" (7), one-eared (24), two-eared (2), three-eared (9), four-eared (7). The distribution of these needles with radiform top is of considerable interest for Central European archeology.
- McLaughlin (A.)** The storm center in the Balkans. (Pop. Sci. Mo., N. Y., 1903, LXIV, 173-176.) Brief notes on Turks, Slavic, Roumanian, Greek, and Albanian peoples. Author takes anti-Russian point of view.
- Mariot (H.)** Notes préhistoriques sur le Morvan et les contrées limitrophes. (R. de l'Éc. d'Anthr. de Paris, 1903, XIII, 424-430.) Treats of paleolithic and neolithic remains (flints, hatchets, etc.), bronze objects (few), tumuli, megaliths, enclosures. Joigny and Sens on the Yonne seem to have been the centers of dispersion of paleolithic flints. Spring-cults and rock-cults once flourished extensively in the Morvan, and remnants still survive in folk-custom and folk-lore.
- de Mathusieulx.** Reisen in Tripolitanien. (Globus Brunschwig, 1903, LXXXIV, 42-48, 56-60, 16 figs.) Contains notes on cave-dwellers of Gariana, Berber ruins, remains of Roman edifices and monuments, the Berbers of the Rumya oases, the ruins of Leptis Magna, Tarunah, etc. The number and significance of the ruins in these mountains have been exaggerated.
- Modin (E.)** Härjedalens ortnamn ock bygdesigner. (Svenska Landsmålen, Stockholm, 1902, XIX, 129-264.) Continued from 1901. Historical-etymological study of Härjedal place-names, local tales, etc.
- Nunes (J. J.)** Jogos infantis. (Portugalia, Porto, 1903, I, 853-858.) Brief descriptions of 13 out-door and 6 in-door plays and games of Portuguese children of Algarve.
- Pagès-Allary (J.), Déchelette (J.), et Lauby (A.)** Le tumulus Arverne de Celles, près Neussargues, Cantal. (L'Anthropologie, Paris, 1903, XIV, 385-416, 39 figs.) Describes tumulus of Celles and remains there discovered—objects of iron, bronze, pottery, a stone hand-mill, etc. Iron objects are numerous, bronze few, coins and fibulae absent, pottery (non-Roman) abundant. The authors conclude that the tumulus was intended to receive the ashes of some Auvergnian, who lived shortly before Vercingetorix. The finds prove the skill of the Gauls in metallurgy and ceramics.
- Peizoto (R.)** A pedra dos namorados. (Portugalia, Porto, 1903, I, 807-80.) Describes a "lovers' stone," from near the Luso-Roman station of Bilhares, now in the City Museum of Oporto. The stone has sculptured upon it a loving couple face to face, in the rude fashion of Lusitanian art.
- Do emprego ainda recente d'uma mó manual. (Ibid., 828-831, 6 figs.) Treats of the recent employment of stone hand-mills in various parts of Portugal.
- O basto. (Ibid., 822-833, 2 figs.) Describes a statue of a Lusitanian soldier from Refojos de Basto, which has since been transformed into a burlesque figure.
- Piroutet (M.)** Coup d'œil sommaire sur le préhistorique en Franche-Comté. (L'Anthropologie, Paris, 1903, XIV, 437-462, 677-710.) Résumés data concerning the prehistoric remains (paleolithic, neolithic, bronze and iron ages) in Franche-Comté. Traces of paleolithic man, caves of reindeer period, neolithic caverns and open air "stations," "camps," burial places, etc.
- Pittard (E.)** Un cas curieux de dépigmentation non congénitale chez une femme Tsigane. (Ibid., 317-321.) Describes a case of progressive albinism, involving up to the time of observation in 1902 all the body except most of the face, in a Roumanian Gypsy woman (aged 30) of the Dobrudja. The body is well developed and no degenerative stigmata were observed. No ancestral cases of albinism were discovered, and no unusual condition of parents at birth.
- Les Skoptry. La castration chez l'homme et les modifications anthropométriques qu'elle entraîne. (Ibid., 463-

491.) After brief historical sketch, author gives details of measurements made in 1902 of 30 male Skoptzy from the Dobrudja, where there are two villages of this sect. The effect of castration is to decrease the absolute and relative growth of the bust, the head, the skull, and to increase the absolute and relative growth of stature, and lower half of body, and probably also that of the ear.

Russischen (Die) Sekten. (Globus, Brunschwg., 1903, LXXXIV, 193-194.) Brief accounts, after the Report for 1899 of the Procurator of the Holy Synod, of the Raskolniks, Standists, Mormons, Tschurikowists, Dukhobors, Molokans, Malewanzy, Chlysty, etc. The Tschurikowists are a new sect discovered in 1899 in the Government of Samara. In the same year sectional divisions arose among the Molokans. The Malewanzy have been for some time past growing in strength.

Santos Rocha (A.) Mobilario neolítico disperso no concelho de Neilas, Beira Alta. (Portugalia, Porto, 1903, 1, 810-812, 5 figs.) Brief account of neolithic implements, etc., from Villa Seco, among them several perforated stones.

— **Ruínas Romanas de Ançã.** (Ibid., 813-816, 3 figs.) Describes briefly the Roman ruins of Ançã and the remains found there, walls, mosaic. Some of the ornamental types are indigenous and pre-Roman.

— **e Nunes (J. J.)** A necropole luso-romana nos arredores de Lagos. (Ibid., 816-817.) Notes on the Luso-Roman burial-place near Lagos. Evidences of both inhumation and incineration are present — a rare thing in Portugal.

Schlitz (A.) Neue schnurkeramische Gräberfunde bei Heilbronn a. N. (Corr.-Bl. d. deutschen Ges. f. Anth., München, 1903, XXXIV, 60.) Note on the discovery, in the Grossgartach country, of a neolithic gravemound, in which were "schnurkeramisch" pottery and a skeleton buried at length; and, near Wimpfen, of a crouching skeleton in a stone-slab grave.

Schoetensack (O.) Der durchlochte Zierstab, (Fibula) aus Edelhirschgeweih von Klein-Machnow. (Globus, Brunschwg., 1903, LXXXIV, 107-110, 4 figs.) Describes the perforated ornament or fibula

of stag-horn, possibly paleolithic, from Klein-Machnow in the Havel country, which has scratched upon it designs which the author thinks may be intended to represent fishweirs! Dr Schoetensack sees in the discovery of this object further evidence of the northeastern drift of the reindeer-hunters of prehistoric western Europe in the wake of the animal itself.

Schumacher (K.) Die bronzezeitlichen Depottfunde Südwestdeutschlands. (Corr.-Bl. d. deutschen Ges. f. Anth., München, 1903, XXXIV, 90-101, map.) Treats briefly of the finds of the bronze age in southwestern Germany — altogether some 50 certain and some 30 doubtful "collective finds" have been recorded. Some of these doubtless represent votive gifts to the gods, others relics of the work-places of local metal-smiths; most, however, come from trade deposits and are often packed away in a great jar or a box. They show the development of traffic and commerce in this region, the influence of the East, etc.

Schwalbe (G.) Ueber eine umfassende Untersuchung der physisch-anthropologischen Beschaffenheit der jetzigen Bevölkerung des Deutschen Reiches. (Ibid., 73-83.) After referring to the studies and investigations of Virchow, Deniker, Ripley, Anthon, Ranke, Pötzner, Dr Schwalbe outlines plans for obtaining anthropometric data concerning at least 50 percent of the male population of Germany between 20 and 25 years of age. The recruiting service and hospitals must be called upon for much. A unitary scheme of measurement must be adopted — such a one is given on page 83.

Severo (R.) Os dolmens de Trax-os-Montes. (Portugalia, Porto, 1903, 1, 687-690.) General observations based on investigations in 1898 and 1901, serving as introduction to the article of Brenha (q. v.).

— **Commentário ao espólio dos dolmens do Concelho de Villa Pouca d'Aguiar.** (Ibid., 707-750, 16 figs.) Discusses the "amulets," zoomorphic and anthropomorphic sculptures, drawings, inscriptions, "alphabetic" characters, etc., discovered at Villa Pouca d'Aguiar. Some of the stones seem to figure *Echinoides*. Some of the Alvão statuettes resemble the Zuñi fetiches of Cushing.

In some respects the art-specimens of the Alão dolmens exhibit "a localization of character that is *sui generis*." These remains testify likewise to the "autonomy of primitive European civilizations." Cupped and pitted stones occur. Certain inscriptions (the author compares 34 dolmen-signs, p. 745, with the alphabets of the Mediterranean) would seem to contain real alphabetic signs.

da Silva (A.) A alfama marítima da ilha de S. Miguel. (Ibid., 834-846, 21 figs.) Treats of fishing apparatus and accessories of the natives of the island of S. Miguel in the Azores—boats, nets, traps, hooks, lines, etc.

da Silva Picão (J.) Ethnographia do Alto Alentejo. (Ibid., 751-756.) Sketches of life and its activities among the mountaineers in Elvas. Continuation.

Szombathy (J.) Der diluviale Mensch in Europa. (Globus, Braunschwg., 1903, LXXXIV, 319-324, 5 figs.) Résumés Hoernes' *Der diluviale Mensch in Europa*, Braunschweig, 1903. (See *Am. Anth.*, v, 695.) For Hoernes, North Africa "is the Orient of diluvial Europe."

Tetzner (F.) Zur Sprichwörterkunde bei Deutschen und Litauern. (Ibid., 61-63.) After discussing nature and content of proverbs, the author cites, for comparison with the corresponding ones in German, some 50 Lithuanian proverbs relating to "the powers that be," one's fellowman, etc. The peasant-people of the Lithuanians feel perhaps more the gulf between the world of authority and the ordinary man and give it sharper expression. Proverbs in general differ rather in expression than in content.

—Lock- und Scheuchrufe bei Litauern und Deutschen. (Ibid., 87-89.) Treats of the "call" and "scare" words for domestic animals in the German and Lithuanian tongues. Of these there are five "strata."

Thomas (P. F.) Cerâmica negra nos distritos de Coimbra e Aveira. (Portugalia, Porto, 1903, t. 821-823, 2 figs.) Brief description of the "black pottery" of Coimbra, etc., produced today by fumigation, as was perhaps also the case in ancient Etruria.

Viterbo (S.) As candeias na indústria e nas tradições populares Portuguesas. (Ibid., 858-860.) Notes on the use of

candles in religious and popular ceremonies, etc.

Vorobiev (V. V.) Ob' antropologicheskagom' izyachenii slavyanskago naeleniya Rossi. (Russk. Antrop. Zhur., Moskva, 1902, III, No. 1, 102-111.) Résumés his own and others' (particularly Anutchin's) investigations on the physical characters of the Slavonic peoples of Russia. According to Vorobiev the primitive Slavonic type is tall, brunet, brachycephalic. The bibliography (pp. 108-111) has sections on the Great Russians, Little Russians, White Russians.

Wateff (S.) Anthropologische Beobachtungen der Farbe, der Augen, der Haare und der Haut bei den Schülkindern von den Türken, Pomaken, Tataren, Armeniern, Griechen und Juden in Bulgarien. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 58-60.) Gives tables of percentages for 45,418 (boys, 23,824) Turkish, 338 Pomak, 474 Tatar, 737 Armenian, 2,838 Jewish, and 4,589 Greekish children from 6 to 15 years of age in Bulgaria as to color of eyes, hair and skin. The proportion of the blond type (12.96 percent) is highest among the Turks, the brunet (78.69 percent) among the Armenians, the mixed (55.15 percent) among the Pomaks. The highest proportion of blue eyes (21.14 percent) occurs among the Turks, the lowest (4.90 percent) among the Armenians.

Weissenberg (S.) Die Karäer der Krim. (Globus, Braunschwg., 1903, LXXXIV, 139-143, 4 figs.) Treats of the physical characteristics, with results of measurements, of 20 men and 10 women—family life and social diversions, religion, festivals, condition of women, funeral rites, etc., of the Karäites (earlier in Jewish history, Ananites) of the Crimea. They seem to be more brachycephalic than the Jews and show oftener the Semitic nose. In children Mongolian facial characters are often very marked. They are looked down upon by the Jews, but are very proud of their Russian citizenship. Dr. Weissenberg notes the beginnings of decay among this interesting people.

Welter (Hr.) Die Maren oder Mardellen: keltische Wohngruben in Lothringen. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 132-

135.) On basis of his own investigations and those of others resumed here, the author concludes that the *mare* or *mardelle* was made by the Celts and Teutons of the La Tène period, ceasing to be inhabited after the Roman epoch.

Wigström (E.) Folktrö och sägner. (Svenska Landsmälen, Stockholm, 1902, VIII, 213-208.) Continued from 1899, Nos. 651-723, about ghosts; 724-764, dragons, etc.; 765-775, nightmares; 776-785, werewolves; 786-809, tales of persons, etc.; 810-818, historical tales; 819-855, tales of places; 857-905, witchcraft, magic, fortune-telling, etc.

Wilser (L.) L'origine des Celtes. (L'Anthropologie, Paris, 1903, XIV, 493-499.) General discussion of the ethnic position of the Celts and the "brachy-brunets," *Homo alpinus*. The "true Celts" are of dolichocephalic race. Wilser agrees with Holtzmann in relating the term *Celt* to Latin *celo*, old Norman *halr*, German *Held*, "man," "hero."

Zaborowski (M.) Origine européenne des Aryens de l'Asie. (Rev. Scientif., Paris, 1904, 5^e s., I, 1-7.) Points out how western Asia was Aryanized from ancient Europe. The Aryan problem is to be solved on the basis of an auto-nomic development in Europe, from which center an ethnic stream flowed eastward into western and central Asia. The Persians, e. g., sprang from the neolithic race of southern Russia.

Zemmrich (J.) Die Polen im Deutschen Reich. (Globus, Braunschwg., 1903, LXXXIV, 213-219, 2 maps.) Discusses the geographical distribution, increase and decrease of the Polish population of the German Empire in 1890-1900. In Prussia the Poles have increased in 108 districts, decreased in 62. In East Prussia the Polish-Masuric population shows an absolute decrease, due to westward migration. In West Prussia the larger part of the province shows Polish increase, and Posen shows a large increase also. The westward drift has affected Brandenburg, Hanover, and Rhenish Westphalia.

AFRICA

Bernard (A.) Productions naturelles, agriculture et industrie au Maroc. (Rev. gén. d. Sciences, Paris, 1903, XIV, 73-87, 9 figs.) The section on industries

treats of fire-arms and other weapons, basketry, carpets, leather-work, pottery, etc. The pottery industry is concentrated at Fez and Safi.

— **Le commerce au Maroc.** (Ibid., 132-147, 4 figs.) Interesting account of the commercial activities of a country possessing practically neither roads nor bridges; native and foreign trade. Insecurity, not absence of ways of communication, is the great bar to the development of trade and commerce.

Bière (La) des Cafres. (Rev. Scientif., Paris, 1903, 4^e s., XX, 602-603.) Describes, after the account of M. Loir in *Revue d'Hygiène* for October, 1903, the making of beer by the women of the Matabeles of Bulawayo.

Caustier (E.) L'âme soudanaise. (Rev. gén. d. Sciences, Paris, 1903, XIV, 61-62.) Résumés an address by Dr Barot before the Union Coloniale Française on the black races of the Soudan. There does exist a "Soudanese mind," capable of growth and development.

Dar-es-Salaam. Ein ostafrikanisches Städtebild. (Globus, Braunschwg., 1903, LXXXIV, 89-93, 5 figs.) Brief account of the capital of the German protectorate in East-Africa and the condition of life there for Europeans, etc.

Destenave (Lieut. Col.) Le lac Tchad. II. Les habitants, la faune, la flore. (Rev. gén. d. Sciences, Paris, 1903, XIV, 717-727, 19 figs.) Contains notes on the natives of the islands in Lake Tchad, the Kuris, Budumas, etc. Agriculture, political and social organization, trade and commerce, boats, houses, clothing, arms, domestic animals, hunting, etc., are considered. These islanders possess a special breed of cattle. Their reed pirogues and wooden floats are interesting.

Doutté (E.) Les Marocains et la société Marocaine. I, Les origines et l'histoire. II, Les Marocains actuels; Mœurs, coutumes. III, La religion. IV, La société. (Ibid., 190-208, 258-274, 314-327, 373-387, 24 figs., some of race-types.) Historical and ethnographic sketch of the peoples of Morocco, their social and religious institutions, customs, habits, folk-medicine, etc. The Moroccans can be divided into Arabophones and Berberophones; nomadic and sedentary; mountaineers and plain-dwellers; much

and little Islamized. The author objects to the distinction between Arabs and Berbers, the *ensemble* being really Berber, the so-called Arabs being only the most Islamized.

- Fies (F.)** Der Yamshau in Deutsch-Togo, (Globus, Brnischwg, 1903, LXXXIV, 266-272, 4 figs.) Interesting account of the planting, cultivation, digging, storing and cooking of yams among the Ewe negroes. The yam is the "national food" of these people, and 42 varieties are distinguished by name. The "yam-house" is a characteristic structure.

- Gents (Leut.)** Einige Beiträge zur Kenntnis der südwestafrikanischen Völkernschaften, II. (Ibid., 156-159, 4 figs.) Treats of music and dancing, wildebeest-dance, "doctors' dance," procedure of shamans, bodily ornament-face-painting, etc., among the Bush, men. In contrast with those of the Herero, the Bushmen songs are generally "Lieder ohne Worte"; they are also less obscene in their dances; with them women are likewise more life-companions. Face-painting has a religious significance and is performed by the shamans.

— Die Verbindungsstrassen durch die nördliche Kalahari. (Ibid., 265-366, map.) Brief account of the roads over the northern Kalahari desert.

- Indiansiedlungen (Die) bei Tanga.** (Ibid., 74-76, 2 figs.) Brief account of the immigrants (Khojas, who are Shiite Mohammedans, and heathen Banians from Katch) in Tanga, German East Africa.

- Klose (H.)** Wohnstätten und Hüttenbau im Togogebiet. (Ibid., 165-173, 185-192, 12 figs.) Interesting descriptions of dwellings and house-building among the Ewe, Guan, in Apai and Kraty among the Haussa, in Salaga, in the *Ainterland* in Adele, among the bush-tribes in Temu, etc. In central and northern Togo the houses are round, while among the Ewe the square variety, due probably to European influence, prevails. Ashanti influence is evident in Boém, Nkunys, etc. In Atakpama and Akprossa two-story square houses of clay occur.

- von Liebert (E.)** Die Besiedelung Deutsch-Ost-Afrikas. (Ibid., 261-263.)

Ways of communication, markets, etc., are necessary for development and utilization of such sections as are habitable by Europeans.

- Seidel (H.)** Kamerun im Jahre 1902. (Ibid., 93-95.) Contains a few notes on whites, negroes, etc.

- Singer (H.)** Aus den Ruinen von Simbabwe. (Ibid., 176-178.) Résumés Mennell's *The Zimbabwe Ruins* (Bulawayo, 1893). Mennell rejects the idea that Rhodesia was Ophir or that the Phoenicians are responsible for the structures represented by the ruins of Zimbabwe, etc. Rhodesia may have been one of the lands whence the Sabaeans obtained gold, and that people may have erected some of the buildings of Zimbabwe.

— Die Lage in Nordkamerun. (Ibid., 263-265.) Brief discussion of political and economic condition in North Cameroons. The author thinks the possibilities of a Mohammedan "holy war" are exaggerated. The policy of the Germans is *minima non curat prator*.

— Marokko. (Ibid., 286-287.) Discusses recent events and the possible partition of Morocco, in which Germany must have some say.

- Smith (G. E.)** The so-called "Affenspalte" in the human (Egyptian) brain. (Anat. Anz., Jena, 1903, XXIV, 74-83, 6 figs.) Author holds that "the so-called 'Affenspalte' is not the exclusive property of the apes, because it certainly is present in the great majority of, if not in all, human brains." It was found not to be absent once in several hundred Egyptian brains.

— The "limbus postorbitalis" in the Egyptian brain. (Ibid., 139-141, 1 fig.) Out of 36 adult brains 22 show this peculiarity, with tendency to develop on left side.

- Weisberger (F.)** Voyage de reconnaissance au Maroc. II, Climat, flore, faune, population. (Rev. gén. d. Sciences, 1903, XIV, 509-519, 6 figs.) Contains brief notes on the Bedouins, etc.

— Pathologie et thérapeutique marocaines. (Ibid., 567-573.) Brief but valuable notes on diseases and folk-medicine. The *materia medica* is listed on p. 573. Diseases of the nervous system are

rare; malaria less common than generally believed. Medicine is no longer taught at the University of Fez.

ASIA

Ackerman (Jessie) The aboriginal race of Japan. (So. Wknn., Hampton, Va., 1903, XXXII, 593-599, 6 figs.) General description—physical appearance, dress and ornament, tattooing, house-building, food, agriculture, religion, social organization. To the article is added an account of Mr Oyabe, the Japanese missionary to the Ainu. No original material.

Bälz (E.) Zur Psychologie der Japaner. (Globus, Brnshwg., 1903, LXXXIV, 313-319.) A spirited protest against the recent characterization of the Japanese by ten Kate (See *Amer. Anthropol.*, 1903, N. S., V, 159), which Dr Bälz considers mistaken, one-sided, and pessimistic. Bälz emphasizes the possession by the Japanese of the warlike spirit, neophily, *joie de vivre*, sense of humor, etc. Even 20 years ago Japan was a curiosity; today it is a world-power. The transition state of the Japanese people is also to be remembered in this discussion.

Bois (D.) Les produits végétaux à l'exposition d'Hannai. (Rev. gén. d. Sciences, Paris, 1903, XIV, 1003-1008.) Notes on the cultivation and use of plants and their products of Farther India.

Brown (A. J.) Industrial training in Asia. (So. Wknn., Hampton, Va., 1903, XXXII, 375-380, 4 figs.) Brief notes on industrial schools under missionary auspices in Syria and India. According to the author it has "come to stay."

d'Enjoy (P.) L'accouchement en pays Annamite. (Rev. Scientif., Paris, 1904, 5^e s., I, 51-53.) Treats of the *sa-mu* ("old woman") or accoucheuse, a sort of priestess, whose hut is haunted and who is otherwise of a mysterious nature. The shooting stars and comets are *sa-mu* on their travels. Simulation of accouchement by the husband is in vogue.

Flint (J. M.) Chinese medicine. (Smiths. Misc. Coll., Washington, 1903 [1904], Quart. Iss., I, 180-182.) Brief account of theories of disease, examination of patient, knowledge of anatomy, materia medica. The author thinks "it can hardly be doubted that a system of

medical practice was established in China long before any now known to have existed among western nations." Knowledge of anatomy was crude, examinations of bodies of the dead not being allowed. The *yin* and *yang* theory controlled medical practice. The *Pen-ti'ao*, or synopsis of materia medica (latest edition 1826), treats of 1892 drugs, in 10,000 formulæ.

Ghosu-el-Howie (Afr.) Rock sculptures at Nahr-el-Kelb. (Rec. of Past, Washington, 1903, II, 195-207, 5 ill.) These rock sculptures include 3 Egyptian and 9 Assyrian. Some are of no little historical importance, and one was said in 1882 to contain an inscription of Nebuchadnezzar.

— The Buddhist relic mound at Sopara. (Ibid., 297-307, 3 figs.) Reproduces from the *Bombay Gazetteer* the account of the opening of this mound in 1882 and the discovery of the begging bowl of Gautama and other relics.

Henning (C. L.) Die Ergebnisse der Ausgrabungen am Beltempel zu Nippur. (Globus, Brnshwg., 1903, LXXXIV, 133-137, 149-154, 6 figs.) Résumés the data in Hilprecht's *Explorations in Bible Lands during the 19th Century* (Phila., 1903).

Jenings (F. H.) Korean headdresses in the National Museum. (Smiths. Misc. Coll., Washington, 1903 [1904], Quart. Iss., I, 149-167, 22 figs.) Interesting account of hats and headdress in a country where "the people have hats for all occasions," and where "the hat is in fact a badge of honor and its absence a sign of disgrace." Butchers have been allowed to wear hats only since 1895; many styles have not changed since the time of Confucius. Hat pins, buttons, hat-boxes, etc., are also considered. Even in the house the Korean wears a gauze hat. There is also a hat-umbrella. Some of the hats show remarkable skill in horsehair-work. In Korea women are almost hatless (having only about half a dozen styles), but children have 12 styles and men about 65.

Koganei (A.) Ueber die Urbewohner von Japan. (Globus, Brnshwg., 1903, LXXXIV, 101-106, 118-123.) Good critical résumé of recent literature on the primitive inhabitants of Japan and their remains, particularly the publications of

Tsuboi, who holds that the stone-age people of Japan and the modern Aino are nonrelated, the former or Koropok-guru being rather akin to the Eskimo. Koganei is of opinion that the little group of North Kurile Aino on Shikotan are "a 'missing link' between the Stone-age Aino and the Iron-age Aino." The Koropokguru, if not a mythic people, were Aino, and the whole matter is to be summed up thus: Japan was once an Aino land.

Meyer (M.) Zur Theorie japanischer Musik. (Z. f. Psych., Leipzig, 1903, XXXIII, 289-306, 1 fig., 3 mus. ex.) Based on examples of Japanese music given in Abraham und Hornbostel's *Studien über das Tonsystem und die Musik der Japaner* (1903). Japanese melodic structure differs much from European. The 7 is rather frequent in the former. The "minor key" is also notable.

Myhrman (D. W.) Nya fynd i Babylon. (Vmer, Stockholm, 1903, XXIII, 269-297, 11 figs.) Résumés the results of the German Oriental Society's excavations in the ruins of Hillah, 1899-1903.

INDONESIA, AUSTRALASIA, POLYNESIA

Ackerman (Jessie) Australia's native race. (So. Wknn., Hampton, Va., 1903, XXXII, 360-363.) Brief discussion of environment, life, social organization, food, weapons, marriage, etc.

Bouchal (L.) Indonesischer Zahlenglaube. (Globus, Brunschwg., 1903, LXXXIV, 229-234.) This unusually well documented article treats of sacred numbers among the Indonesian peoples (Malays, Malagasy, Dyaks, Celebes, Sumatrans, Javans, etc.). Cosmology and cosmogony, mythology, legends, tales, soul-lore, magic, prophecy, love-charms, ceremonies of divers sorts, birth, pregnancy, menstruation, marriage, death and burial, etc., are considered. The numbers 3 and 7 are widespread, and the tribes who make much of 9 have a special word for it (not 10 minus 1 as other tribes), and such peoples seem to have other ethnographic parallels. Nowhere is 13 unlucky.

Flashman (J. F.) The evolution of the parieto-occipital fissure, as illustrated in some aboriginal brains. (Rep. Pathol.

Lab. Lun. Dept. N. S. W. Gov., Sydney, 1903, 1, 19-22, 2 pl.) Treats briefly of three aboriginal Australian and one adult (female) European brain. The author concludes that "the condition, as found in the Australian aborigines, contains all the factors for the production of the condition as found in the European; in fact, the former is the predecessor of the latter."

— Description of sulci of four brains of Australian aborigines. (Ibid., 23-48, 10 pl.) Details concerning brains of Joey Governor, a criminal; "Bob"; and two other males. The brain of Joey, in general, "presents no striking abnormality."

Forster (A.) Kurzer Bericht über das Muskelsystem einer Papua-Neugeborenen. (Anat. Anz., Jena, 1903, XXIV, 183-186.) Describes the muscular system of an 8-months-old Papuan child in comparison with European child of about the same age. Variability considerable. Face-musculature atavistic. Musculature in general not so fixed and not quite so differentiated as with the European child.

Gleason (R. P.) Industrial problems in the Philippines. (So. Wknn., Hampton, Va., 1903, XXXII, 529-535, 4 figs.) Averse to manual training in general, the Filipino takes best to things like telegraphy. In nestness, but not in accuracy of manual work, the Filipino boy exceeds the American. Here, as elsewhere "you can't hustle the East."

Jardim (J.) A ceramica em Timor. (Portugalia, Porto, 1903, 1, 823-825.) Describes briefly the manufacture of pottery by the natives of Bancan in Timor.

Moore (C. B.) The Boro Badur temple of Java. (Rec. of Past, Washington, 1903, II, 291-297, 4 pls.) Brief general description. The effect of these famous ruins is "amazing," and they are now easily accessible to the traveler.

Schmidt (E.) Ein angeblicher Beweis des tertiären Alters des Menschen in Australien. (Globus, Brunschwg., 1903, LXXXIV, 288-289.) Critique of Alberg's discussion of the human footprints and impress of buttocks in a sandstone block now in the Museum of Warrnambool, Victoria, and other alleged remains of Tertiary man (a worked bone, molars, etc.) from other parts of Australia.

Schmidt (W.) Beiträge zur Ethnographie des Gebietes von Potsdamhafen, Deutsch-Neuguinea. (Ibid., 76-81, 110-113, 123-127, 32 figs.) Describes, with discussion of native names and technical terms, signal drums, war-shields, "ancestral figures," masks, seats with heads, etc., from the Potsdamhafen region of German New Guinea. This valuable article is based chiefly on material collected by Father Vormann. The author, against von Luschan, excludes dream-figures as influencing the "figures of ancestors," and believes that the use of masks runs parallel with skull-cult.

Stangl (P. L.) The Tagalo as an American. (So. Wknn., Hampton, Va., 1903, xxxii, 462-464.) Good traits are excellent as an artisan, teachability, capacity for progress, cautious (also very sensitive), domestic, religious, practical even in metaphysics, analytical, etc. Bad traits, vain, improvident, unvarnished, too credulous and confiding (after his confidence is won), quick-tempered. He has in him "the elements necessary to become a valuable member of the family of nations, whether as an American or otherwise."

von den Steinen (K.) Marquesanische Knotenschnüre. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, xxxiv, 108-114, 9 figs.) Interesting account of knotted strings used by the priests of the Marquesas islands for mnemotechnic purposes, the technical terms and legends and songs connected with them. These knotted strings are chiefly used to ensure the remembrance of ancestral names and traditional verses, sentences, etc. Dr von den Steinen emphasizes the suggestive analogy of the Peruvian *quipus*.

AMERICA

Alford (T. W.) The Shawnees of the present. (So. Wknn., Hampton, Va., 1903, xxxii, 385-386.) Impressions of a Shawnee, who has a very hopeful view of the condition of his people.

Ambrosetti (J. B.) Las grandes hachas ceremoniales de Patagonia, probablemente pillan tokis. (An. d. Mus. Nac. de Buenos Aires, 1903, ix, 41-51, 7 figs.) Describes several ceremonial stone axes from various parts of Patagonia, of the sort thought to be identical with the *pillan tokis* of the Araucanian-Calcha-

quian region. Dr Ambrosetti considers them to be "votive axes," offered, e. g., to Pillan, or other deities, and these Patagonian specimens were probably of like use.

— Los pucos pintados de rojo sobre blanco del valle de Yocavil. (Ibid., 357-369, 18 figs.) Treats of the two series of ornamentation (red on white) on the *pucos*, or hemispherical dishes from the Yocavil region, one of the most interesting developments of ancient Calchaquian art. The basis of the first sort is center-pointing triangles, of the second center-crossing lines combined with bird-faces at the edges. Only 16 of these *pucos* are in archeological collections (the National Museum of Buenos Aires has 10).

— Cuatro pictografías de la región Calchaqui. (An. d. l. Soc. Cien. Arg., Buenos Aires, 1903, lvi, 116-126, 5 figs.) Describes four pictographs from the Calchaqui region. One represents, probably, a petition by Indian hunters of the guanaco to their deity; another, more complicated, in which a great serpent and many human and animal figures appear, may be the résumé of some myth or ceremony relating to rain-making, etc. — the caverns near by may have been *divas* — or some legend of Catequil, etc. These Calchaquian pictographs deserve special study, for they seem to have more definite intent about them than has much of the ordinary Amerindian picture-writing.

— I Calchaqui. (Boll. Soc. Geogr. Ital., Roma, 1903, repr., pp. 18, 4 figs.) Résumés data concerning the Calchaqui and their culture. Habitat, Peruvian knowledge, art, crania, mythology, etc., are briefly considered. Dr Ambrosetti calls attention to the parallelism between the Calchaqui and the Pueblo Indians of Arizona and New Mexico — environment, petroglyphs, ceramics and their ornamentation, stone and other implements, animal fetiches, masks, myths, symbolism, etc., of water and agriculture. These parallels might well be made the subject of a detailed and comprehensive monograph.

Baum (H. M.) The Cahokia mound. (Rec. of Past, Washington, 1903, ii, 215-222, 10 figs.) General descriptive discussion. Dr Baum holds that the Cahokia mound could never have been

built by Indians, for while these erected burial mounds, their earliest efforts "are easily distinguished from the work of the Mound Builders, properly so-called." He also thinks that the further study of the crania of the American Mound Builders will show that they "differ as much from those of the historic American Indians as do those of the Asiatic Mound Builders from those of the present inhabitants of those countries." Justification for such opinion is hardly visible.

Carlton (F. T.) The growth of rural population. (*Pop. Sci. Mo.*, N. Y., 1903, LXIV, 177-181.) Based on the U. S. censuses of 1890 and 1900. In the north central and New England States "the rural sections, taken as a whole, are not being depopulated, but are increasing in population at a gradually accelerated rate." Those nearer large cities show greatest gain.

Cattell (J. M.) Statistics of American psychologists. (*Amer. J. of Psych.*, Worcester, 1903, XIV, 310-328.) Gives interesting information as to fame and labor of the 200 working psychologists of America, who, on the average, "make a contribution of some importance only once in two or three years." Prof. Cattell now inclines to believe that "psychologists are born, not made."

Chamberlain (A. F.) Primitive taste-words. (*Ibid.*, 146-153.) Discusses etymology and psychological bearings of general and particular (acid, astringent, bitter, peppermint, pungent, rancid, salt, sour, sweet) taste-words in various dialects of the Algonquian stock.

Diguët (L.) Le Chimalhuacan et ses populations avant la conquête espagnole. (*J. de la Soc. d. Amér. de Paris*, 1903, N. S. 1, 1-57, 3 pl., 2 maps.) Historical and ethnographical account of pre-Spanish Chimalhuacan (Jalisco, Tepic, parts of Sinaloa, Zacatecas, and Aguas Calientes). Ethnic divisions, dress, arts and industries, agriculture, religion, political geography, and the course of the Spanish conquest are treated of. Based on Tello, Beaumont, Mota Padilla, Frejes, and Navarrete. Remnants of ancient costume, ceremonies, etc., still survive in Tuxpan, although the "ethnic character" of Chimalhuacan has almost entirely disappeared. A good paper.

Dissette (Mary E.) Signs of progress in Pueblo day schools. (*So. Wknn.*,

Hampton, Va., 1903, XXXII, 465-472, 8 figs.) Among the signs of progress noted are "a disposition on the part of the Indians to provide better quarters for both teacher and pupils,"—observed in 9 villages; better equipment; rapid growth in the use of the English language; increasing regularity of attendance,—"our best day schools compare very favorably in this respect with the ordinary district school of the States." The Pueblo woman, who "rules the home and the children," is said to be "very much more conservative and non-progressive than the husband."

Dubois (Constance G.) The exiles of San Felipe. (*Ibid.*, 607-610, 2 figs.) Treats of the enforced exile of the Hot Springs Indians of southern California. The condition of things at Pala is far from satisfactory.

Ellis (Leonora B.) The Seminoles of Florida. (*Guntton's Mag.*, N. Y., 1903, XXV, 495-505.) General historical and ethnographic sketch—habitat, agriculture, arts and industries (*coontie*-starch making), dwellings, cooking (*sofkee*-stew), marriage, status of women, canoe-making, government, religion, whites and Indians. The author notes the great distrust shown by the Seminoles toward the Americans today.

Fehlinger (H.) Die Indianer Kanadas. (*Globus*, Brnschw., 1903, LXXXIV, 106-107.) Résumés governmental reports. Increase from 99,527 in 1901 to 108,112 in 1902, chiefly due to more complete enumeration.

Fewkes (J. W.) Preliminary report on an archeological trip to the West Indies. (*Smiths. Misc. Coll.*, Washington, 1903, Quart. Iss., 1, 112-133, 10 pl.) Résumés results of investigations of November, 1902, to May, 1903. After notes on excavations, cave exploration, collections, etc., Dr Fewkes describes stone implements (celts, chisels, balls, dishes, beads, mortars, rings, ornamented pestles), stone idols and amulets, stone disks with faces on one side, pottery, wood-carvings (cassava-graters, clubs, stools, serpents, idols, vomiting-sticks), shell and bone carvings, pictographs and rock-etchings. The importance of excavations in Porto Rican caves, village sites and dance enclosures (*juego de bola*) is apparent from the success met with at Utuado, where ten skeletons and several

skulls were recovered from "an Indian cemetery, the first of its kind ever found in Porto Rico." The collection brought back to Washington numbered over 1200 specimens. To the country people stone celt are *pedras de rayo*, or "thunderstones." Dr Fewkes' expedition will add very much to our knowledge of the pre-Columbian Antilleans.

Fürstmann (E.) Inschriften von Yaxchilan. (Ibid., 81-83.) Discusses the Maya inscriptions of Yaxchilan published by Maler, bearing dates, the author thinks, of 1384, 1412, 1455, and 1157 A. D., the last long before the beginning of Maya culture in its characteristic form. One of the inscriptions is a monument to some distinguished man, another is related to some cyclic event of importance.

Froideveaux (H.) Nordenskjöld Américaniste. (J. de la Soc. d. Amér. de Paris, 1903, N. S., 1, 81-83.) Brief account of the scientific labors of Baron Nordenskjöld, corresponding member of the Paris Society of Americanists.

— Guido Boggiani. (Ibid., 105-106.) Brief sketch of life and activities of Boggiani, the Italian ethnographer, killed in 1901 by the Toba Indians of the Gran Chaco.

Gleason (F. D.) A Sioux conference in a blizzard. (So. Wmn., Hampton, Va., 1903, xxxii, 550-553.) Brief account of "mission meeting" of Dakota-speaking Indians at Standing Rock, N. Dak. Author contrasts the large attendance with the slim meetings of the whites in such weather.

Holmes (W. H.) Shell ornaments from Kentucky and Mexico. (Smiths. Misc. Coll., 1903 [1904], Quart. Iss., 1, 97-99, 2 pl., 1 fig.) Describes briefly a conch shell gorget from a burial place near Eddyville, Kentucky, in comparison with a similar gorget from Mexico, and an engraved piece of dark wood or bark from an ancient grave near Florence, Alabama. Professor Holmes thinks that the Kentucky figure "strongly suggests the idea that it must represent a disk-thrower engaged, possibly, in playing the well-known game of chungkee," while the resemblance of the bark figure "to certain delineations of spiders engraved on shell gorgets . . . is very marked."

Lejeal (L.) Le Congrès de New York (J. de la Soc. d. Amér. de Paris, 1903, N. S., 1, 84-97.) Excellent appreciative résumé of the proceedings of the Congress of Americanists at New York, October 20-25, 1902. Wittily and pleasantly written, as one might expect from a French man of science and letters. M. Lejeal is not so much afraid of "Amerind" as were some who took part in the "logomachy" its use called forth. He also speaks of "the time-honored and luckless prejudice which makes the Old World the sole and necessary source of all civilization." The "Man of Lansing, brother of him of Trenton," hardly appeals to the author. Nor does Mr Farwell's treatment of Indian music.

— Thomas Wilson. (Ibid., 103-105.) Brief but very appreciative sketch of life and scientific activities.

León (N.) Los Tarascos. (Bol. d. Mus. Nac. de México, 1903, 2^a ep., 1, 153-169, 185-201, 217-233.) Continuation of valuable paper. Résumés and discussions, with reproduction of pictures, the *Relacion de Michuacan*, written 1570-1590, "the only known document giving us the primitive story of the Tarascos."

McLaughlin (A.) The bright side of Russian immigration. (Pop. Sci. Mo., N. Y., 1903, LXIV, 66-70.) Treats of Russian-Germans, Finns, Lithuanians, etc. Dr McLaughlin thinks "there is little to fear from these races properly inspected under our present laws."

Meerwarth (H.) Zur Ethnographie der Paraguaygebiete und Matto Grosso. (Globus, Brnschw., 1903, LXXXIV, 155-156.) Résumés the article of Koch.

— Aus dem Mündungsgebiet des Amazonas. Der Campo der Insel Marajó. (Ibid., 231-240, 250-255, 11 figs.) Based on travel in 1896-1898. Describes cattle-raising and the life of the inhabitants of the savanna country. Chiefly zoological.

Méjila (J.) Théâtre d'animaux chez les Esquimaux. (Rev. Scient., Paris, 1903, 4^e s., XX, 431-434.) Notes the large rôle played by animals with the Eskimo. Considers Eskimo dances, etc., in which men take the part of animals. Suggests *rapprochement* between the "animal pantomime" of the Eskimo and the

Chinese and Japanese paintings and sculptures, where "a like savage and humorous experience of animals has found definite expression."

Mitchell (S. C.) Proposed solutions of the negro problem. (So. Wknn., Hampton, Va., 1903, XXXII, 545-550.) Discusses deportation, repression, moralization "by means of the slow and sure forces of education and religion." Last is best.

Nordenskiöld (E.) Om grafvar och boplatser i nordvästra Argentina från de s. k. Calchaquies. (Ymer, Stockholm, 1903, XXIII, 231-241, 9 figs.) Discusses from his own researches and those of ten Kate, Quiroga, Lafone Quevedo, Ambrosetti, etc., the dwelling places and graves of northwestern Argentina, their pottery, ornamentation, etc. This Calchaquian "half-civilization" is attracting more and more attention.

Northrop (Amanda C.) The successful women of America. Pop. Sci. Mo., N. Y., 1904, LXIV, 239-244.) Based on the 1902 edition of *Who's Who in America*. Statistics indicate that "college-training has played a small part in woman's success" (15.5 percent of the 954 individuals concerned). Co-educational institutions have a distinct advantage over separate woman's colleges, and private schools, seemingly, over public schools.

Pilcher (Louise H.) Indian town officers. (So. Wknn., Hampton, Va., 1903, XXXII, 411-413.) Brief account of the officials of the Pueblo of Laguna, New Mexico, their duties and conduct — "the laws are more strictly enforced than in many white villages, and the Indian officials make better officers than do the Mexican ones in the nearby towns."

Plancarte (F.) y León (N.) Noticia de un dialecto nuevo del Matlatzinca. (Bol. d. Mus. Nac. d. México, 1903, 2^a ep., I, 201-204.) Letter of Sr Plancarte containing vocabulary of 125 words, with comment by Dr León. Reports discovery of this dialect in San Francisco, near Temascaltepec. Dr León finds affinities with Ocuiltec, a Matlatzinca language of the district of Tenancingo. The numerals of the new dialect are said to little resemble those of other Mexican languages.

Prud'homme (L.-A.) Les premiers aborigènes du Manitoba et du Nord-Ouest. (Rev. Canad., 1903, 262-176.) Treats briefly of Mandans, Sioux, Cree, Sautaux. *Outré* conclusions, — Mandans derived from northeast Asia, Sioux from Mongols, Crees and Sautaux from Scandinavians or Normans!

Rivet (M.) Étude sur les indiens de la région de Riobamba. (J. de la Soc. d. Amér. de Paris, 1903, N. s., I, 59-80.) Treats of physical characteristics, dress and ornament, houses, utensils, domestic animals, food and drink, disease, village life, marriage (quasi-indifference as to choice), birth, agriculture, work, division of labor (spegado, concierto, libre, suelto), religion, superstitions and prejudices, death-cult, etc. According to the author, La Condamine's description of these Indians a century ago "is still accurate in all points." They are chiefly barefoot, simply clothed, have few utensils or furniture, eat vermin, are largely frugal vegetarians, drink *chicha*, resist disease poorly, fear and hate the whites, are fetishistic and fanatic, mingling the heathen and the Christian, are born liars, less idle than indolent, home-loving, servants of sorcery, dreams, etc., and reflect in their deportment the centuries of humiliation and servitude they have undergone.

Seler (E.) Studien in den Ruinen von Yucatan. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 114-116.) General description accompanying a stereopticon lecture on the ruined cities of Yucatan, particularly Uxmal and Chichen-Itza.

— Eine andere mit Bestimmung verschiedene altmexikanische Steinmaske. (Globus. Brunschwig., 1903, LXXXIV, 173-176, 4 figs.) Describes an ancient Mexican stone mask, on the inside of which are a representation of Quetzalcoatl and the name "Nine Wind," one of the appellations of this deity, by which as Oviedo records, he was known to the Nahuatl-speaking people of Teotihuacan in Nicaragua.

Telford (Emma P.) Navaho games and handicrafts. So. Wknn., Hampton, Va., 1903, XXXII, 369-375, 5 figs.) Brief account of weaving (effects of white influence noted) and annual games (on invitation of trader). Author takes an optimistic view of Navaho future.

Villada (M. M.) y León (N.) Informe sobre los fósiles de el rancho de "El Corte," Coahuila. (Bol. d. Mus. Nac. de Mexico, 1903, 2^a ep., 1, 169-178, 4 pl.) Report of the committee appointed by the Department of Justice and Education to investigate the alleged deposit of fossil human bones on the El Corte ranch at Ramos Arispe, in the state of Coahuila, Mexico. The remains turned out to be elephant bones, etc.

West (G. A.) Summary of the archeology of Racine county, Wisconsin. (Wisc. Archeol., Milwaukee, 1903, III, 6-42, 10 figs.) After geographical and historical introduction, the author treats of Indian trails, remains in the city of Racine and town of Mt Pleasant, towns of Caledonia, Raymond, Norway, Burlington, etc., and Racine county implements and ornaments. Racine county "has yielded to the archeological cabinets of the state and country rather more than its share of aboriginal implements and ornaments of clay, bone, horn, stone, copper, brass and iron." Evidences of

aboriginal trade and war relations between the Racine Indians and those of distant regions are furnished by the nature and the types of many of the objects. A rare specimen is an Iroquois pipe. The "Racine garden-beds," or Indian corn-fields, are of considerable interest. Dr Lapham and Dr Hay did much for the investigation of the mounds of Racine county.

Williams (T.) The fallacy of the "selected group" in the discussion of the Negro question. (So. Wkmn., Hampton, Va., 1903, XXXII, 520-526.) After pointing out that the mass of the ancestors of the American Negroes came from Congo valley, "from a point at which the Negro race, from climatic reasons, was, on the whole, at its lowest point of development," while about the western highlands they made much greater progress, concludes that in time they will also in America. To compare them as a group with the Anglo-Saxons of their present environment is fallacious.

ANTHROPOLOGIC MISCELLANEA

Preservation of Antiquities.— During the second session of the present (58th) Congress four different bills have been introduced, each having for its object the preservation of antiquities on the public lands of the United States. These bills differ in many respects; some apply only to government reservations, while others are insistent that the proposed law shall apply to all of the hundreds of millions of acres of the public domain.

The bills will be here referred to by the names of the members of Congress who originally introduced them. Mr Hitt's bill (H. R. 12,447) contains fourteen sections and has met the approval of the Board of Regents of the Smithsonian Institution. Its first section provides for the preservation of monuments, ruins, and other antiquities, and directs the President of the United States to declare lands containing ruins, etc., to be reservations whenever the public interest makes such action desirable. The bill declares all prehistoric artifacts to be the property of the government, and makes it unlawful for any one to collect such things on any of the reservations. Although the ownership of these objects is undoubted, it was thought advisable that, as they have from time out of mind been appropriated by anyone who desired to do so, the preserved objects should be enumerated. The reservations are left under control of the Secretary of the Interior, who is required to establish rules and regulations to govern them, provision being made in the bill to protect existing rights in grazing, mining, and quarrying, provided such do not conflict with the provisions of the proposed law. Permits under the act are authorized to be issued to all museums and educational institutions, and to foreign museums of national character, but not to private individuals. Foreign museums are placed under the restriction that they shall present the results of their excavations at Washington for inspection by officers of the Smithsonian Institution, who shall have the right to retain unique objects. All persons are required to prove, to the satisfaction of the Smithsonian Institution, their qualifications for conducting explorations before the Secretary of the Interior shall issue a permit. The permits cover a period of two years, with right of renewal, and no permit may be issued for work on a reservation while another permit covering the same area is

in force. Violation of the law is punishable by fine not exceeding \$500, or by imprisonment for not more than six months; informers are given one-half the fine. The Secretary of the Smithsonian Institution is directed to keep records of all permits issued, and of all monuments, ruins, and antiquities on government land; he is authorized to exchange objects with other museums, domestic or foreign, and those holding permits are required to make monthly returns, to the Smithsonian Institution, of the objects found, on blanks furnished for the purpose.

Mr Lacey's bill (H. R. 13,478) includes among the places to be reserved, those of scenic beauty, of natural wonder or curiosity, or springs with medicinal or other properties, in addition to the monuments, ruins, and antiquities enumerated in Mr Hitt's bill. These reservations are declared to be national parks; the Secretary of the Interior is to provide especially for their preservation, and is authorized to issue permits to any one in his discretion, provided the gatherings are made for the benefit of some museum or educational institution. The destruction of game, fish, or timber, or violation of the provisions of the law, is punishable by fine of from \$50 to \$5,000, or by imprisonment from fifteen days to one year, or both. In other respects, the Hitt and Lacey bills are generally similar. Friends of the Lacey bill contend that most of the provisions of the Hitt bill can be included in rules and regulations to be established under the Lacey bill.

Mr Rodey (by request) introduced a bill (H. R. 12,141) which authorizes permits to be issued for the removal from the public lands of anything in the nature of relics, ruins, etc., only on the recommendation of the university of the state or territory in which the ruins to be excavated are situated, and requires the filing of detail maps and photographs, of which two sets are to be deposited in the Bureau of American Ethnology. The bill further provides for a supervisor of all excavations, who is to be compensated by those holding the permit, and also requires photographs to be made of objects, both before and after their removal from the sites where found, and duplicates thereof are to be deposited in the university of the state or territory in which the objects are excavated. The term of imprisonment for violation of the requirements of the proposed law may be two years.

A fourth bill, introduced by Mr Rodenberg (H. R. 13,349), contains ten sections; it includes all public lands and authorizes the Secretary of the Interior to issue permits in his discretion. Reservations are directed to be created by act of Congress, on recommendation of the Secretary of the Interior, who is authorized to appoint custodians to pre-

vent excavations without permits, and to provide for their compensation until such time as Congress shall create the reservations. Isolated ruins are to be withheld from homestead preëemption until they shall have been excavated by some institution, and the Secretary of the Interior is required to issue permits for exploration when an application therefor is endorsed by the governor of the state or territory wherein the applicant is domiciled. Collections made by foreigners may be divided in the discretion of the Secretary of the Interior, the objects reserved to be deposited "in some public museum of the state or territory within which explorations are made." The bill requires the deposit of duplicate photographs in the U. S. National Museum, and provides punishment for the forgery or counterfeiting of any archeological object which derives value from its antiquity, etc. A fine not exceeding \$1,000, or imprisonment not exceeding one year, may be inflicted on anyone who carries away, without the authority of the Secretary of the Interior, any aboriginal antiquity on the public lands.

The several bills are pending before the Committees on the Public Lands of the House of Representatives and the Senate, respectively. Senate bill 4,127, introduced by Senator Cullom, is identical with the Hitt bill above mentioned.

The essential points of the bills here mentioned show their scope sufficiently to enable one to form an opinion of their relative worth. The photograph clause in the Rodey and Rodenberg bills would alone seem to be sufficient to make them unworthy of serious consideration, even did they contain no other objectionable features. A single expedition to the Southwest recently unearthed about 2,500 objects of antiquity, and as almost every specimen was found by itself, the duplicate photographs before and after excavation required by the bill would necessitate 5,000 negatives and 10,000 prints, to say nothing of the progress-photographs provided for.

A number of letters have been filed with the Committee on Public Lands of the House of Representatives, expressing the hope that Mr Rodenberg's bill would be enacted into law, although a large majority of them express favorable attitude toward the general purposes of the bill only.

A distinguished American anthropologist has filed with the committee a criticism of the Hitt, the Rodey, and the Rodenberg bills, and although he expresses preference for the Hitt bill, he does not think it wise to place the issuance of permits in the hands of the Smithsonian Institution, suggesting, in lieu of this provision, the creation of an archeological com-

mission, to which shall be submitted all applications for the issuance of permits, and which shall perform all the duties which, under the Hitt bill, are required of the Secretary of the Smithsonian Institution. He also does not believe the provision of the Hitt bill relating to foreign institutions to be a wise one, as their explorations must necessarily be insignificant; nor does he appear to advocate the monthly reports of objects collected. The Lacey bill had not been brought to the attention of this gentleman at the time he wrote.

At a recent hearing before the Committee on the Public Lands of the House of Representatives, at which representatives of the Smithsonian Institution were heard in advocacy of the Hitt bill (Mr Lacey's bill at that time not having been introduced), it was inferred, from questions asked by the committee, that exception might be taken to three points in the bill, as follows:

First. That it was unwise to require the Secretary of the Interior to issue a permit at the mandate of the Secretary of the Smithsonian Institution.

Second. That institutions of learning would resent being required to have their representatives examined by the Smithsonian Institution as to fitness before conducting excavations.

Third. That the requirement as to monthly reports would be unnecessarily burdensome.

The first objection may be met by requiring the institution applying for the permit to prove the fitness of its representative to the Smithsonian Institution, which, in turn, shall make recommendation to the Secretary of the Interior, who may then take such action as may be deemed proper.

The suggestion of an archeological commission to have charge of monuments, ruins, etc., would not only incur the objection brought forth in the hearing before the committee, above alluded to, but the creation of a new commission would add to the expense of administration. Nor does there appear to exist a valid reason why a non-governmental commission should be created for the purpose of administering purely governmental affairs when the machinery for such already exists. The writer herein referred to as having taken exception to the Hitt bill gives no reason why it would not be wise to place the administration of these affairs under the direction of the Smithsonian Institution, unless it be in a suggestion made by him that the Field Columbian Museum, the Peabody Museum at Cambridge, and the American Museum of Natural History could probably furnish better material from which to select a commission.

The objection to the manner of proving the fitness of those who conduct the excavations might readily be removed by requiring the control-

ling officers of the various institutions to certify to the Smithsonian Institution as to the fitness of those who are to conduct the excavations, that institution in turn to report to the Secretary of the Interior, who shall then act as he may deem best.

The suggestion that a monthly report would be burdensome may be practically obviated by making the reports quarterly.

It is much to be desired that something in the nature of one of these bills should be passed, especially as much material of interest and value to the archeology, ethnology, and early history of our country is constantly being excavated and sold to tourists and others, with no record of the circumstances attending their discovery. Every great nation has provided some protection for its monuments and antiquities, and the United States must soon do likewise.

JOSEPH D. MCGUIRE.

Anthropological Publications of La Plata Museum.—Since Dr Robert Lehmann-Nitsche, a German by birth and a pupil of Prof. J. Ranke in Munich, succeeded the undersigned as curator of the anthropological department of the Museo de La Plata in 1897, he has published, mostly in Spanish, a number of papers of anthropological importance, all of which have appeared in the *Revista del Museo*. As I shall refer only to those contributions which are either written in Spanish or have been published during the last two years, it may suffice to quote the titles of Dr Lehmann-Nitsche's previous studies: (1) *Lepra precolumbiana?*, (2) *Antropología y craneología*, (3) *Observations nouvelles sur les Indiens Guayagués du Paraguay*, in tomo ix of the *Revista*, and (4) *Trois crânes, un trépané, un lésionné, un perforé*, in tomo x. The first and last mentioned papers are of great medical as well as of ethnological interest. It will be recalled that the question of precolumbian leprosy especially created much discussion a few years ago when Ashmead, Virchow, Polakowsky, Bloch, and others took an active part.

Grypotherium Darwinii (var. *domesticum*), a fossil edentate discovered several years ago in the Eberhardt cave, southwestern Patagonia, concerning which much has since been written, has been said to be still known in folktales and traditions of the Araucanians. Lehmann-Nitsche, however, in his paper *La pretendida existencia actual del Grypotherium* (*Revista*, tomo x, 1902, p. 269) proves that the mythical *Jemisch* or *Nürüfilu* is neither *Grypotherium* nor the fossil felid *Jemisch listai*, but is related to the otter and the tiger. Both *Grypotherium*¹ and *Jemisch*

¹ Cf. *Zur Vorgeschichte der Entdeckung von Grypotherium bei Ultima Esperanza*, Berlin, 1901.

have been so long extinct that no name for them is traceable in the Indian languages and traditions.

In his paper *Nuevos objetos de industria humana encontrados en la caverna Eberhardt en Ultima Esperanza*, which, like all the following studies, appeared in tomo XI, 1903, of the *Revista*, Lehmann-Nitsche describes and figures a number of prehistoric objects found in the cave referred to and which would seem to prove the coexistence of man and *Grypotherium*. This find consists of two bone implements, fragments of a flint knife, four pieces of tanned animal skin, a few human metacarpal and metatarsal bones, and the osseous remains of *Grypotherium*, *Canis avus*, *Onohippium*, etc. Interest in the occurrence of the *Grypotherium* bones is greatly enhanced by the fact that some of them have intentionally been broken and that they show signs of the action of fire. This seems to indicate that prehistoric man in these regions ate the flesh of *Grypotherium* and *Onohippium*, but Lehmann-Nitsche doubtless goes too far in surmising that this great sloth was domesticated by the cave-dwellers, since there is as yet no substantial evidence on which to base such a hypothesis.¹

The subject of another publication, *Hallazgos antropológicos de la caverna Markatsh Aiken*, is indirectly related to the finds in the Eberhardt cave. The objects (now in the Museo de La Plata) found by Hauthal in the cave of Markatsh Aiken, near the Rio Chico, southern Patagonia, and which form the subject of this brief paper, seem to belong to the same prehistoric period as those of the Eberhardt cave. Hauthal found on the bottom of this cave, in an apparently old layer of ashes, a bone awl, four rude stone implements of the "Moustérien" type, the fragments of a greatly decayed bow, and the semi-fossil tooth of an equid. The mummified skeleton of an Indian, which was exhumed previously by a settler, is unfortunately widely separated from the other finds, as it is now preserved in the Provincial Museum at Breslau.

A very welcome contribution to South American archeology is the richly illustrated *Catálogo de las antigüedades de la provincia de Jujuy conservadas en el Museo de La Plata*, for which Americanists ought to be thankful to Dr Lehmann-Nitsche. Archeological objects from Jujuy, in extreme northwestern Argentina, are very rare indeed in the museums of the world, for it seems that only La Plata and Berlin (Max Uhle collection) possess objects representing this ancient culture. The relics in question were exhumed from cemeteries, especially at Santa Catalina, Casabindo, Rio San Juan de Mayo, Surugá, and La Rinconada. They

¹ Cf. Hauthal, Roth, and Lehmann-Nitsche, *El mamífero misterioso de la Patagonia*, *Revista*, t. IX, 1899, p. 409; *Globus*, vol. 78, Nos. 21-22.

were procured partly by purchase and partly through collection in the field, and consist of a variety of objects: osseous remains, decorated and plain pottery, textile fabrics, implements and household utensils, and weapons. Among the last mentioned bows and painted arrows and a fine copper battle-axe are particularly interesting.

The uses to which many of these objects were put is not well known, and in some cases an interpretation seems practically impossible. Indeed, as there are no survivors of these ancient people, the study of the "desert culture" of Argentina is rendered much more difficult than that of southwestern United States.

Patología en la alfarería peruana is the title of a paper in which Lehmann-Nitsche discusses the question of the meaning of a clay figure representing a human being with a maimed leg. As lepra, lupus, or any other chronic disease, as well as any intentional deformation is out of the question, the most plausible solution is that the deformity represents the stump of a leg after partial amputation.¹ This piece of earthenware, which was formerly deposited in the La Plata Museum, was lately brought to the United States by its owner, Señor Don Martín García Mérou.

A rare case of congenital median fissure of the upper half of the face, found on a young Italian thief imprisoned at La Plata, is described and figured in Lehmann-Nitsche's paper *Un caso raro de hendidura media congenita*. The subject in question was more or less feeble-minded, querulous, and fickle. His parents and twelve brothers and sisters are said to have been normal.

In his study *Tipos de cráneos y cráneos de raza* Lehmann-Nitsche presents an opinion on the value of craniology notwithstanding the severe criticisms to which this branch of somatology has been subjected in late years. The chief purport of the paper is to show that the same human skull can belong to many different types according to sex, age, and race, not to speak of biological, pathological, individual, cultural, and other factors. We cannot now admit that there are any race skulls in the sense employed by Blumenbach, since increased knowledge based on extensive material enables us to distinguish a great many craniological types in one and the same race. As an example, Lehmann-Nitsche points out the great variety — *poikilotypy* — in the American race. There is no American race skull, but many varieties or subraces have their special types, e. g., the Patagonians, Araucanians, Calchaquis, etc. These assertions are certainly not new, but their truths are too often disregarded.

¹Cf. *Janus*, 7 Jahrg., 8 Liefer., and *Verhandl. der Berliner Anthropol. Gesellsch.*, Sitzungsb. v. 25. Okt., 1902, in which the same subject is treated.

All the articles referred to are accompanied with excellent illustrations (for which the *Talleres del Museo* are justly famous); they likewise display thoroughness and scholarship. Consequently we may expect that the forthcoming results of Dr Lehmann-Nitsche's studies on fossil man in the Pampa formation and on the long neglected Araucanians will prove equally valuable to anthropology.

HERMAN TEN KATE.

John Eliot's Logic Primer.—The Burrows Brothers Company of Cleveland, Ohio, has just reprinted, from the unique original, *The Logic Primer* of John Eliot, printed at Cambridge, Massachusetts, in 1672, for the use of the Natick Indians. The little book contains an excellent introduction by Mr Wilberforce Eames of the Lenox Library, New York City, from which the following interesting account of Eliot and his work is extracted:

"The little book of which a reprint is offered now, for the first time, to the collector, is one of the rarest of early American publications. Only one copy is known to have survived the lapse of time, out of the edition of one thousand which was printed by Marmaduke Johnson at his press in Cambridge, Massachusetts, in 1672, and this one has strayed far from the place of its origin, being now preserved in the British Museum. . . . In 1889 the whole book was photographed, by permission of the authorities of the British Museum, at the expense of the late James C. Pilling, of the Bureau of Ethnology at Washington, in an edition of six copies, and from one of these photographic reproductions the present reprint is made.

"At the time when this book was first published, John Eliot had been engaged for twenty-six years in educational work among the Massachusetts Indians. He began to teach them in their own tongue in 1646, and he had translated into their language, and had run through the press, the whole Bible, two editions of a Catechism, a Primer, Baxter's *Call to the Unconverted*, Bayley's *Practice of Piety*, a grammar of the Indian language in English, and some minor publications. He was therefore well qualified by knowledge and experience for the undertaking of 'a lecture in logic and theology,' which he started at Natick in 1670. . . .

"The school of logic and theology at Natick flourished for several years under Mr Eliot's guiding care, until it was broken up by the fierce wars of 1675-76 with King Philip, sachem of Pokanoket and of all the Wampanoags. In this war many of the Bibles and other books were lost or destroyed by fire, and probably the *Logic Primer* suffered with the rest. At any rate, when the Indians had returned to Natick, and Mr Eliot had resumed his work among them there, he complained of the loss of books. After much delay, he obtained permission to have new editions

printed of the Bible and of some of the other Indian works. The *Logic Primer*, however, was not reprinted.

"Eighteen years after the publication of the book, Mr Eliot rested from his labors, May 21, 1690, in the eighty-sixth year of his age. From that time on, the Indian educational work rapidly declined, and soon came to an end altogether, while the Indian language itself became practically extinct before the end of the eighteenth century, the use of English having superseded it. Some remnants of the native tribes who were taught by Eliot still survive on the Indian reservations of Massachusetts, but they are now mostly of half-breed stock, having intermarried for many years with the negroes."

Of special interest in connection with the work of the "Apostle to the Indians" is the *Natick Dictionary*, by the late Dr James Hammond Trumbull, published in 1903 by the Bureau of American Ethnology at Washington for gratuitous distribution to those interested in aboriginal American languages.

The Pomo in the Sacramento Valley of California.—In the last issue of the *Anthropologist* (pp. 729-730) it was stated that as a result of investigation by the Department of Anthropology of the University of California the two territories given in Powell's *Indian Linguistic Families* as inhabited by the Pomo Indians must be reduced to one. In the course of investigations recently made in behalf of the Department on and about the headwaters of Stony creek in the vicinity of Stonyford, on the western side of Sacramento valley in Glenn and Colusa counties, California, it was ascertained that an isolated and comparatively small area in this region is inhabited by a people speaking a Pomo dialect. This territory was formerly regarded as forming part of the territory of the Wintun stock. It comprises only the drainage basin of the headwaters of Stony creek, or Big Stony creek as it is locally called, down to its confluence with Little Stony creek. On the east and south are people speaking a Wintun dialect. The boundary here follows the crest of the low ridge that separates the drainage of Big and Little Stony creeks, and then extends along a secondary ridge, on the northern slope of the divide south of Big Stony creek valley, as far as Snow mountain. On the west is the territory of the branch of the Yuki who held the headwaters of Rice fork of South Eel river, the boundary being the crest of Snow and Saint John mountains. On the north and northeast is spoken a second dialect of the Wintun, the boundary being a line from the southern end of Sheetiron mountain to the confluence of Big and Little Stony creeks. The general location of this detached branch of the Pomo is a

short distance to the northeast of the main Pomo territory, the nearest rancherias of which are those of the northern Clear Lake region and of Potter valley.

Considering that they are separated from all the remaining Pomo by Wintun and Yuki territory and by the main crest of the Coast Range, the language of the Stony Creek Pomo is not so divergent as might be expected. The dialect is quite distinct, but does not differ as much from certain of the other Pomo dialects as some of these differ from one another. It seems to differ less, on the whole, from the majority of Pomo dialects than does the dialect of the lower end of Clear lake.

Notwithstanding the fact that the Stony Creek Indians are Pomos, it would seem that they were formerly on more friendly terms with their nearer neighbors, the Yuki of Gravelly valley on South Eel river, than with any of the groups of their own linguistic family. These Yuki had certain hunting and food-gathering rights which were not enjoyed by others, and also had free access to the salt deposits within the Stony Creek territory. They occasionally intermarried with the Stony Creek Pomo.

S. A. BARRETT.

Method of Preparing Tesvino Among the White River Apaches. —

While measuring the White River Apaches (Hyde Expedition, 1900), I befriended an Indian named John Riley, one of the more intelligent English-speaking young men in the tribe, and one day, while visiting him, was invited to partake of some of the prohibited *tulipi* ("yellow water"), the Apache name for that which farther south is generally known as *tesvino*. This liquor, of which all present drank freely, was nearly of the color and consistency of whey, and of a slightly acid, rather pleasant taste. On inquiry I was given the following data concerning the history and preparation of the drink:

Tulipi was introduced among the White River Apaches, within the memory of men of middle age, by an old man of the tribe, still living in 1900, called "Brigham Young." It was brought from the more southerly Chiricahuas, who were said to have learned to make it in Mexico. In manufacturing it a woman takes some dry corn and soaks it over night in water; in the morning a hole is made in the ground, the bottom of which is thickly covered with yucca leaves, on which the corn is spread and covered with a gunnysack. The corn is then sprinkled once a day with warm water, until it begins to germinate, when it is allowed to grow under the sack until the sprouts are about two inches in height, which takes a week, more or less, according to the weather. The corn is next taken out and spread on a blanket, where it is left one day to partially

dry. On the next day two women grind the corn, one rough and one fine, and mix and knead it like dough. To about ten pounds of the dough are added, in a large earthen vessel, about four gallons of water. The whole is thoroughly stirred, then placed on the fire, and boiled down to about one-half the original quantity. During this boiling is added the "*tulipi* medicine" (to make the otherwise weak liquor intoxicating and exciting), composed of certain roots which I was afterward told were those of the loco weed, or jimson weed (*Datura meteloides*).

After the first boiling, enough water is added to make up for the loss, and the mixture is boiled for the second time, until reduced again by one-half. The liquid is then strained through a can with many perforations, cooled till luke-warm, and poured into the *tulipi* jug, a vessel used only for *tulipi*, and never washed. Finally some coarsely ground wheat is added and left floating on the surface, soon after which fermentation begins.

It is best to put the liquid into the *tulipi* jar and to add the wheat in the evening, for then the mixture is well fermented by morning and fit to drink at noon; but as it then rapidly increases in strength and acidity, to prevent spoiling it must be used on the first day after fermentation has commenced. If good *tulipi* is to be had, all these points must be well observed.

While under the influence of *tulipi* one becomes quarrelsome and irritable, and its use frequently results in brawls in which the participants are often severely maimed or killed. The "after effects" of excessive *tulipi* drinking are not serious — consisting mainly of headache and depression.

A. HRDLÍČKA.

Water Transportation by the Early Crows. — To prevent their ammunition, fire-arms, and other articles from getting wet, when crossing streams, the Crow Indians, many years ago, took as many buffalo hides as were thought necessary and placed them one upon another; around the entire edge of the bottom one a gathering string was run which, when drawn, caused the robes to assume a globular form. The articles to be kept dry were placed in it with a ballast of stone. By means of a line attached thereto, the skins were towed by hand when in shallow water, but as soon as water which would not permit of wading was reached, the end of the towing line was placed between the teeth of the tower, who swam with it until he reached shallow water or the shore.

Another method was to arrange and bind three poles in triangular form, over which a buffalo hide was spread and securely fastened at

intervals around its edges, as shown in fig. 1, *a*. Still another method, somewhat similar to that last described, was put to use. Instead of three poles being used, four were laid at right angles and bound at the points of crossing, and over this frame-work a buffalo hide was spread and fastened (fig. 1, *b*).

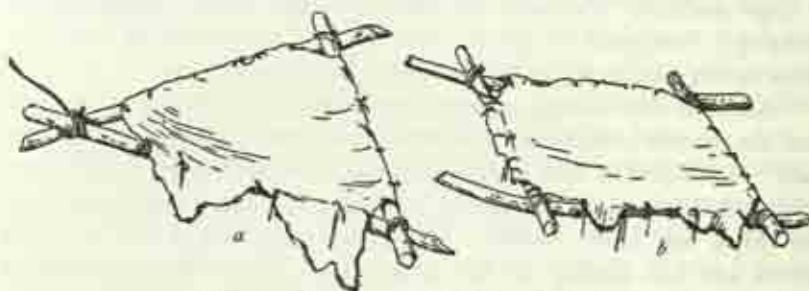


FIG. 1.—Baggage rafts of the Crow Indians.

The foregoing methods were usually employed by small parties, but when a large number with their paraphernalia and supplies desired to cross a stream, they took as many tipi poles as were necessary and fastened them lengthwise and parallel; over these the required number of buffalo hides were spread, and upon this improvised raft the cargo was placed. In all except the first method described, horses were used for towing.

S. C. SIMMS.

Iowa Anthropological Association.—On October 5 last a meeting of persons interested in anthropology was held at Iowa City, Iowa, for the purpose of considering the question of forming an Anthropological Association for the State of Iowa. Professor Samuel Calvin was elected chairman and Dr Duren J. H. Ward was chosen to act as secretary *pro tem*. After extended discussion as to the character of the association contemplated and to the character and sphere of kindred societies, the following constitution was adopted and signed by twenty-eight founders:

Believing that knowledge both of earlier and later men is now so far advanced as to render it possible to collect and systematize numerous archeological, biological, sociological, ethnical and historical facts, and wishing to cooperate in this important movement of Science;

Therefore, the undersigned unite to form THE IOWA ANTHROPOLOGICAL ASSOCIATION.

I. This Association shall have its headquarters at Iowa City, Iowa.

II. Its object shall be to promote the Science of Anthropology.

III. It shall hold a yearly meeting for the hearing of reports, papers, and projects, and for the election of officers. Other meetings may be arranged for and held from time to time.

IV. It shall elect a President, Vice-President, Secretary and Treasurer, and an Executive Board. The Executive Board shall consist of the President, Vice-President, Secretary, Treasurer, and five additional members. Five members of the Board shall constitute a quorum.

V. The Executive Board shall meet quarterly, and at the call of the President or on the request of two other members.

VI. The Executive Board shall publish the purposes, programs, reports, papers, etc., of the Association through whatever means it finds most practicable.

VII. Membership is obtained by the approval of the Executive Board, and the payment of one dollar annually.

VIII. This Charter Constitution may be amended at any annual meeting by a two-thirds' vote of the members present and voting, provided notice of the proposed amendment has been given in the call for the meeting.

After the adoption of the constitution Dr Ward was elected to the office of Secretary.

The second meeting was held October 17, when the following additional officers were elected: Samuel Calvin, president; J. H. Paarmann, vice-president; Frederick E. Bolton, treasurer; J. W. Rich, F. J. Becker, H. G. Plum, B. F. Shambaugh, and A. G. Smith, members of the executive board.

Early Western Travels.—The Arthur H. Clark Company, of Cleveland, Ohio, is about to publish a series of *Early Western Travels*, in thirty-one volumes, to comprise reprints of thirty-six distinct works, from Conrad Weiser's *Journal of a Tour to the Ohio* (1748) to Joel Parker's *Journal of Travels over the Rocky Mountains* (1847). The volumes are all of great historical and ethnological value, although in some cases it would seem questionable whether the originals are of sufficient rarity to warrant reprinting at the present time were it not that the new volumes are to be accompanied with historical, geographical, ethnological, and bibliographical notes and introductions, and an elaborate index (the last to form volume xxxi), by Mr Reuben Gold Thwaites, editor of the noteworthy *Jesuit Relations*. The series will contain facsimiles of the original title-pages, maps, portraits, views, etc., and will be sold at \$4.00 per volume, except the Maximilian Atlas, which is \$15.00. Besides those mentioned the series will include the narratives and journals of George Croghan, Charles Frederick Post, Captain Thomas Morris, J. Long, André and F. A. Michaux, Thaddeus Mason Harris, F. Cuming, John Bradbury, H. M. Brackenridge, Gabriel Franchère, Alexander Ross, Tilly Buttrick Jr., Estwick Evans, James Flint, Thomas Hulme, R. Flower, John Woods, W. Faux, Adlard Welby, Thomas Nuttall, Edwin James, James O. Pattie, George W. Ogden, W. Bullock, Josiah Gregg, John B.

Wyeth, John K. Townsend, Maximilian of Wied-Neuwied (including the fine Atlas), Edmund Flagg, Jean de Smet, and Thomas J. Farnham. Altogether the series of reprints will form an admirable library descriptive of the aborigines and the social and economic conditions of the Middle and Far West during the period of early American settlement.

The Navaho Yellow Dye.—In a paper bearing the title *Navajo Weavers*, published in the Third Annual Report of the Bureau of Ethnology (Washington, 1884), while describing the native dyes, I say: "There are, the Indians tell me, three different processes of dyeing yellow; two of these I have witnessed. . . . In the second process they use the large fleshy root of a plant which, as I have never yet seen it in fruit or flower, I am unable to determine,"—and then I describe the process of dyeing by means of this root.

Soon after this paper on *Navajo Weavers* appeared, I discovered that the plant in question was *Rumex hymenosepalum*; but I never announced my discovery in a way which would easily attract the attention of the ordinary investigator. Twenty years have passed since my paper was printed—years marked by a great increase of interest in the textile art of the Navahoes. Of late many articles, of varying degrees of merit, on this subject, have appeared in popular form. Some of the writers refer to this method of dyeing in yellow which I call the second method; but it seems that none of them has yet found out from what plant the dye-stuff is derived. Therefore I take this opportunity of informing those who may in future discuss the textile art of the Navahoes.

WASHINGTON MATTHEWS.

American Anthropology at the Universities of Germany.—Professor Johannes Ranke has recently published (*Corr.-Bl. d. deutschen Ges. f. Anthr.*, xxxiv, 53-59) a list of lectures and courses in Anthropology offered during the academic year 1902-03 at the universities of Germany, Austria, and Switzerland. The courses relating to America are as follows: F. VON LUSCHAN (Berlin): Ethnography of the South American Indians. E. SELER (Berlin): Mexican Grammar; Religion and Culture of the Mexicans. P. EHRENREICH (Berlin): The Hyperborean Peoples of America; Ethnography of North America (Select Chapters); General and Special Ethnography of South America. K. WEULE (Leipzig): The Aborigines of America. K. SAPPER (Tübingen): Ethnology and Ethnography of the Indian Stocks of Central America. E. BRÜCKNER (Berne): Geography and Ethnology of America, particularly North America.

A. F. C.

Augusto Carlos Teixeira de Aragão, who died May 3, 1903, aged 80, was a distinguished Portuguese man of letters and science — historian, numismatologist, archeologist, and Americanist, he was the author of many volumes. His greatest work is the three-volume study of the coins of Portugal and the Portuguese colonies. His last work, published in 1894, was *Diabruras santidades e prophcias*, characterized by Peixoto in *Portugalia* (1, 863) as a valuable historical and ethnographical contribution to the literature of religion. A man of varied tastes, his first publication (in 1846) was a now-forgotten novel. A. F. C.

Negroid Race in Armorica. — In a communication to the Angers (August, 1903) meeting of the Association Française pour l'Avancement des Sciences, M. G. Hervé described two neolithic Armorican skulls "of a negroid type," now in the museum of the Société d'Anthropologie de Paris. If this view is sustained, we have another proof of the existence of such a type in western Europe in primitive times, much farther to the north than is Mentone. A. F. C.

Conde de Ficalho. — In Count Ficalho, who died April 19, 1903, Portugal lost a lovable man of science and a useful citizen; a botanist and a man of letters. His *Plantas uteis da Africa Portuguesa* (Lisbon, 1884) is a valuable ethno-botanical study, following up his *Flora dos Lusíadas* (1880). He also published a magnificent critical edition of Garcia da Orta. In 1900 appeared his *Le Portugal au point de vue agricole*, a monograph not without ethnological content. A. F. C.

A Buriat Explorer. — The most successful, perhaps, of all those who have sought to discover the secrets of the famous city of Lhasa in Tibet is Sibikof, who stayed there about a year and when he left in 1901 had accumulated a mass of information, besides a large number of excellent photographs. It is interesting to know that Sibikof is a Buriat educated at the University of St Petersburg, and a Buddhist. A. F. C.

THE ETHNOLOGICAL SURVEY FOR THE PHILIPPINE ISLANDS will probably send to the St Louis Exposition the following groups of primitive people, who will live in houses of their own construction and pursue their daily social and industrial activities as far as possible in a natural way: the Negrito, the Bontoc-Igorot, the Lepanto Igorot, the Tinguian, all of Luzon; the Manguian of Mindoro, the Sulu Moro of Jolo, the Samal Moro, the Lanao Moro, and the Bogobo, all of Mindanao. There will be about thirty-five people in the form of families in each group. The exhibit to be made by the Ethnological Survey will be under the personal supervision of its director, Dr Albert Ernest Jenks.

DR MERTON L. MILLER, formerly of the University of Chicago, was appointed to the position of ethnologist in the Ethnological Survey for the Philippine Islands on January 1, 1904. Dr Miller, who had been associated with the Survey during the greater part of last year, has been engaged in field work for the purpose of gathering material for the Survey's exhibit at the St Louis Exposition.

L'HOMME PRÉHISTORIQUE. — A new French monthly journal (32 pp., 8°), bearing the title *L'Homme préhistorique — Revue mensuelle illustrée d'Archéologie et d'Anthropologie préhistoriques*, has been commenced under the editorship of Dr Chervin and A. de Mortillet. Messrs Schleicher Frères & C^{ie}, 15 Rue des Saints-Pères, Paris, are the publishers, and the subscription is eleven francs per annum. The October issue, recently come to hand, contains some excellent photographic illustrations, in color, of stone implements in the collection of M. Paul de Givenchy.

PROF. A. H. KEANE, B.A., F.R.G.S., of London, has had the honorary degree of Doctor of Laws conferred on him by the University of St Andrew's, N.B., for distinguished services in the fields of anthropology and ethnology. Professor Keane has just completed the manuscript of an *Anthropological A. B. C. of America*, comprising 5,000 entries of tribes and languages of the New World.

MR HENRY BALFOUR, M.A., of Trinity College, Oxford, has been elected to fellowship at Exeter College. Mr Balfour has been for some years curator of the Pitt-Rivers Museum; he is also president of the Anthropological Institute, and president-elect of the Anthropological section of the British Association, which will hold its seventy-fourth meeting at Cambridge, commencing August 17.

IT IS ANNOUNCED by *Science* that the Minister of Public Instruction and Fine Arts of France has conferred the degree of Officer of Public Instruction on Dr Lester F. Ward in recognition of his scientific work. This highest degree of the academic order is usually conferred only on persons who have for five years held the degree of Officer of the Academy.

THE MAX MÜLLER MEMORIAL FUND, which is to be held in trust by the University of Oxford for the promotion of learning and research in the history, archeology, languages, literature, and religion of ancient India, now amounts to about \$12,000.

DR GEORGE GRANT MACCURDY, of Yale University, has been elected secretary of the Connecticut Academy of Arts and Sciences.

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ABORIGINAL MYTHS AND TRADITIONS CONCERNING THE ISLAND OF TITICACA, BOLIVIA¹

By ADOLPH F. BANDELIER

The most authentic sources for aboriginal Indian traditions are songs, orations, and tales, known to the members of religious societies of which every Indian tribe has at least the rudiments. These societies sometimes preserve the most remote records, through oral transmission. The substance changes but little in the course of centuries, but the form may suffer modifications that distort the original picture or even shroud it almost completely.

On the Island of Titicaca the changes which its Indian population has undergone, and the promiscuous origin of the present inhabitants, make it very doubtful if any original folklore may still be found. Traces of esoteric clusters exist, but these were not originally from Titicaca. Their present members may have been born there, but their parents or grandparents resided elsewhere and their lore does not embody traditions from very remote periods.

Therefore, at the very inception of our stay on the Island of Titicaca we were assured that there was no trace of ancient folklore in the recollection of its inhabitants. Notwithstanding the partial truth of these assertions, we obtained several tales which, while liable to objections, still refer to pre-Spanish times and conditions. Insofar as their principal secrets of magic and their most important dances are concerned, the Indians of Titicaca acknowledge that they

¹ This paper is a part of a monograph on the islands of Titicaca and Koati, which will embody the results of explorations made for the American Museum of Natural History in Peru and Bolivia in 1895.

derived them from two points on the shore of the lake—Sampaya and Huaicho. It is therefore possible that the folklore concerning Titicaca is from one or the other of these two points, or from both. It is also possible that what the Indian of today gives as genuine traditions, were related to his ancestors by Spaniards and especially by priests, and from data preserved by writers of the sixteenth and seventeenth centuries. I shall record the few stories gathered by us, adverting at the same time that it was only little by little and with reluctance that the Indians became at all communicative on such topics. Their reticence might lead to the supposition that what they told contains some primitive elements.

The belief that, in times far beyond the distinct recollection of man, the sun first rose from the "Sacred Rock," or Titi-Kala, was expressed to us by several Indians on the island, one of whom, an aged blind man, also stated that the moon was created there. The large nodules of limonite, which are regarded as tracks of the sun and moon, bear some relation to this belief. One of our informants was an old wizard, who told us that "the sun rose into the heavens from the Sacred Rock, in the shape of a big flame." But he also added that "the sun was the child of a woman" whom he called "Mama-Ojllia, who was also the mother of Manco Capac." About the origin of the moon he professed to be ignorant.

"In very ancient times," said he, "the island was inhabited by gentlemen [*caballeros*] similar to the Viracochas, the name given to whites by the Indians today." Whence these "gentlemen" came he knew not. "They had intercourse with the women of the people, and the children were deposited in caves, where they were kept alive by water dripping from the rock of the ceiling. After a certain time the mothers went to look after their offspring and found them alive and well. These children, who had thus been exposed, became the *Inga-Ré* [Incas], and they drove out the gentlemen and held the island thereafter." Whither the expelled "Viracochas" retreated, the tale sayeth not. (1)* The narrator mentioned the names of two women who acquired some note on the island, one of whom he called "Maria-Ka," the other "Mama Chocuayllo." About the Incas he remembered the names of Manco Capac, Viracocha,

* See notes at the end of the article.

Huaynacapac, Roca, Huascar, and Atahualpa, saying of Huascar that the Spaniards killed him near the island.

In a subsequent conversation the wizard stated that Atahualpa lived on the island and Huascar at Cuzco, and that after the time of the "Inga-Ré" the lake once dried up so completely that people from Huaicho came over on foot and killed the "Chullpa" then living on Titicaca. From one or the other Indian we obtained at least partial confirmation of this. All seemed to agree that the sun had made its first appearance on the Sacred Rock, and that the "Inga-Ré" originated on the island.

While we were at the pueblo of Tiquina, the parish priest, Father Nicanor Vizcarra, recounted to us the following tale which had been related to him by an Indian from Copacavana:

"The peninsula of Copacavana was inhabited, prior to the time of the Incas, by a tribe of rude Indians who owned flocks of llamas. Among those whose duty it was to herd the animals was a dumb girl. Every evening the herders returned the flocks to the care of the chief of the tribe, but for several months the dumb girl failed to put in her appearance. The fact of the matter was that the girl had given birth to a male child in some cave on the peninsula, and had left the infant in care of a female deer. The fatherless boy grew up in that cave, his mother visiting him daily toward evening. This went on for a number of years, until at last somebody followed her stealthily. He saw her approach the cave. A boy rushed out of it and embraced her, and she returned his caresses. When this boy reached the age of manhood he begged his mother to give him a club and to make him three slings. With the aid of these weapons he soon grew to be very powerful, and this was the origin of the Incas."

This tale has a slight resemblance to the Montezuma story as told in New Mexico. (2) But the bringing up of the child in a cave, and with the assistance of a female deer, also recalls the story of Romulus and Remus. It is not impossible that the legend of the foundation of Rome had been related by priests to Indians whom they educated, as has been the case all over Spanish America. I have been more than once surprised at listening to Indian friends of mine, in New Mexico and Mexico, who could read and write, and to whom the curate or missionary had told bits of classical history. (3) While I am far from asserting that the story from

Copacavana has such an origin, it is well to bear in mind such a possibility. (4) The influences to which the Indian of Spanish America has been subjected during the last three and a half centuries have been such that we cannot expect to find many traditions that have not suffered in some manner or other from European ideas. It is among tales preserved by the earliest writers, who were in the country during or immediately after the conquest, that we may look for authentic and mostly unimpaired folklore; and, probably also, to a certain extent, among the Indians of today, wherever we succeed in gaining their absolute confidence.

Gonzalo Fernandez de Oviedo y Valdés, royal chronicler and for many years an officer of high rank in some of the Spanish possessions of America, did not visit Peru, but he took special pains to ascertain from those who returned therefrom, immediately after the incident at Cajamarca, and in subsequent years, what they had learned about the country and its inhabitants. Among them were Diego de Molina, Alonzo de Montemayor, and other noted men of the time. While he does not specify his source in every case, it is plain that his information was always first-hand. His allusion to the history of the Inca tribe, while brief, has the merit of being, so far as is now known, the earliest that has been preserved.

Oviedo says of Cuzco: "To this land there came in ancient times [anciently], a great lord with a people they call Inga, and now they call themselves Big Ears [Orejones], and only the Supreme Lord they call Inga. . . . This lord they call Inga peopled the Cuzco." (5) This indicates that the first Spaniards who came in contact with the Peruvian Indians understood them to believe and say that the Incas were not originally from the valley of Cuzco.

Among those who participated in the conquest of Peru from the very beginning was Juan de Betanzos, who spent the rest of his life at Cuzco, having married an Indian girl from the Inca tribe. Part of his book is lost, but enough remains to afford valuable data. Betanzos concluded the work in 1551, after laboring for several years over translations from Spanish into Quichua, and vice versa, so that he was familiar with the Quichua language. (6) Such tasks could be performed only with the aid of Indians, and Betanzos, aside from the assistance rendered by his wife, enjoyed the great

advantage of intimate intercourse with natives conversant with ancient lore. These same advantages, however, exposed him to a serious danger, the same danger that lessened the value of works written half a century later by Indian writers in Mexico. His informants were Inca, hence they told only their side of the story, with a natural tendency to extol to the conquerors, whose favor they were beginning to court, the importance of their tribe and its culture. Even traditions and myths, when told by people thus influenced, suffer the loss of some of their purity. I shall have occasion to refer at length to an official Spanish investigation of Indian lore, in which Betanzos took part. Meanwhile he tells us:

"In ancient times, they say, the country and province of Peru was dark, having neither light nor day. In those times there were certain people in it, which people had a certain chief who commanded them, and to whom they were subjected. Of the name of that people and of the chief who commanded them they have no recollection. And in those times, when all was night in this land, they say that from a lagoon in this country of Peru, in the province called Collasuyo, came a chief whom they called Con Tici Viracocha, who, they say, had with him a certain number of people, which number they do not recollect. And after he had come out of this lagoon he went to a place near it, where today stands a village called Tiaguanaco, in this aforesaid province of the Collao; and when he and his people were there, they say that at once, and unexpectedly, he made the sun and the day, and ordered the sun to move in the course in which it now moves; and afterward, they say, he made the stars and the moon. Of this Con Tici Viracocha they relate that he had appeared once before, and on that occasion he made the heavens and the earth, leaving them in darkness, and that when he made the people who lived in darkness as aforesaid, this people did some sort of wrong to this Viracocha, and as he was angered by it he turned to come out again, as the first time, and those first people and their chief he converted into stones, in punishment for the anger they had caused him."

Betanzos proceeds to relate how the aforesaid Viracocha made, at Tiaguanaco, men and women out of stones. His companions he told to scatter, and, pointing out to them the people he had created from the stones, said to them:

"These shall be called so and so, and will come out of such a spring in such a province, and will settle in it and grow and multiply there;

and those will come out of such a cave and their name will be so and so, and they will settle in such a place; and as I have them here painted and carved out of stone, so they shall come forth from springs and rivers, caves and heights, in the provinces I have told you and named; and now you go in that direction (pointing to the rising sun) — indicating to each one the line which he had to travel.

"With himself he kept only two of his followers; the others started on their peregrination, in the direction assigned to them. Each one, as he came to the province designated, called out aloud: 'So and so, come forth and settle in this deserted region, for so it is ordered by the Con Tici Viracocha who made the world.' Thereupon the people would come out of the places foretold by the Viracocha. While these executed his commands in the direction of the east, the great Viracocha dispatched his two companions, one to the south and the other to the north, while he himself went to the northwest toward Cuzco. On his way he kept on peopling the country in the manner described, by creating men and women from rocks, springs, and rivers, and when he reached the site of Cuzco he caused to come forth a chief called by him Alcaviza, and also gave the place its name Cuzco. Con Tici Viracocha continued his journey as far as the coast of Ecuador, where his companions rejoined him. There they all began to walk together on the waters of the sea and disappeared." (7)

Alcaviza settled the site of Cuzco, and after that settlement had been made, a cavern opened at a nearby place called Pacaritambo, and out of this cave came four men with their women. One of the men was called Ayar Mango, afterward called Manco Capac. Two of the others had a rather strange fate — one being immured alive in a cave and the other becoming an idol. Manco Capac, however, settled at Cuzco with Alcaviza, and through his shrewdness became the first chief of the tribe and the founder of the Incas. (8)

This tale shows every mark of genuine Indian tradition, so far as it can be when not told in the original language or in a literal rendering from the text. It may thus be summarized: (a) There were two successive creations, both by the same being, who is thought to have been a man with divine attributes or at least with creative faculties. (b) This creator and his followers, after the first creation, came out of Lake Titicaca and went to Tiahuanaco, where the second creation was effected by him. (c) The origin of the

Inca is represented as posterior to the first settlement of Cuzco and is not ascribed to a colonization or to a conquest.

Cieza de Leon was a contemporary of Betanzos, but went to Peru several years after the conquest. Nevertheless the information gathered by him is valuable, since it is not likely that at his time aboriginal traditions could have become contaminated with ideas imported from the Old World. In the first part of his *Crónica del Perú* he mentions a myth to the effect that after many years spent in darkness, the sun rose from the Island of Titicaca in great splendor; thenceforth this island was regarded as sacred, and the Inca reared on it a temple dedicated to "their sun," (9) In another place he says that one of the principal chiefs of the Collao went to the "lagoon of Titicaca, and met on its principal island white men with beards with whom he fought in such a manner as to succeed in killing them all." (10) It is not clear whether this applies to Titicaca or whether (since it seems to be a tradition of the "Collao") one of the large islands near Puno is meant. Amantani and Capachica are quite as conspicuous as Titicaca, and the difference in size is insignificant. Should the event related be true, Cieza furnishes an approximate date for its occurrence, placing it during the term of office of the chief Viracocha, hence the invasion of Titicaca by the Collao would have occurred in the fourteenth century. (11)

In the second part of this *Crónica* Cieza is more detailed:

"Before the Incas ruled in these kingdoms and were known in them, the Indians tell another much more important thing than all the rest, for they affirm that for a long time they were without seeing the sun, and that suffering a great deal on that account, they prayed and made vows to those on whom they looked as their gods, begging them for the light of which they were deprived. And while this was going on the sun rose in great splendor from the Island of Titicaca, which is within this great lagoon of the Collao, so that all were delighted. And after this had happened, they say that from the part of midday there appeared and came a white man of large size who showed great authority and inspired veneration by his aspect and person; and that this man, of whom they say he had so much power that of heights he made levels and of plains great heights, creating springs in live rock. And as they recognized in him such power, they called him Maker of all Created Things, Beginning Thereof, Father of the Sun, for they say that besides these he performed

other and greater deeds, because he gave to men and animals their existence and that finally they derived from him great benefits." (12)

This being, the Indians, according to Cieza, call Ticiviracocha, also Tupaca and Aranuan or Arnauan. Regarding the islands he relates a tale that white men inhabited it, which white and "bearded people were killed by a chief called Cari, who had come from the valley of Coquimbo in Chile." (13) He also states that when Inca Viracocha was war-captain at Cuzco, he received messengers from the chiefs of the Collao, one of whom had waged war against the inhabitants of the islands of the lake and had come out victorious. (14) Cieza places the origin of the Inca at Pacaritampu also, and fairly agrees with Betanzos.

It will not be amiss to call attention to the fact that Cieza, while contemporary (he finished the manuscript of the *Crónicas* at Lima in 1550, a year before Betanzos concluded his book), had much less opportunity for intimate intercourse with the natives. He went to Peru when less than twenty years of age; four years later he was in Colombia, later returning to the coast of Peru only for a comparatively short time. Cieza was a precocious youth, and it is not impossible that the traditions were obtained by him from Betanzos or at least through his instrumentality. He was not familiar with the Quichua language, hence had to depend on such Spaniards as knew the idiom, or on Indians who understood sufficient Spanish to be able to interpret. (15)

While, in 1542, Cieza was writing the first part of his chronicle in the Spanish town of Cartago, in southern Colombia, the Licentiate Don Cristoval Vaca de Castro, who had subdued the rebellion of the younger Almagro and was de facto governor of Peru, instituted an official inquiry concerning the ancient lore of the Cuzco Indians, the results of which are contained in a document, published by the late Don Marcos Jiménez de la Espada, under the title *Discurso sobre la Descendencia y Gobierno de los Ingas*. Vaca de Castro, —

"pretending with great solicitude to ascertain the antiquity of the Indians of this kingdom and their origin, and whether they were natives of this land or had come from other parts, caused all the old Ingas and ancient men of Cuzco, and its surroundings to be called together and brought

before him, and informing himself from them as intended, not one replied satisfactorily, but each in a different way, according to his knowledge and without being able to give any other information than that all the Ingas were descendants of Mango Capac, who was the first Inga, without being able to give any other statement, as they disagreed among themselves. In this dilemma they said that all the past Ingas had their *quipocamayos*, as well of the origin and beginning as of the times and occurrences in the days of their chiefs. They related the coming to Cuzco of Challocochima and Quisquis, tyrannical captains for Ataovallpa Inga, who destroyed the country and killed all the *quipocamayos* that fell into their hands, saying that they had to begin anew with Ticcicapac Inga, as they called the Ataovallpa Inga. They named some who were still alive, but hidden in the woods from fear of the tyrants of the past. Forthwith Vaca de Castro sent for them, and there were brought before him four very old men.

"These *quipocamayos* were like historiographers, or accountants, and there had been many of them, and all agreed in their *quipos* and accounts. Their sole duty was to keep good reckoning by means of their *quipos*, as well of the origin and beginning of the Ingas in general as of each one in particular, from the day when he was born, and everything that occurred during the time of each of their chiefs. They were expected to give account and information about everything they were asked, to instruct their children in it and to keep them well informed and prepared, so that they would know the meaning of everything. To these men were given monthly rations for their sustenance, and of all kinds of food, and they were also furnished with women and servants, their sole occupation being to take care of their *quipos*, keeping them in order with the corresponding and truthful relation. Those that were brought before Vaca de Castro asked for time to prepare their *quipos*, which was granted, and they were kept apart from each other in order to see if they still agreed in their results and sayings. The supervision of this was given to parties of an inquisitive turn of mind, with Pedro Escalante as interpreter, an Indian versed in the Castilian tongue and also interpreter of Vaca de Castro, assisted by *Juan de Betanzos* [Italics are mine] and Francisco de Villacastin, residents of this city of Cuzco, persons who knew very well the general language of this kingdom, and who wrote down what was declared by means of the *quipos*."

This document contains no information concerning times anterior to Manco Capac except that the aborigines lived as scattered tribes with little regard to polity. Such is the usual way in which a

conquering tribe speaks of the conquered and its condition. The Island of Titicaca is nowhere mentioned; the origin of Manco Capac is placed at Pacaritambo, he was the son of the sun, and came out of a window in the rock. (16)

Two of the *quipocamayos* made a separate statement to the effect that they were natives of Pacaritambo, and that their forefathers (also *quipocamayos*) had told them, enjoining absolute secrecy, that Manco Capac was the son of some chief of Pacaritambo who never knew his mother, for which reason his father always called him Child of the Sun. This the people at last took seriously, and his father, perceiving the advantage he might derive from it, and assisted by two medicine-men, improved it for extending the sway of his tribe. These two last-mentioned *quipocamayos* asserted further that, from the time of Manco Capac to the death of Huascar, four hundred and seventy-three years, of twelve lunar months each, had elapsed. (17)

We may ask, Why were only the first two *quipocamayos* regarded as genuine informants by Vaca de Castro and by those to whom he entrusted the investigation? The other two, who were *natives* of Pacaritambo, hence best acquainted with the traditions of the place, deserve more credit, since the first two also acknowledge that Manco Capac had his origin there. A comparison of the joint deposition of the four, with the testimony given separately by the two from Pacaritambo, shows that the first was an official story formulated by the wizards (for the keepers of knotted strings were a branch of medicine-men) and repeated from generation to generation until accepted among the people. Such is the way whenever the truth for some reason or other is deemed unfit for general knowledge. The statements of the two from Pacaritambo contain that truth, hence the *Discurso* is most instructive for a critical sifting of Indian tradition; it also shows that the story of Manco Capac has a basis of fact, since it became divested of mythical color as soon as told by those who really knew about it. (18)

The Island of Titicaca, as already stated, is not mentioned in the *Discurso*, neither in the joint nor in the separate testimony. Betanzos, however, who took such an active part in the investigation, mentions it in his book, he either having derived information about

it from sources foreign to the Inca tribe, or else (if the stories told Garcilasso de la Vega, and to which we shall soon come, are genuine) the connection of Titicaca island with Cuzco lore antedates the appearance of Manco Capac by a long period. The investigations made by direction of Vaca de Castro were for the special purpose of finding out about the Inca, and the Indians confined their replies to what they were asked. That the four old men said nothing of Titicaca is not absolute proof that the island was unknown to them or that it played no part in their recollection of historical events.

Another contemporary of Betanzos was the royal accountant Agustín de Zárate, who came to Peru in 1543 and published in 1555 a *Historia del Descubrimiento y Conquista de la Provincia del Perú*, basing what he says of the conquest on the testimony of eye-witnesses. From what source he obtained the data on ancient traditions is not stated, and this is the more to be regretted as they differ in several respects from the information imparted by all other chroniclers and historians. Zárate says:

"In all the provinces of Peru there were principal chiefs, called in their language *curacas*. . . . These chiefs kept their Indians at peace, and were their captains in the wars which they waged against their neighbors, without there being a chief for the whole until, from the direction of the Collao, from a great lagoon called Titicaca (which is there), that has eighty leagues in circumference, there came a very warlike people whom they called Ingas. These go with their hair cut short and their ears perforated, and with round pieces of gold in the holes that still more enlarge them. . . . They call themselves *Ringrim*, signifying ear. And the principal one of them they named *Zapalla Inga*, which is 'only chief,' although some claim that they called him *Viracocha Inga*. The latter is to say 'foam or grease of the sea,' for as they did not know from what land they came, they fancied he had originated in that lagoon. . . . These Ingas began to settle the city of Cuzco." (19)

Pedro Pizarro came to Peru with Francisco, his relative, took part in the conquest, and saw ancient Peruvian society in its pristine state, for he remained in the country and had excellent opportunities to learn. The brief notice in his *Relacion del Descubrimiento* about the Incas and their origin is not without interest: (20)

"These Indians say that an Inga was the first lord. Some say he came from the Island of Titicaca, which is an island in a lagoon of the Collao. . . . Other Indians claim that this first chief came forth at Tambo. This Tambo is in Condesuios, six leagues, more or less, from Cuzco."

These few words embody the substance of the statements of Betanzos and Cieza of Leon.

Cieza gives as one of the main sources from which he derived his information, ancient songs of the natives. (21) It might be asked, How could he, whose stay at Cuzco and in southern Peru was comparatively short, have obtained sufficient knowledge of Quichua to enable him to interpret such archaic lore? Hence it is very likely that what he has preserved is second-hand, in so far as that the lore was imparted to him by such of his countrymen as had become thoroughly acquainted with the language and with the native interpretations of traditions regarded as authentic.

But, about thirty years after the date of the sources above considered, there appeared an investigator of Inca lore whose opportunities were as good as those of Betanzos and superior to those enjoyed by Cieza. This author is Father Cristóval de Molina, who resided at Cuzco between the years 1570 and 1584 as parish priest of the hospital originally founded for the exclusive benefit of the natives and afterward converted into a municipal infirmary, regardless of race or color. Father Molina, in his treatise entitled *Relación de las fábulas y ritos de los Yngas* (of which only the translation by Sir Clements R. Markham is now at my command), treats at length of the ancient lore of the Cuzco tribe. He says: (22)

"And first with regard to the origin of their idolatries, it is so that those people had no knowledge of writing. But in a house of the Sun called Poquen-Cancha, which is near Cuzco, they had the life of each one of the Yncas, with the land they conquered, painted with figures on certain boards, and also their origin. Among these paintings the following fable was represented:

"In the life of Manco Ccapac, who was the first Ynca and from whom they began to be called Children of the Sun and to worship the Sun, they had a full account of the deluge. They say that all people and all created things perished in it, in as far as the water rose above all the highest mountains in the world. No living things survived except a man

and a woman, who remained in a box, and when the waters subsided, the wind carried them to Huánaco, which will be over seventy leagues from Cuzco, a little more or less. The creator of all things commanded them to remain there as Mitimas, and there in Tiahuanaco the creator began to raise up the people and nations that are in that region, making one of each nation of clay and painting the dresses that each one was to wear, those that were to wear their hair, with hair, and those that were to be shorn, with their hair cut; and to each nation was given the language that was to be spoken, and the songs to be sung, and the seeds and food they were to sow. When the creator had finished painting and making the said nations and figures of clay, he gave life and soul to each one, men as well as women, and ordered that they pass under the earth. Thence each nation came forth up in the places to which he ordered them to go. Thus they say that some came out of caves, others issued from hills, others from fountains, others from the trunks of trees. From this cause, and owing to having come forth and commenced to multiply, from those places, and to having had the beginning of their lineage in them, they made *huacas* and places of worship of them in memory of the origin of their lineage which proceeded from them. Thus each nation uses the dress with which they invest their *huacas*, and they say that the first that was born from that place were there turned into stones; others say the first of their lineage were turned into falcons, condors, and other animals and birds. Hence the *huacas* they use and worship are in different shapes. . . .

"They say that the Creator was in Tiahuanaco and that there was his chief abode, hence the superb edifices — worthy of admiration, in that place. On these edifices were painted many dresses of Indians, and there were many stones in the shape of men and women who had been changed into those for not obeying the commands of the Creator. They say that it was dark, and that there he made the sun, the moon, and stars, and that he ordered the sun, moon, and stars to go to the Island of Titicaca, which is near at hand, and thence to rise to heaven. They also declare that when the sun in the form of a man was ascending into heaven, very brilliant, it called to the Incas and to Manco Ccapac as their chief, and said: 'Thou and thy descendants are to be Lords and are to subjugate many nations. Look upon me as thy father and thou shalt be my children and thou shalt worship me as thy father.' And with these words it gave to Manco Ccapac for his insignia and arms the *suntur paucar* and the *champi* and the other insignia that are used by the Incas like scepters. And at that point the sun and moon and stars were commanded to ascend to heaven and to fix themselves in their place, and they did so.

At the same instant Manco Ccapac and his brothers and sisters, by command of the Creator, descended under the earth and came out again at the cave of Paccari-Tambo, though they say that other nations also came out of the same cave, at the point where the sun rose on the first day, after the Creator had divided the night from the day. Thus it was that they were called Children of the Sun, and that the Sun was worshipped and revered as a father.

"They also have another fable in which they say the Creator had two sons, the one called Ymaymana Viracocha and the other Tocado Viracocha. Having completed the tribes and nations and assigned dresses and languages to them, the Creator sent the sun up to heaven, with the moon and stars each in its place. The Creator, who in the language of the Indians is called Pachayachi and Tecsiviracocha, which means the incomprehensible God, then went by the road of the mountains from Tiahuanaco, visiting and beholding all the nations and determining how they had begun to multiply and how to comply with his commands. He found that some natives had rebelled and had not obeyed his commands; so he turned a large number of them into stones of the shape of men and women, with the same dress they had worn. These conversions into stone were made at the following places: Tiahuanaco, Pucara, and Xauxa, where they say he turned the *huaca* called *Huarivilca* into stone, and in Pachacamac, and Cajamarca, and in other parts. In truth there are great blocks of stone in those places, some of which are nearly the size of giants. They must have been made by human hands in very ancient times; and by reason of the loss of memory and the absence of writing, they invented this fable, saying that people had been turned into stones for their disobedience, by command of the Creator. They also relate that in Pucara, which is forty leagues from the city of Cuzco, on the Collao road, fire came down from heaven and destroyed a great part of the people, while those who were taking to flight were turned into stones.

"The Creator, who is said to be the father of Ymaymana Viracocha and Tocado Viracocha, commanded that the elder Ymaymana Viracocha, in whose power all things were placed, should set out from the point and go by way of the mountains and forests through all the land, giving names to the large and small trees and to the flowers and fruits that they bear, and teaching the people which ones were good for food or for medicine and which should be avoided. He also gave names to all the herbs and explained which had healing virtues and which were poisonous. The other son, Tocado Viracocha, which means in their language 'the maker,'

was ordered to go by way of the plains, visiting the people and giving names to the rivers and trees, and instructions respecting the fruits and flowers. Thus they went on until they reached the sea, whence they ascended to heaven, after having accomplished all they had to do in this world."

The deep impression rapidly made by biblical tales on the imagination of the Indians, through teachings of the Catholic church, is perceivable in many of the traditions reported by Molina. They do not, in the main, conflict with those of Betanzos, but they are more detailed and contain additions made since the advent of the Spaniards. A comparison of the material gathered by Molina with the declaration of the wizards from Pacaritambo in 1542 again shows that the former repeated an "official" story, not authentic recollections preserved by "keepers of the faith."

That which is of direct importance in our investigations lies in the tale about Manco Capac and the Island of Titicaca. According to Molina the former was created either at Tiahuanaco or on the island, — at all events at some place in or near the lake, — and was sent from there to Cuzco so as to appear at Pacaritambo through some miracle. It is also proper to call attention to the statement: "though they say that other nations also came out of the same cave, at the *point where the sun rose on the first day, after the creator had divided the night from the day.*" I italicize these words since they indicate a belief that not the Inca alone originated on Titicaca island.

Garcilasso de la Vega was born at Cuzco and has the right of calling himself an Inca, since, while his father was a Spaniard, his mother was an Inca girl. He lived at Cuzco until 1560, when he went to Spain. Garcilasso was twenty years of age when he left Peru, until which time he had been in constant and close contact with his mother's Indian relatives. Of the sources from which he gathered his knowledge he speaks as follows:

"It struck me that the best plan and way was to relate what, in my childhood, I heard many times from my mother, and from her sisters and uncles, and from other and elder people, about their origin and beginning. . . . My mother residing in Cuzco, her home, there came to visit her nearly every week the few relatives, male and female, who had sur-

vived the cruelty of Atauhualpa. During these visits their usual conversation was about the origin of their kings, of their supremacy, of the greatness of their empire, of their conquests and great deeds in governing, in war as well as in the laws which they made, so beneficial to their vassals."

One old man in particular gave him much information :

"During these discourses, I, who was a boy, often ran in and out, amusing myself with fragments of the story, as children do with the tales of nurses. In this manner, days and months and years passed until I had come to be sixteen or seventeen years of age. Being one day present with my kindred, who were discoursing of their kings and ancestors, it came into my mind to ask the most elderly person amongst them, and interrupted his discourse in this manner: 'Inca,' said I, 'and my uncle, how is it possible, since you have no writings, that you have been able to preserve the memory of things past, and of the original of our kings?'"

This aged Indian, whom he thus addressed and who afterward became his chief informant, made the following statement in regard to the origin of the Inca :

"You must know, therefore, that in ages past all this region and country you see around us was nothing but mountains and wild forests, and the people in those times were like so many beasts, without religion or government: they neither sowed, nor ploughed, nor clothed themselves, because they knew not the art of weaving with cotton or with wool. . . . In short, they were altogether savage, making use of such of their women as they accidentally met, understanding no propriety, or single enjoyment of it.

"Our Father the Sun, beholding men such as before related, took compassion on them, and sent a son and a daughter of his own from heaven to earth to instruct our people in the knowledge of Our Father the Sun, that they might worship and adore him and esteem him for their God, giving them laws and precepts whereunto they might conform their lives, like men of reason and civility. . . . With these orders and instructions Our Father the Sun placed his two children in Lake Titicaca, which is about eighty leagues hence, giving them liberty to go to and travel wherever they pleased; and in whatsoever place they stayed to eat or sleep, they should strike into the ground a little wedge of gold which he had given them, being about half a yard long, and two fingers thick, and where with one stroke this wedge would sink into the earth, there should be the place of their habitation and the court unto which all people should

resort. . . . Thus Our Father the Sun, having declared his pleasure to these, his two children, he despatched them from him, and taking their journey from Titicaca northward, at every place where they came to repose they tried to strike their wedge into the ground, but it took no place, nor would it enter. At length they came to a poor inn, or place wherein to rest, about seven or eight leagues southward from this city, which to this day is called Pacarec Tampu, which is as much as to say, "The Shining or Illuminated Dormitory." This is one of those colonies which the Prince planted, the inhabitants whereof boast of this name and title which our Inca bestowed upon it; whence he and his queen descended to the valley of Cozco, which was then only a wild and barren mountain. . . .

"This was the relation made to me by this Inca, brother of my mother, concerning the origin of the kings of this country. I afterward tried to translate it faithfully from my mother-tongue, which is the Inca, into Spanish." (23)

Garcilasso does not confine himself to Inca folklore, but relates traditions of other Peruvian tribes:

"Having to report the most current opinions touching the origin of the Inca kings, I will say that most of the people of Peru, that is the Indians from south of Cozco, what they call Collasuyu, and those in the west, called Cuntisuyu, tell about it a very pleasing fable. In order to make it more authoritative through time [antiquity], they say it happened after the deluge, of which they know nothing beyond that it really took place. . . . Thus they say that after the waters of the deluge had subsided, a certain man appeared in the country of Tiahuanacu, which is to the south of Cuzco; this man was so powerful that he divided the world into four parts, and gave them to four men whom he honored each with the title of king, the first of which was called Manco Capac, the second Colla, the third Tocay, and the fourth Pinahua. To this they add that he gave the northern part to Manco Capac, that of the south to Colla (after whom that great province has ever since been called), to Tocay that in the east, and to Pinahua that of the west. They further assert that, after having thus favored them, he sent each one to the land pertaining to him, to conquer and govern all the people there found.

"The Indians who live east and north of the town of Cuzco report another origin of the Incas, similar to the preceding. For they say that in the beginning of the world four men and four women, who were brothers and sisters, came out of the windows in certain rocks that are near the city, in a place called Paucartampu. These windows, they add,

were three in number, and only the one in the middle served for the sally of these people. Indeed it was afterward called the Royal Window, and for that reason was covered on all sides with large plates of gold, with a great quantity of precious stones inserted. The windows on both sides were also garnished with gold, but without jewels. The first of these brothers is called by them Manco Capac, and his wife Mama Ocllo. They believe that this one was the founder of this town." (24)

These tales, not being of direct Inca origin, Garcilasso treats as silly fables. It is readily observed that they are the same as some of those given by Betanzos and Cieza. Taking into consideration that Garcilasso was very young when he heard the aged Inca relate his version of the origin of the tribe, it appears likely that the old man adapted his story to the age of the listener. An Indian of experience will never disclose such matters in their real aspect to younger men, unless their discretion should have stood an exceptionally severe test.

While disparaging the merits of traditionary tales of extra-Incan tribes, Garcilasso acknowledges their genuineness, thus supporting Betanzos and Cieza. He began to pay attention to talk about the past of his mother's tribe not ten years after his two predecessors had concluded their manuscripts, hence his information dates from the same period as theirs, as well as from that of the depositions collected by direction of Vaca de Castro in 1542.

But Garcilasso acknowledges that much of his knowledge was derived from other sources. The writings of Father Blas Valera, partly destroyed at the capture of Cadiz by the English, are quoted by him (25), and he also mentions the *quipus* as useful to a certain extent, for he claims to have been able to interpret them.

Although a digression, I cannot refrain from quoting here what Garcilasso says of these knotted strings, since a statement from him has the double merit of coming from one strongly inclined to enhance the achievements of the aborigines, and who at the same time was practically familiar (or at least claimed to be) with the manipulation of the *quipus*:

"In a word, in these knots were embraced all things that could be computed by numbers, as far as to note the number of battles and encounters, of the embassies on the part of the Inca and the declaration the

king had given. But by these knots it was not possible to express the contents of the message, the express words of the declarations, and such other historic events, for these things consisted of terms uttered in speech or in writing, and the knots marked indeed the number but not the word. To remedy this defect they had also certain signs by which they recognized memorable actions, embassies, and declarations made in times of peace or war; the *quipucamayus* learned their substance by heart and taught them one to another by tradition. . . ."

He then mentions the *Amautas* and *Aravicus*, Indians who wove folklore into popular tales, giving them "a fabulous and allegorical" meaning; and continues:

"Nevertheless, all these things, as experience shows it, could serve only for a time in order to cause their exploits to be spoken of, since great deeds can be immortalized only by means of letters; but as the Incas had no knowledge of them, they used in their stead all they could invent that was most appropriate to their object.

"The Indians looked upon these things as sacred. As they had no knowledge of letters, they did all they could to prevent them from escaping their memory, for any Indian who had not learned by tradition their accounts or their histories, found himself as ignorant as a Spaniard or any other stranger. I had occasion, in my youth, to become learned in the art of managing these knots. When the Indians, my father's subjects, and the other *curacas* came to town on Saint John's day to pay their tribute, they begged my mother to command me to revise their *quipus*, for, being of a suspicious nature, they did not like the Spaniards to handle them; the which I did with pleasure, collating them with their knots to see that they conformed with the tribute they brought, so that by dint of handling them I became as proficient as they themselves." (26)

This statement, from such a source, shows conclusively what little justification there was for basing authentic lore on the knotted strings.

Garcilasso acknowledges still another source — a series of writings and paintings, sent to him while in Spain with a letter dated April 16, 1603, and written for some descendants of the Inca tribe for the purpose of obtaining special favors from the crown. The paintings represented the past of the Inca tribe from the time of Manco Capac, with pictorial representations of costumes and with genealogical tables. Garcilasso does not say whether in these paint-

ings reference is found to Titicaca island. He does not appear to place great stress on these sources, or else they only repeated his own statements. He also says that, after reaching Spain, he remained in correspondence with his schoolmates at Cuzco, who furnished him a number of traditions, mostly on events of a later date. (27) In regard of the Island of Titicaca the following statement by Garcilasso should not pass without notice :

"What we have said about the Inca coming out of a marsh called Titicaca is confirmed by Francisco Lopez de Gomara. [Here follow quotations from the works of Zárate and Acosta.] It can be seen that what I have said of it is not new, and that I have but expanded the relations given of it by the Spaniards. In my capacity as a native Indian I must know better the genius of my language, and I have so to say, drank the truth, as well as the fables, which I relate." (28)

At the time Father Cristóval Molina began his ecclesiastical career at Cuzco, in 1570-72, the Viceroy, Don Francisco de Toledo, instituted an official inquiry into the antiquities of the Cuzco Indians, after the manner of that made by Vaca de Castro in 1542. (29) For the purpose of illustrating their statements, the Indians painted, on a number of pieces of cloth, representations of events and customs of bygone days. A large number of witnesses were examined, not only from Cuzco, but of other tribes, and they agreed that Cuzco was already settled when Manco Capac (who is generally, though not always, designated as the first Inca) made his appearance there. (30) No direct mention is made of Titicaca island, but one of the witnesses, a man of note among the coast Indians and those of Cañar and Chachapoyas, said that Manco Capac had come out of a Rock of Lead. In the Quichua language *Titi* means "lead," or "tin," and one of the definitions of the word *Titicaca* is based on this utterly groundless etymology. (31)

Referring to the four paintings on cloth illustrating ancient history of the Inca, it is said that on the first were painted the legends concerning events that occurred at Tambotocco and the "fables of the creations of Viracocha." These four paintings on cloth recall those on boards which are said by Molina to have existed in an old shrine of "the sun" near Cuzco. If it should be ascertained that both were the same, it would impair the value of that which Molina

bases thereon. The paintings "on cloth" may have been copies of those on boards. It is singular that none of the other sources, anterior, contemporaneous, or subsequent, mentions the painted boards, and it should also be noted that the investigation ordered by Toledo coincides in date with the beginning of Molina's ecclesiastical career at Cuzco.

Miguel Cabello Balboa came to Peru in 1566 and finished his *Miscelánea austral* at Lima twenty years later. He places the origin of the Inca at Pacari Tampu, identifying the site with Tambo Tocco; but he adds: "Many Indians pretend that the brothers who appeared at Pacari Tambo . . . were natives of Titicaca, and that in that place were manufactured the garments in which they showed themselves for the first time." He explains the first appearance of Manco Capac and his relatives, all in garments bright with silver and gold — a cunning artifice for bringing the natives of Cuzco to peaceable submission. According to him the little band of adventurers traveled at night and hid in the day time, presenting themselves unexpectedly a short distance from Cuzco, arrayed in gorgeous vestments. (32)

The Jesuit Joseph de Acosta resided in Peru from 1569 to 1585. (33) His book, less prolix than is usual for the time, is of great value. He mentions the investigations instituted by Toledo and by the order of the King of Spain (34), and it is therefore possible that what he attributes to Indian sources may have been derived from depositions then obtained. But he discriminates between the traditions of the Peruvian Indians in general and those of the Inca in particular:

"However it may be, the Indians say that, with this their deluge, people were all drowned, and they relate that from the great lagoon of Titicaca there came out one Viracocha, who made his abode at Tiaguanaco, where today are seen ruins and parts of ancient and very strange edifices, and that from there they came to Cuzco, and so the human family began to multiply. They point out in that lagoon an islet where they fable that the Sun concealed and maintained itself, and for this reason they anciently made to it there many sacrifices, not only of sheep, but of men. Others say that out of a certain cave, through the window, there came six or I do not know how many men, and that these made the beginning of the propagation of mankind, and this was at what for

that reason they call Pacari Tambo. So they are of opinion that the Tambos are the oldest lineage of mankind. From there, they say, proceeded Mangocapa, whom they recognize as the founder and head of the Ingas. . . . What learned men assert and write is, that whatever there is of memories and relations of these Indians, goes back to four hundred years. . . ." (35)

Elsewhere Acosta states :

"The first man the Indians mention as the beginning of the Incas was Mangocapa, and of him they fable that, after the deluge, he came out of a cave or window of Tambo, which is five or six leagues from Cuzco." (36)

The Dominican Gregorio Garcia, who spent a number of years in Peru, copies Betanzos almost literally. (37)

Among those authors from the sixteenth century who (aside from Oviedo, who has already been spoken of), while not having visited South America, deserve to be mentioned, Francisco Lopez de Gomara, Levinus Apollonius, and Antonio de Herrera are the most prominent.

Gomara was a contemporary of Betanzos, Cieza, and Zárate ; his *Crónica*, which appeared in print in 1552, was not received favorably by the Spanish government (38) ; indeed, his statements concerning Spanish America were severely impeached, but the incriminations address themselves mostly to what he wrote concerning events of the conquest. About the Inca, Gomara states :

"Their origin was from Tiquicaca, which is a lagoon in the Collao, forty leagues from Cuzco, the name of which signifies *Island of Lead*, for of many islets that are inhabited, one or the other contains lead, which is called *tiqui*. It is eighty leagues in circumference, and receives ten or twelve large rivers and many brooks. These are emptied through a single river, but large and deep, that terminates in another lagoon, forty leagues toward the east, where it loses itself, not without causing admiration to him who sees it. The principal Inca who took away from Tiquicaca the first ones and led them was named Zapalla, signifying *only chief*. Some aged Indians also say that he was called Viracocha, which is to say *grease of the sea*, and that he brought his people by sea. They finally affirm that Zapalla peopled and settled Cuzco, whence the Incas began to make war upon the surroundings. . . ." (39)

It is singular that Gomara, whose book appeared in print three

years before that of Zárate, makes the same statements regarding Titicaca as the latter; and it is also strange that this version about Zapalla (and the name itself) is not repeated by any other writer, Levinus Apollonius excepted. The latter may have copied Zárate (40), but Gomara not, unless he had access to his manuscripts, of which he makes no mention. It seems impossible that Gomara obtained the tale of the "Inca Zapalla" from Betanzos. It might be that the name is a corruption of Zapana, a chief of the Collao, of whom Cieza de León speaks; but this is rendered doubtful by the fact that Cieza's first part of the *Crónica* appeared in the same year as Gomara's work.

Herrera (41), who was royal chronicler for the Indies and a critic of rare sagacity for his time, finished his History at the close of the sixteenth century. As far as possible he avoided relying on isolated statements, however interesting they might appear, and thus omitted more than one which, after his time, turned out to be true. (42) In regard to Titicaca and the traditions concerning it, he has evidently relied on the writings of Cieza, at least in part; but he must have had at his command other confirmatory documents.

Herrera affirms that the Cuzco Indians claimed that the first men emerged from Lake Titicaca. He states:

"They also say that in the islands of Titicaca, in the Collao, were men with beards, and white; and that a captain coming from the valley of Coquimbo, and called Cara, came to Chuquito and passed to the island and killed the bearded people. . . . The Indians also say, from what they have by tradition from their forefathers, and from the songs, it appears, that in the days of antiquity they were a long time without seeing the sun, and that in consequence of great vows and rogations to their Gods, the Sun came out of the Lagoon of Titicaca and the island which is in it, that is in the Collao, and that, forthwith, from the part of mid-day, appeared a white man. . . ." (43)

The influence of Cieza is plain. Of Manco Capac he says that he first appeared at Pacaritambo. (44)

To the same class of writers as Gomara, Apollonius, and Herrera, belongs Fray Hierónimo Roman. In his *Repúblicas del Mundo*, 1595, he evidently follows Betanzos and Cieza (45), laying

much stress on ancient Indian songs as the most reliable source of authentic tradition.

In the seventeenth century, aside from investigations carried on officially through the agency of such Jesuits as Father Pablo Josef Arriaga (46), Father Terhuel (47), Francisco Dávila (48), and of Archbishop Villagomez (49), which more directly concerned the coast tribes and those of the Peruvian highlands outside of Cuzco, we meet with the works of three Augustine monks, two Jesuits, and one Indian writer from the vicinity of Cuzco. There may be others, but I have no knowledge of them. As to the annalist Montesinos (50), and Rocha, the imitator of Gregorio García (51), they are not of much importance. Montesinos certainly gathered a number of Indian tales, but he unfortunately manipulated them in the promotion of a pet theory.

The Jesuit Anello Oliva is not the oldest, in point of date, of the authors mentioned; but I prefer to dispose of him first, since he acknowledges one of his main sources to have been fragments of the writings of Father Blas Valera, also used by Garcilasso de la Vega. In addition to Valera, Oliva consulted manuscripts of a certain Doctor of Theology, Bartolomé Cervantes, and an Indian from Cochabamba in central Bolivia whom he designates as a "descendant of the chroniclers of the Incas," proficient in the Quichua language and versed in ancient lore. Oliva attributes too much importance to the *quipus*, for we have seen from the statements of Garcilasso himself how slender is the hold they afford. If, not thirty years after the conquest, tradition (that alone enabled their interpretation as far as interpretation could go) was already dim, how much more diffuse must it have been a century later. Besides, Oliva's Indian informant, Catári, lived far away from Cuzco, and his name indicates that he was an Aymará (probably versed in the Quichua language, but still an Aymará) and not of Inca blood. His information, therefore, cannot have been original. Cochabamba was never overrun by the Cuzco tribe; its aborigines were Quichua-speaking Indians, but they were separated from the Inca by a wide zone of Aymará who had mostly remained absolutely independent. From these sources Oliva (52) has framed the following story:

"After the Deluge, the first people came to South America from parts unknown, landing somewhere on the coast of Venezuela. From there they gradually scattered over the whole continent, one band reaching the coast of Ecuador near Santa Elena. Several generations passed, many made voyages along the coast and some were shipwrecked. At last one branch took up its abode on an island called Guayau, near the shores of Ecuador. On that island Manco Capac was born, and after the death of his father Atau, he resolved to leave his native place for a more favored clime. So he set out, in such craft as he had, with two hundred of his people, dividing them into three bands. Two of these were never heard from again, but he and his followers landed near Ica, on the Peruvian coast, thence struggled up the mountains, reaching at last the shore of Lake Titicaca. There Manco separated from the others, leaving them with orders to divide after a certain time and to go in search of him, while he took the direction of Cuzco. He told his people, before leaving, that when any of the natives should ask them their purpose and destination, to reply that they were in quest of the son of the Sun. After this he departed, reaching at last a cave near the Cuzco valley, where he rested.

"When the time had elapsed, his companions started in several groups in search of him. One of these crossed over to the Island of Titicaca, where they were surprised to find a rock, and in this rock a cave lined with gold, silver, and precious stones. Thereupon they sunk the craft in which they had reached the island, and agreed among themselves, if anybody from the surrounding country should appear, to say that they had come out of the cave to look for the son of the Sun.

"A few days after, on the day of the full moon, they saw some canoes approaching, and they forthwith retreated to the cavern. Those who came in the canoes, when they approached the cliff and perceived the strangers viewing the cave apparently with the greatest unconcern, were surprised. The strangers gave them to understand that they had just come out of the rock and were in quest of the son of the Sun. This filled the others with profound respect for the newcomers; they worshipped them and made offerings to the rock, sacrificing children, llamas, and ducks. All together went back to the mainland, and shortly afterward learned that at Pacari Tampu the son of the Sun had come out of a cavern, called Capactocco, in great splendor, bedecked with gold, as brilliant in appearance as his father, and that with a sling he had hurled a stone with such force that the noise was heard for more than a league off, and the stone made in the rock a hole as large as a doorway.

"At this news all the people of those regions went to see the miracu-

lous being. Manco Capac received them as subjects. On this artifice he began to base his authority and the subsequent sway of the Inca tribe." (53)

Oliva mentions a tradition concerning Tiahuanaco according to which that place would be the oldest settlement in the land. He says that the original name for Tiahuanaco is Chucara and that nothing is known of its earliest history beyond that "there lived the great chief Huyustus, who, they say, was lord of the world." This was long previous to the time of Manco Capac. (54)

A certain degree of authentic tradition is discernible in Oliva's statements, but it is plain that these traditions were not obtained at first hand and that they had already been tinged by time and distance from the theater of events; moreover, Oliva arranged them to suit himself. A remote connection between Titicaca and its rock, and the first establishment of the Inca at Cuzco are indicated, but this does not signify an insular origin of the Inca. That origin is placed on an island, but on the coast of Ecuador, with hints at extra-American descent. This connection with the question of the first peopling of America makes it evident that Oliva stated the case in a subjective rather than in an objective manner like Betanzos, Cieza, and the Indian informants from Pacaritambo in 1542.

Father Bernabé Cobo, a contemporary of Oliva and also a Jesuit, is more objective than the latter. He begins with Tiahuanaco, affirming that its real name was Taypi Kala (signifying in Aymará *middle* or *central stone*), and that from Tiahuanaco departed those who, after the deluge, repopled the earth. Of Titicaca he states, in agreement with Cieza:

"The adoratory of the Sun on the Island of Titicaca was a large and solid cliff, the worship of which (and the reason why they consecrated it to the sun) has its origin in a ridiculous tale which is: The ancient affirm that having been without light from heaven for many days in that province, and all the inhabitants being in admiration, confusion, and awe, about this protracted obscurity and darkness, those who dwelt on the aforesaid Island of Titicaca saw one morning the sun come out of that rock with great splendor, from which they gathered that the rock was the house and home of the Sun, or the one thing which it most esteemed in the world; and so they dedicated it to the Sun and erected there a

sumptuous temple, for those times, although not so splendid as it became after the Incas enlarged and embellished it.

"Others relate this fable differently and say: The reason why this rock had been dedicated to the sun was because the sun was concealed under it and preserved during all the time covered by the deluge. When it was over, the sun came forth from it and began to illuminate the world in those parts, that rock being the first object which enjoyed its light. Whatever may have been the beginning and origin of this shrine, it was of great antiquity, and was always much revered by the people of the Collao before they were subjugated by the Incas." (55)

He then goes on to state that the report of the existence of the shrine came to the ears of Tupac Yupanqui, who determined to visit it. "He went to the Island of Titicaca and found the altar and temple dedicated to its gods," so he resolved to enhance its appearance. It is seen that Cobo attached some importance to the existence of the shrine at a period long prior to the Inca. What he says might be construed to mean that the existence of the shrine was unknown at Cuzco until then. (56) When Cobo and Oliva were in Peru, the Jesuits had under their spiritual care that part of the lake shore northwest of Copacavana, also inhabited by Aymará. They were, on that side, the nearest neighbors of the Augustines, who therefore had quite as fair an opportunity of becoming intimate with the Indians as had the Jesuits. On the other hand, the Augustines, having in charge the territory formerly occupied by the Inca, both on lake and mainland, held under their control the Aymará of those parts as well as the small Inca colony. To a certain extent they were more favorably situated than the Jesuits, but the Indian seldom, if ever, reveals to his confessor the things of the past, for they belong to his ancient creed and have nothing to do with the practices of another. Furthermore, at that time stringent measures were taken to eliminate aboriginal rites from the natives of Peru. It is true that the Jesuits were specially charged with this task, which made the Indians more suspicious of them; but where, as in the case of Copacavana and the island, they could not exercise jurisdiction, they were more lenient, hence the natives could talk more freely to them than to their official confessors at Copacavana. It is therefore possible that Cobo (who personally was a gifted investigator) obtained data even from people who knew ancient

lore which they would not divulge to the Augustines to whose parish they pertained. (57)

The Augustine monk Fray Alonso Ramos appears as a cornerstone of the information preserved by writers of his order from the seventeenth century. (58) Were it the object of this investigation to trace the origin of the Inca, the version given of it by Ramos would find its place here. It is a highly interesting confirmation of the story told by the two shamans from Pacaritambo in 1542, but in it not a word is said of Titicaca. Manco Capac is represented as the child of a medicine-man from Pacaritambo. (59) In another chapter his editor, Father Rafael Sans, mentions a popular belief in the descent of Manco Capac from Titicaca, tracing the visit of Tupac Yupanqui to the island to a notice given him of its shrine by an attendant thereof who went to Cuzco for the purpose. (60) Ramos also speaks of a mysterious white man, called Tunupa and Taapac, murdered by the Indians on Titicaca island, who impaled him on a stake of *chonta*-wood (*Bactris ciliata*). The shrine was in existence even at the very remote period at which this is said to have occurred. (61) Mention is made of the belief that, after several days of obscurity, the Sun came out from the sacred rock, and this is given as the cause of the cult afterward addressed to that cliff. (62) It is observed that Ramos agrees with Cobo in regard to the manner in which Titicaca was brought to the notice of Tupac Yupanqui. They were not only contemporaries, but neighbors for several years, hence it is not possible to determine whether their information was independently obtained, whether one copied the other, or whether the statement is an interpretation.

The Augustine Fray Antonio de la Calancha was also an inmate of the Copacavana convent and a contemporary of Ramos, whom he copies extensively. (63) In addition, he quotes the Licentiate Polo de Ondegardo, former *corregidor* of the city of Cuzco under the viceroy Toledo, and a zealous student of Indian antiquities. According to Calancha the investigations of Ondegardo were carried on "in all the country above Chuquiago [La Paz], Chuquisaca [Sucre], Potosi, and their surroundings, where the Licentiate Polo made his inquiries, and in that of Chucuito." (64) Under the supposition that he limited himself to those points, his Aymará traditions

would have come from northern Bolivia and southeastern Peru, and those of the Quichua from central Bolivia. But it is more than likely, in view of his position at Cuzco when Toledo made the official inquiries after 1570, that he also embodied lore from the Inca and their immediate neighbors. Calancha says that, according to what Ondegardo gathered, the first men lived in obscurity and were nearly all destroyed by a flood, but they multiplied again and the builders of Tiahuanaco were turned into stone; after which, at Tiahuanaco and on Lake Titicaca, the sun and moon appeared. "The sun at once went to the Indian Mango Capac, adopted him, made him king, . . . and then rose into the heavens." As his own opinion Calancha states that "the Indian Manco Capac, first king of Peru, was a native of Tiahuanaco, or of some village near it." (65)

There are several other Augustine writers of that period, among them Father Hippolyto Maracci (66); but their information may be regarded as condensed in the book of Fray Andrés de San Nicolás, for many years an inmate of Copacavana convent. (67) He is based largely on Ramos and Calancha, and admits that "the foundation which the Indians had in worshiping the island and the rock . . . was because on it the family of the Incas had their fabulous origin." (68) He then suggests an explanation of these fables, copying Ramos, but with the difference that he looks upon Manco Capac as the son of a chief of the lake region, hence as an Aymará, not a Quichua Indian. The farther we recede from the epoch of first contact of Europeans with the natives, the more and more does the objective rendering of traditions give way to opinions and explanations.

In the writings of the Quichua Indian Juan de Pachacuti Yamqui Salcamayhua, from the middle of the seventeenth century, we might expect to find untainted lore. (69) He tells us that the peopling of that part of South America took place from the southeast, from "above Potosi." After the country was settled, there came to the Collao a bearded man whom he calls Tonapa, also Viracocha Pachayachachican, who performed miracles and whom Salcamayhua therefore identifies with Saint Thomas the apostle. He describes the wanderings of this personage and his tribulations among the barbarous natives around Lake Titicaca, and concludes by stating

that "they say that the said Tonapa, after having liberated himself from the hands of those barbarians, remained some time on a rock called Titicaca," and that afterward he passed through Tiquina toward Chacamarca, and on his way came to a village called Tiahuanaco, where the people ridiculed his teachings. In punishment he changed them into stones. From Chacamarca he followed the Desaguadero to the south, finally reaching the ocean, where he disappeared. While in the Collao, Tonapa met a chief called Apotampo, who was the only one who gave ear to his teachings, in consideration of which Tonapa gave him "a piece of wood from his walking-stick." (70) This Apotampo was father to Manco Capac, to whom Salcamayhua also attributes the foundation of Cuzco, which place was then already occupied by Indians, so that by "foundation" the establishment of a regular settlement must be understood.

The analogy of these tales with those reported by Betanzos and Cieza is apparent, and the story of the "walking-stick," of which Tonapa gave a piece to Apotampo, recalls the magic wand spoken of by Garcilasso de la Vega. The traditions recorded by Salcamayhua are, therefore, probably authentic, minus such changes and additions which a century of intercourse with Europeans may have introduced. These changes occur with versions circulating outside of intimate circles of medicine-men and also with those preserved by shamans not especially entrusted with the keeping of ancient lore. The keepers of the faith are quite inaccessible to inquiry, and how much their knowledge may differ from current talk we have seen in the instance of the wizards from Pacaritambo in 1542. It does not appear that Salcamayhua belonged to the "knowing ones," who were closely watched at that time and even persecuted, for they were and still are those who, as it is said among the Aymará and the lower classes of the people in Bolivia, "know it all."

The testimony of the traditions which we have repeated here is to the effect that at a very remote period there existed some relation between the Island of Titicaca and natural phenomena of such importance as to leave a lasting impression on the memory of the aborigines; but the nature of these phenomena can only be conjectured. (71) In connection with extraordinary occurrences in nature it is sometimes mentioned that the Inca had their origin on Titicaca

island. It is not impossible that at a very remote period some intercourse may have existed between the island and the Cuzco valley. Folktales concerning that region of South America seem to indicate that tribal shiftings were in the main directed to the northward. These shiftings took place irregularly and covered a long period of time. (72) In the course of such changes Titicaca island, for some reason not yet ascertained, has secured a foothold in the myths and traditions of the people.

NOTES

1. The "Viracochas" here mentioned recall the "white and bearded men" of Cieza de León. See farther on.

2. Compare my article on "The Montezuma of the Pueblo Indians," *American Anthropologist*, October, 1892, p. 325; also Archaeological Institute of America, *Final Report*, vols. I and II.

3. Especially at the pueblo of Cochiti, New Mexico, where my deceased host, Juan José Montoya, was very fond of displaying a smattering of classical history, gathered at random in conversation with the priests. It would carry me entirely too far to refer in detail to the innumerable sermons, printed in the Quichua language, in which references to Greek and Roman history are made.

4. At Copacavana intercourse between the clergy and the aborigines was intimate in the sixteenth century, and many Indians could read and write. Perhaps one of the oldest documents of that kind from Peru is the statement, in writing, made by Francisco Tito Yupanqui, the Indian from Copacavana who carved the image of the Virgin now venerated at the Sanctuary. This document is from the latter part of the sixteenth century and undoubtedly genuine. See Ramos, *Historia*, p. 132 et seq.

5. *Historia general y natural* (vol. IV, lib. XLVI, p. 225): "A esta tierra vino antiguamente un grand señor con una gente que llaman Inga é agora se llaman orejones, é solo al superior le llaman Inga. . . . Este señor que llaman Inga pobló el Cuzco, é hizo una cibdad muy fuerte para residir él." . . . He is also the first to give the name or title of Capac Inca, applying it to the head war-chief. (Idem.)

6. Most of the original manuscripts of Betanzos from that time are in the national archives at Lima, Peru. Among them is also the *Doctrina Cristiana* in Quichua, showing that he was thoroughly versed in that idiom.

7. *Suma y Narracion de los Incas* (cap. I): "En los tiempos antiguos, dicen ser la tierra é provincia del Peru escura, y que en ella no habia lumbre ni dia. Que habia en este tiempo cierta gente en ella la cual gente tenia cierto señor que la mandaba y á quien ella era subjeta. Del nombre desta gente ó del señor que la mandaba no se acuerdan. Y en estos tiempos que esta tierra era toda noche, dicen que salió de una

laguna que es en esta tierra del Peru en la provincia que dicen de Collasuyo, un señor que llamaron Con Tici Viracocha, el cual dicen haber sacado consigo cierto número de gentes, del cual número no se acuerdan. Y como hubiese éste salido desta laguna, fuese de allí á un sitio que está junto á esta laguna que está donde hoy día es un pueblo que llaman Tiaguanaco, en esta provincia ya dicha del Collao; y como allí fuese él y los suyos, luego allí en improviso dicen que hizo el sol y el día, y que al sol mandó que anduviese por el curso que anda; y luego dicen que hizo las estrellas y la luna. El cual Con Tici Viracocha dicen haber salido otra vez antes de aquella, y que en esta primera vez que salió, hizo el cielo y la tierra, y que todo lo dejó oscuro; y que entonces hizo aquella gente que había en el tiempo de la oscuridad ya dicha; que esta gente le hizo cierto deservicio á este Viracocha, y come dello estuviese enojado, tornó esta vez postrera y salió como antes había hecho, y á aquella gente primera y á su señor, en castigo del enojo que le hicieron, hizolos que se tornasen piedra luego.

"Así como salió y en aquella mesma hora, como ya hemos dicho, dicen que hizo el sol y día, y luna y estrellas; y que esto hecho, que en aquel asiento de Tiaguanaco, hizo de piedra cierta gente y manera de dechado de la gente que despues había de producir haciendolo en esta manera: Que hizo de piedra cierto número de gente y un principal que la gobernaba y señoreaba y muchas mujeres preñadas y otras paridas y que los niños tenían en cunas, segun su uso; todo lo cual así hecho de piedra que lo apartaba á cierta parte; y que él luego hizo otra provincia allí en Tiaguanaco, formándolos de piedras en la manera ya dicha, y como los hobiese acabado de hacer mandó á toda su gente que se partiesen todos los que él allí consigo tenía, dejando solos dos en su compañía, á los cuales dijo que mirasen aquellos bultos y los nombres que les había dado á cada género de aquellos, señalandoles y diciendoles; estos se llamarán los tales y saldrán de tal fuente en tal provincia, y poblarán en ella, y allí serán aumentados; y estos saldrán de tal cueva, y se nombrarán los fulanos, y poblarán en tal parte, y así como yo aquí los tengo pintados y hechos de piedras, y así han de salir de las fuentes y rios, y cuevas y cerros, en las provincias que así os he dicho y nombrado; é ireis luego todos vosotros por esta parte (señalandoles hacia donde el sol sale), dividiéndoles á cada uno por sí y señalandoles el derecho que debía de llevar." The *Huaca* or *Achachila* cult is not infrequently stated to have originated in this creation myth. Sources that do not mention the legend of Viracocha still relate the Indian belief in descent of man from springs, rivers, rocks, and other natural objects.

Idem (cap. 11): "É así se partieron estos viracochas que habeis oido, los cuales iban por las provincias que les había dicho Viracocha, llamando en cada provincia, así como llegaban cada uno de ellos, por la parte que iban á la tal provincia, los que el Viracocha en Tiaguanaco les señaló de piedra que en la tal provincia habían de salir; poniendose cada uno destos viracochas allí junto al sitio dó les era dicho que la tal gente de allí había de salir; y siendo así, allí este Viracocha decía en alta voz: 'Fulano, salid é poblad esta tierra que está desierta, porque así lo mandó

el Con Tici Viracocha, que hizo el mundo! — Y como estos ansi los llamasen, luego salian las tales gentes de aquellas partes y lugares que ansi les era dicho por el Viracocha. Y ansi dicen que iban estos llamando y sacando las gentes de las cuevas, rios y fuentes é altas sierras, como ya en el capítulo antes deste habeis oido, y poblando la tierra hacia la parte dó el sol sale." I forego quoting the complete text of chapters II, III, and IV.

8. *Suma y Narración* (cap. IV, p. 14): "Y volviéndose estos indios que esto hicieron ansi á su pueblo, Manco Capac y su compañero Ayar Auca salieron de sus rancherías, llevando consigo sus cuatro mujeres ya nombradas, y caminaron para el pueblo de el Cuzco, donde estaba Alcaviza. Y antes que llegasen al pueblo, dos tiros de arcabuz, estaba poblado un pueblo pequeño, en el cual pueblo habia coca y ají; y la mujer de Ayar Ocho, él que se perdió en la cueva, llamada Mama Guaco, dió á un indio de los deste pueblo de coca un golpe con unos Ayillos y matóla y abríole de pronto y sacóle los bofes y el corazón, y á vista de los demas del pueblo, hinchó los bofes soplándolos; y visto por los indios del pueblo aquel caso, tuvieron gran temor, é con el miedo que habian tomado, luego en aquella hora se fueron huyendo al valle que llaman el día de hoy Gualla, de donde han procedido los indios que el día de hoy benefician la coca de Gualla. Y esto hecho, pasaron adelante Manco Capac y su gente, y hablaron con Alcaviza, diciendole que el sol los inviaba á que poblasen con él allí en aquel pueblo del Cuzco; y el Alcaviza, como le viese tan bien aderezado á él y su compañía, y las alabardes de oro que en las manos traían, y el demas servicio de oro, entendió que era así y que eran hijos del sol, y dijoles que poblasen donde mejor les pareciese. Y el Mango Capac agradecióselo, y paresciéndole bien el sitio y asiento dó agora es en esta ciudad del Cuzco la casa y convento de Santo Domingo, que antes solia ser la casa del Sol . . . hizo allí el Mango Capac y su compañero, y con el ayuda de las cuatro mujeres, una casa, sin consentir que gente Alcaviza les ayudase, aunque les querian ayudar; en la cual se metieron ellos dos y sus cuatro mujeres."

There is a confirmation of this tradition (of the manner in which Manco Capac established himself and his people at Cuzco) in an official document of January 26, 1572, forming part of the *Informaciones acerca del Señorío y Gobierno de los Incas; Hechas por Mandado de Don Francisco de Toledo* (p. 230). Four Indians from Cuzco and from the *ayllu* or clan "Ayaruchu," stated that theirs was one of the three original clans inhabiting the Cuzco valley previous to the Inca, that they were afterward called "Alcauizas" by the Inca, and that Manco Capac "entró con mafias donde los dichos tres Ayllus estaban y tenían sus asientos halagándolos con palabras, y con gente que iba trayendo de otras partes y metiéndola de noche, se les iba entrando por fuerza en las tierras que tenían, y en diciéndole los dichos indios que no se les entrase en sus tierras, les respondia que callasen, que todos eran hermanos. . ." I quote this only to show that the general character of the tales reported by Betanzos bears the stamp of authenticity and genuineness, so far as their Indian origin is concerned. To the *Informaciones* I shall refer later.

9. *Primera Parte de la Crónica del Perú* (cap. ciii, p. 445).

10. *Idem* (p. 443): "Y que el uno dellos entró en la laguna de Titicaca y que halló en la isla mayor que tiene aquel palude gentes blancas y que tenían barbas, con los cuales peleó de tal manera, que los pudo matar á todos." This tale recalls the "gentlemen" (*caballeros*) living on the island, before the time of the Inca, about whom we were told while on the island.

11. The series of Inca war-chiefs as given by the various authors do not always agree, but I cannot enter into a discussion of this here. We are fortunate if we can even approximate the century in which an event has taken place. Only with the war-chief Tupac Yupanqui begins a certain agreement among the various sources.

12. *Segunda Parte de la Crónica* (cap. v, p. 5): "Antes que los Incas reinasen en estos reinos ni en ellos fuesen conocidos, cuentan estos indios otra cosa muy mayor que todas las que ellos dicen, porque afirman questuvieron mucho tiempo sin ver el sol, y que padeciendo gran trabajo con esta falta, hacian grandes votos é plegarias á los que ellos tenían por dioses, pidiéndoles la lumbre de que carecian: y questando desta suerte, salió de la isla de Titicaca, questá dentro de la gran laguna del Collao el sol muy resplandeciente, con qué todos se alegraron. Y luego questo pasó, dicen que de hacia las partes del Mediodia vino y remanesció un hombre blanco de crecido cuerpo, el cual en su aspecto y persona mostraba gran autoridad y veneracion, y queste varon, que así vieron, tenía tan gran poder que de los cerros hacia llanuras y de las llanuras hacia cerros grandes, haciendo fuentes en piedras vivas: y como tal poder reconociesen llamabanle Hacedor de todas las cosas criadas, Principio dellas, Padre del sol, porque, sin esto, dicen que hacia otras cosas mayores porque dió ser á los hombres y animales, y que, en fin, por su mano les vino notable beneficio. . . . Generalmente le nombran en la mayor parte Ticiviracocha, aunque en la provincia del Collao le llaman Tuapaca y en otros lugares Arnauan."

13. *Segunda Parte* (cap. iv, p. 4): "Tambien cuentan lo que yo tengo escripto en la primera parte, que en la isla de Titicaca, en los siglos pasados hobo unas gentes barbadas, blancas como nosotros, y que saliendo del valle de Coquimbo un capitan que había por nombre Cari, allegó á donde agora es Chucuito de donde despues de haber hecho algunas poblaciones, pasó con su gente á la isla y dió tal guerra á esta gente que digo, que los mató á todos. Chirihuana, gobernador de aquellos pueblos, que son del Emperador, me contó lo que tengo escripto." . . . The Indian word *Chirihuana* is given by Cieza as the name of a "governor" of Indians under Spanish rule and by Spanish appointment. Among the Aymará there is a cluster of dancers called "Chirihuano." It is likely that "Chirihuana" is derived from *Chiri-Huayna* meaning "dark youth," which would confirm the suggested etymology of the name of the dancers, of which I have treated in a previous chapter. It is well to remember also that titles and surnames of Indians were and are often understood as personal names. The chief alluded to may have been a

Chirihuanos; if so, this would confirm the statement of our informant on Titicaca island to the effect that the Chirihuanos are one of the most ancient, now esoteric, groups among the Aymará, and at the same time would give greater importance to the tradition, as folklore preserved by a particular cluster of shamans.

14. *Primera Parte de la Crónica*, (cap. c, p. 443): "Antes que los Ingas reinasen, cuentan muchos indios destos collas que hubo en su provincia dos grandes señores, el uno tenía por nombre Zapana, el otro Cari, y que estos conquistaron muchos pucars, que son sus fortalezas: y que el uno dellos entró en la laguna de Titicaca, y que halló en la isla mayor que tiene aquel palude gentes blancas y que tenían barbas, con los quales peleó de tal manera, que los pudo matar á todos . . . y al fin de haber hecho notables cosas estos dos tiranos ó señores que se habían levantado en el Collao, volvieron las armas contra sí dándose guerra el uno al otro procurando el amistad y favor de Viracocha inga, que en aquellos tiempos reinaba en el Cuzco, el cual trató la paz en Chucuito con Cari, y tuvo tales mafias, que sin guerra se hizo señor de muchas gentes destos collas."

15. For details of the biography of Cieza, I refer to the Introduction of the *Segunda Parte de la Crónica* by Jimenez de la Espada, and to vol. II of Vedia's *Historiadores primitivos de Indias* (Noticias biográficas, pp. ix, x).

16. *Discurso sobre la Descendencia y Gobierno de los Ingas*, published in 1892 by Jimenez de la Espada under the title *Una Antigüalla Peruana*. I owe the knowledge of this highly interesting document to the notice which my esteemed friend Carlos A. Romero, custodian of the National Archives at Lima, gave me of its existence at the library, accompanying the information with the book itself. The text of what I have translated is: "Al tiempo que gobernó en este reino del Perú el licenciado Vaca de Castro, pretendiendo con mucha solicitud saber la antigüalla de los indios deste reino y origen dellos, de los ingas, señores que fueron destos reinos, y si fueron naturales desta, tierra ó advenedizos de otras partes . . . hizo juntar y parecer ante sí á todos los ingas viejos é antiguos del Cuzco y de toda su comarca, é informarse dellos, como se pretendió, ninguno informó con satisfaccion sino muy variablemente cada uno en derecho de su parte, sin saber dar otra razon mas que todos los ingas fueron descendientes de Mango Capac, que fué el primer inga, sin saber dar otra razon, no conformando los unos con los otros. E vistose apuradas en esta demanda, dixeron que todos los ingas pasados tuvieron sus *Quipu-Camayos*, así del origen y principio dellos, como de los tiempos y cosas acontecidas en tiempo de cada señor dellos: é dieron razon, que con la venida de *Challcochima é Quisquis*, capitanes queran por *Atao-vallpa Inga* que destruyeron la tierra, los cuales mataron todos los *Quipo-camayos* que pudieron haber á las manos y los quemaron los quipos, diciendo que de nuevo habían de comenzar de *Ticciapac Inga*, que así le llamaron á *Atao Vallpa Inga*, é dieron noticia de algunos que quedaron, los cuales andaban por los montes atemorizados por los tiranos pasados,

Vaca de Castro envió luego por ellos y le trujeron antél cuatro muy viejos.

"Estos Quipocamayos habian sido á manera de historiadores contadores de la razon, y fueron muchos, y en todos ellos habia conformidad en sus quipos y cuentas: no tenian otro ejercicio mas de tener gran cuenta con sus Quipos ansi del origen, principio de los ingas, come de cada uno en particular, desde el dia que nacia cada uno como de las cosas acontecidas en tiempo de cada señor dellos. Estaban obligados á dar cuenta y razon de todo lo que les demandasen, y estaban obligados á enseñar á sus hijos y tenerlos bien examinados y verdaderos, dándoles á conocer las significaciones de cada cosa. A estos se les daba racion muy cumplida de todo género de mantenimientos para cada mes del año, y se les daban mujeres y criados, y ellos no habian de tener otra ocupacion mas de tener gran cuenta con sus quipos, y tenerlos bien alistados con la relacion verdadera. Los que trujeron ante Vaca de Castro pidieron término para alistar sus quipos, y se les dieron y en partes cadauno de por sí apartados los unos de los otros, por ver si conformaban los unos con los otros en las cuentas que cada uno daba. Diéron este cargo á personas de mucha curiosidad por interpretacion de Pedro Escalante indio ladino en lengua castellana, el cual servia á Vaca de Castro de intérprete, con asistencia de Juan de Betanzos y Francisco de Villacastin vecinos desta ciudad del Cuzco, personas que sabian muy bien la lengua general deste reino, los cuales iban escribiendo lo que por los Quipos iban declarando." It would be too prolix to quote the full text of the Indian's talk (p. 5).

17. *Discurso* (p. 9): "Los dos Quipocamayos de los cuatro que ante Vaca de Castro parecieron, el uno llamado Callapifia y el otro Supno [perhaps *Sucso*, which is a Quichua name], los cuales fueron naturales de Pacaritambo, estos dieron razon que sus padres y abuelos, como Quipocamayos que fueron de los ingas, contaban á sus hijos y nietos, encomendando el silencio dello, haber sido Mango Capac, primer inga hijo de un Curaca, Señor de Pacaritambo, que no le alcanzaron el nombre porque como naturales del mismo lugar, alcanzaron el origen del." (p. 9.)

18. Special attention is called to the phrase "encomendando el silencio dello." It shows that the *true* story, divested of mythologic embellishment, was known and preserved, but as a *secret* not fit to be told the "vulgar." This hints at esoterism existent long prior to the pressure exerted upon the shamans after the conquest. I also call attention to the words "sino muy variablemente cada uno en derecho de su parte." This means that the Inca Indians first questioned, replied each one to suit his own interest, and different from the others.

19. *Historia del Descubrimiento y Conquista de la Provincia del Perú* (reprint in vol. II of *Historiadores primitivos*, of Vedia, cap. x, p. 470): "En todas las provincias del Perú habia señores principales, que llamaban curacas. . . . Estos señores mantenian en paz sus indios . . . sin tener señor general de toda la tierra, hasta que de la parte del Collao por una gran laguna que alli hay, llamada Titicaca, que tiene ochenta leguas de

boja, vino una gente muy belicosa, que llamaron ingas: los cuales andan tresquilados y las orejas horadadas, y metidos en los agujeros unos pedazos de oro redondo con qué les van ensanchando. Estos tales se llaman ringrim, que quiere decir oreja. Y al principal dellos llamaron Zapalla inga, que es solo señor, aunque algunos quieren decir que le llamaron inga Viracocha, que es tanto como espuma ó grasa de la mar; porque, como no sabían el origen de la tierra donde vino, creían que se había criado de aquella laguna. . . . Estos ingas comenzaron á poblar la ciudad del Cuzco."

20. *Relacion* (p. 234): "Unos dicen que salió de la isla de Titicaca ques una isla questá en una laguna en el Collao, que tenía sesenta leguas en torno. . . . Otros indios dicen queste primer Señor salió de Tambo; este Tambo está en Condesuyo seis leguas del Cuzco poco mas ó menos. Este primer Inga dicen se llamaba Inga Vira Cocha" . . .

21. *Segunda Parte de la Crónica* (p. 3): "Porque yo lo que voy contando no tengo otros testimonios ni libros que los dichos de estos indios." (p. 14:) "Y parece que los pasados Incas, por engrandecer con gran hazafia su nacimiento, en sus cantares se apregonan lo que en esto tienen." (cap. xi, p. 35:) "Y así, sabido lo que se ha de decir de lo pasado en semejantes fiestas de los señores muertos, y si se trata de guerra por el consiguiente, con orden galano cantaban de muchas batallas que en lugares de una y otra parte del reyno se dieron; y por el consiguiente, para cada negocio tenían ordenados sus cantares ó romances, que, viniendo á propósito, se cantasen para que por ellos se animase la gente con lo oír y entendiesen lo pasado en otros tiempos, sin lo inorar, por entero. Y estos indios que por mandado de los reyes sabían estos romances, eran honrados por ellos y favorecidos, y tenían cuidado grande de los enseñar á sus hijos y á hombres de sus provincias los mas avisados y entendidos que entre todos se hallaban; y así, por las bocas de unos lo sabían otros, de tal manera, que hoy día entre ellos cuentan lo que pasó ha quinientos años, como si fueran diez." He calls the *quipucamayos* simply "*contadores*," and limits their duties to recording tribute in every district or tribe, "y por estos nudos tenían la cuenta y razon de lo que habían de tributar los questaban en aquel distrito." I use the term "district," wishing however to have it understood as equivalent to "tribal range."

22. *The Fables and Rites of the Incas*. (In *Narratives of the Rites and Laws of the Incas*, published by the Hakluyt Society, 1873, after translations by Sir Clements R. Markham, pp. 4 to 8.) The full title of the manuscript in the National Archives of Lima is: *Relacion de las fabulas y ritos de los Yngas hecha por Christoval de Molina*, etc. The hospital for Indians was founded at Cuzco with the aid of voluntary donations of the Spanish inhabitants (to the amount of 17,314 pesos—a large sum for that time). The subscriptions were opened March 15, 1556, and in eleven days 14,500 pesos had been subscribed. See *Relacion de las mandas y limosnas que los vezinos y abitanter hizieron en la fundacion del dicho hospital*, MS., original in *Libro viejo de la fundacion de la gran ciudad del Cuzco*.

23. For Garcilasso's writings I used, while in Peru, the original edition of his *Comentarios Reales*. My library not having arrived at the date I rewrite this paper at New York, I have used translations; thus I shall refer also to Baudoin's French translation occasionally. The passages quoted are found in the original of the *Comentarios Reales* (vol. I, p. 14 et seq., and caps. xv to xvii inclusive).

24. *Comentarios* (vol. I, p. 14), also *Histoire des Yncas Rois du Pérou* (1704, vol. I, livre I, cap. xviii, p. 73 et seq.).

25. *Histoire des Yncas*, vol. I, livre I, cap. vi, p. 21, et seq.

26. *Idem*, vol. II, p. 33, et seq.

27. *Idem*, p. 489.

28. *Idem*, vol. I, p. 157.

29. *Informaciones acerca del Señorío y Gobierno de los Incas*.

30. *Idem* (p. 256): "Se les leyó a los dichos indios todo lo que estaba escrito y pintado en los dichos cuatro paños, así de los bultos de los Ingas, como de las medallas de sus mujeres é ayillos, é la historia de las cenefas de lo que sucedió en tiempo de cada uno de los Ingas, y la fábula y notables que van puestos en el primer paño, aquellos dicen de Tambotoco, y las fábulas de las creaciones del Viracocha que van en la cenefa del primer paño por fundamento y principio de la Historia." . . .

31. *Idem* (p. 267): "Otro testigo es don Diego Lucana, principal de los mitimas Cañaris y Chachapoyas Llaguas, que están en el repartimiento de los Lurinhuanas, en la Purificación de Huacho, . . . confirma todo lo anteriormente dicho, y añade que Manco Capac había salido de una Peña de Plomo." This Lucana must have been either from southern Ecuador or from northeastern Peru, hence was not conversant with ancient lore at first hand. In regard to the derivation of *Titicaca*, it is certain that, in Quichua, *titi* means "lead" or "tin," and *kaka* means "rock"; the latter word has also the same signification in Aymará. But *Titicaca* is an Aymará, not a Quichua, word. The Indians who dwelt on and near the island, long before the Inca appeared there, were Aymará, who gave the name to the island in their language, in which it signifies "rock of the wild cat" or "cat-rock." For the Quichua etymology see Torres Rubio, *Arte y Vocabulario* (fol. 76, 162).

32. *Histoire du Pérou* (French translation of the *Miscelánea austral*, by Ternaux-Compans). His opinion on the traditions is on page 11: "Je pense donc qu'une famille qui habitait le haut Pérou conçut, vers cette époque, le projet de fonder une monarchie. Après avoir fabriqué secrètement des vêtements brillants d'or et de Pierrieres, ils quittèrent le lieu de leur habitation, et ne voyagèrent que de nuit, pour éviter d'être vus, ils arrivèrent à cinq lieues de Cuzco, dans un endroit où les habitants du voisinage avaient l'habitude de se réunir pour y tenir une espèce de marché et y échanger les produits de leur industrie — ils apparurent tout à coup au milieu d'eux et profitèrent de leur étonnement pour leur persuader qu'ils étaient enfants du soleil, et envoyés par lui." This same explanation is offered later, by Anello Oliva. I shall refer to it hereafter.

The mention of Titicaca is found on page 144: "Beaucoup d'Indiens prétendent que les frères qui apparurent à Pacari-tambo, comme je l'ai raconté dans le premier chapitre, étaient nâtifs de Titicaca, et que ce fut dans cet endroit que l'on fabriqua les vêtements avec lesquels ils se montrèrent la première fois."

33. Torres Saldamando, *Los Antiguos Jesuitas del Perú* (pp. 2-10).

34. I use the copy of the *Historia natural y moral de las Indias* of 1608, published at Madrid (libro vi, cap. 19, p. 429): "Por Mandado de la Magestad Católica del Rey don Felipe nuestro señor, se hizo averiguacion con la diligencia que fué posible del origen, y ritos, y fueros de los Ingas, y por no tener aquellos Indios escrituras, no se pudo apurar tanto como se desseára." This is clearly an allusion to the investigations conducted by the viceroy Toledo and reported on in the *Informaciones acerca del Señorío y Gobierno*, quoted above.

35. *Historia natural y moral* (lib. i, cap. 25, pp. 82, 83).

36. *Idem* (lib. vi, cap. 20, p. 432).

37. *Origen de los Indios* (edition of 1729). The first edition of this important work bears date 1607 and is much less voluminous. Barcia, the editor of the second edition, made some additions to the text.

38. The title of Gomara's Chronicle, second edition, is *Primera y Segunda Parte de la historia general de las Indias hasta el año de 1551*, etc., Medina del Campo, 1553. Gomara was born at Sevilla in 1510; the date of his death is not known to me as yet. Few authors who wrote on Spanish America in the sixteenth century have been so severely criticized by contemporaries as Gomara; but these criticisms apply to incidents of the conquest rather than to the descriptions of customs, or to traditions reported by him. Gomara owed the disfavor he suffered from the Spanish government to his intimate relations with Cortés.

39. I use the reprint of Gomara in vol. 1 of Vedia, *Primera y Segunda Parte de la Historia general de las Indias* (p. 231): "Su naturaleza fué de Tiquicaca, que es una laguna en el Collao, cuarenta leguas del Cuzco, la cual quiere decir isla de plomo; cá de muchas isletas que tiene pobladas, alguna lleva plomo, que se llama tiqui. Boja ochenta leguas; rescibe diez ó doce rios grandes y muchos arroyos; despídelos por un solo rio, empero muy ancho y hondo, que va á parar en otra laguna cuarenta leguas hacia el oriente, donde se suma, no sin admiracion de quien la mira. El principal inga que sacó de Tiquicaca los primeros, que los acaudilló, se nombraba Zapalla, que significa solo señor. Tambien dicen algunos indios ancianos que se llamaba Viracocha que quiere decir grasa del mar, y que trajo su gente por la mar. Zapalla, en conclusion, afirman que pobló y asentó en el Cuzco, de donde comenzaron los ingas á guerrear la comarca." In these statements of Gomara there is something that recalls Betanzos and Cieza, as well as the subsequent tales related by Anello Oliva.

40. Levinus Apollonius, *de Peruana Regionis, inter Noui Orbis prouincias Celeberrima, inuentione: & in eadem gestis*, libri v, Ant-

werp, 1567 (folio 36): "Tantis per dum ab Titicaca lacu Ingae numerosa multitudine profusi, Cuzconem occuparunt, Apud hos pures onrem summarii vniuersae, quem Ingam Zapalim nominarūt." It is likely that Apollonius copied Gomara and not Zárate.

41. The first edition of Herrera is from 1601-1615. I use the one (edited by Barcia) from 1726, 1728-1730, *Historia general de los Hechos de los Castellanos en las Islas y Tierra firme del Mar Océano*. (3 volumes.)

42. Dr. A. von Frantzius, (*San Salvador und Honduras im Jahre 1576*), published in 1873, a "cheap" criticism of Herrera, accusing him of mechanical copying, lack of critical spirit, and the like. Had this German traveler (otherwise a worthy man) studied Herrera with more of the spirit which he accuses the Spanish chronicler of not possessing, he might have modified his opinion.

43. *Historia general*, década v, lib. III, cap. vi, p. 61.

44. Idem.

45. *Las Repúblicas del Mundo*, Salamanca, 1595, vol. III, lib. II, cap. XI, f. 163.

46. *Extirpacion de la idolatria del Perú*, Lima, 1621.

47. *Contra Idolatriam*, MS. quoted by Calancha.

48. There are various treatises and reports by this energetic and active priest. An unpublished one is in my possession as a copy, taken from the original in the Dominican convent at Lima.

49. *Carta pastoral de Exortacion e Instruccion Contra la Idolatria de los Indios del Peru*, 1649.

50. Only the French translation of a part of this work is at my command. Its title is *Mémoires historiques sur l'ancien Pérou*. (Collection Ternaux-Compans, vol. XVII, second ser., p. 3): "Voilà, du moins, ce que j'ai pu apprendre dans les chants historiques et les anciennes traditions des Indiens." Thus, he claims to derive his information from songs and oral tradition. It implies that he regards them as the chief sources. He wrote about 1652. (Preface, p. viii.)

51. *Origen de los Indios*.

52. *Historia del Perú*, lib. I, cap. II, p. 23: "Noticia será esta que no se hallará tan facilmente en las historias, por lo menos con auer visto, leído muchas no la he alcanzado dellas, y en el tiempo que estoy escribiendo esta vinieron a mis manos unos papeles originales, que me dió el doctor Bartholomé Cervantes, racionero de la Sancta yglesia de los Charcas en que hallé con puntualidad lo que muchos años á é deseado saber, y diré aun que solo por relacion del Quipucamayó Catari coronista que fué de los Incas, y lo fueron sus padres y todos lo tuvieron del primer coronista inuentor de los quipos que dixe arriba llamado illa, tomando pues la corriente de su principio." . . .

53. *Historia del Perú*, lib. I, cap. II, pp. 23-37. It is too long to quote in full in the text.

54. Idem (p. 38): "Luego diuidió el Reino en quatro partes que

son las mismas en qué el gran Huyustus antes que començara á reinar su padre Manco Capac lo auia repartido . . . [p. 39:] y passó á las partes de Tyay Vanacu por ver sus edificios que antiguamente llamaban Chucara, cuya, antigüedad nadie supo determinalla. Mas solo que alli viuia el gran señor Huyustus que decian era Señor de todo el mundo." The word *Huyustus* is somewhat strange. It is neither Quichua nor Aymará, and recalls the way in which the Indians of these parts would pronounce "Augustus."

55. *Historia del Nuevo Mundo*, vol. iv, p. 55: "El adoratorio del sol que estaba en la isla de Titicaca, era una grande y firme peña, cuya veneracion y motivo porque la consagraron al Sol tiene por principio y fundamento una novela bien ridicula, y es, que los antiguos afirman, que habiendo carecido de luz celestial muchos dias en esta provincia, y estando todos los moradores della admirados, confusos y amedrentados de tan obscuras y largas tinieblas, los que habitaban la isla sobredicha de Titicaca vieron una mañana salir al Sol de aquella peña con extraordinario resplandor, por lo cual creyeron ser aquel peñasco la casa y morada verdadera del Sol ó la mas acepta cosa á su gusto de cuantas en el mundo habia; y asi se lo dedicaron y edificaron alli un templo suntuoso para en aquellos tiempos, aunque no lo fué tanto como despues que los Incas lo engrandecieron é ilustraron.

"Otros refieren esta fábula diferentemente y dicen, que la razon de haberse dedicado al Sol esta peña, fué porque debajo della estuvo escondido y guardado el Sol todo el tiempo que duraron las aguas del Diluvio, el cual pasado, salió de alli y començó á alumbrar al mundo por aquel lugar, siendo aquella peña la primera cosa que gozó de su luz. Como quiera que haya sido el principio y origen deste santuario, él tenia muy grande antigüedad y siempre fué muy venerado de las gentes del Collao, antes que fueran sujetadas por los Reyes Incas."

56. "El camino por donde vino á noticia del Inca y ser tan celebrado fué este . . . uno de los viejos que desde su puericia servia en el ministerio del, . . . se puso en camino para la ciudad del Cuzco . . . y presentandose ante él con las ceremonias y sumisiones que suelen usar, le dió cuenta larga del origen y veneracion deste santuario, de que el Inca hasta entónces no habia tenido noticia."

57. On the subject of confession, see Alonso de la Peña Montenegro, *Itinerario para Parrochos de Indias*, Antwerp, 1754, lib. iv, trat. iii, secs. i and ii, p. 538 et seq.; Acosta, *De procuranda indorum salute*; Juan de Solorzano Pereira, *Politica indiana*, edition of 1703, lib. ii, cap. xxix, etc., and many other authors.

58. The work of Father Ramos Gavilan is exceedingly rare. I know of only three copies, one of which was taken to Spain by Father Rafael Sans, while two are still in Bolivia. The National Library at Lima has no copy of the work. My friend the Right Reverend Bishop of La Paz, Fray Nicolas Armentia, had the kindness to compare the text of one of these copies with the book of Father Sans, and to furnish me with the title of the original, which is *Historia del célebre y milagroso Santuario*

de la Ynsigne Ymágen de Nra Sra de Copacabana, Lima, 1621. Of the partial reprints of the work by Father Sans there are two rare editions, the first one of which, dated 1860, contains a map of Lake Titicaca, which is by no means indifferent although badly printed, and an outline sketch of Copacavana which is also reasonably exact. It is sometimes not easy to separate what belongs to the original of Ramos from what is due to the pen of his editor, although, thanks to the painstaking collation of Bishop Armentia, it has now become possible.

59. In the first edition by Sans: *Historia de Copacabana y de su Milagrosa Imágen de la Virgen* (1860, caps. 3 and 4, p. 4), Sans says: "Aquí empieza lo obra que compendiamos." He has omitted parts of the original, for the just reason that his copy lacked chapters I, II, and part of chapter III of the work. From the copy made of chapter II by Armentia I obtained what Ramos says concerning the origin of the Inca, and not a word is said in it of Titicaca. The Inca are said to have originated at Pacari-tambo.

60. *Historia de Copacabana* (caps. I-II). This first chapter is from the pen of Sans exclusively. Caps. III-IV, p. 4, mention the story of the old man who went to Cuzco, attributing it to Ramos.

61. *Idem*, p. 54 et seq.

62. *Idem*, cap. VIII, p. 12: "El fundamento de la estimacion de esta isla fué el haberse creído por los antiguos que, habiendo estado en tinieblas algunos días, vieron despues salir al sol de aquella peña." I call attention to the various versions about the state of darkness in which the region is said to have been plunged. Some authors speak of a long period of obscurity, while others mention only the darkening of the skies during a few days. Such a short period of obscurity occurred in the year 1600, in consequence of the eruption of the volcano of Omate, south of Arequipa, described in *Historia del Colegio de la Compañia de Jesus de Arequipa y Reventazon del Volcan de Omate*, 1600 (MS. in the National Archives at Lima). The obscurity produced by the ashes, even on Lake Titicaca which lies about 120 miles away in an air-line, was such that Ramos (*Historia*, p. 120) says: "Viendose los de Copacabana oprimidos con tan densa obscuridad, sin ver la luna, ni el sol, ni la laguna, ni aun los cerros del pueblo."

63. *Crónica Moralizada*, vol. II.

64. *Idem*, vol. I, lib. II, cap. X, p. 366. "Asentado esto se conforman los Autores en dezir, que en todas las tierras arriba de Chuquiago, Chuquisaca, Potosí i sus comarcas, dóde el Licenciado Polo izo la averiguacion, i en las de Chucuito. . . . [Page 367:] Y así irritado del todo les arrojó tan gran aguacero, i tan inmensa cantidad de agua, que aegó todos los ombres, de los quales se escaparon algunos (no culpados), permitiendoles Dios, que se subiesen en altísimos árboles, en coronas de los encumbrados montes, i se escondiesen en cuevas, i grutas de la tierra, de donde los sacó, quando el llover avia cesado, i les dió orden que poblasen la tierra, i fuesen dueños della, donde viviesen alegres i dichosos. . . . I convirtió á todos los maestros destros adoratorios en piedras duras. . . .

Asta entonces no avia el Pachachayachachic criado al Sol, la Luna i las estrellas, i fuélas á criar al pueblo de Tiaguanaco, i á la laguna Titicaca de Chucuito. El Sol se fué luego al Indio Mangocapac i le prohibió é izo Rey. . . ." The story about the deluge has a suspicious analogy with Mosaic tradition; and that about the changing into stone of the artisans (*maestros*) who made the monuments at Tiahuanaco might easily be a "myth of observation."

65. *Ibid.*, page 93: "Era natural de Tiaguanaco, ó de algũ pueble-zuelo conjunto á él."

66. *De diva virgine, Copacavana, in p̄ruano novi mundi Regno celebrima. Liber vnus, Quo eius Origo, et Miracula compendio descripta*, Rome, 1656.

67. *Imágen de N. S. de Copacavana*.

68. *Idem*, fol. 19.

69. *Relacion de Antigüedades del Perú*.

70. *Relacion*, page 234: "Dizen que en el tiempo de *Purunpacha* todas las naciones de *Tauantinsuyu* benieron de hazia arriba de Potosi tres ó quatro exercitos en forma de guerra, y assi los venieron poblando, tomando los lugares, quedandose cada vno de las compañías en los lugares baldios; á este tiempo se llaman *Ccallapacha* ó *Tutayachacha*; y como cada vno cogieron lugares baldios para sus beuiendas y moradas, esto le llaman *Purunpachacha Raccaptin*, este tiempo." For the rest see pp. 236-240.

71. I call attention to the darkening of the skies at Copacavana in 1600, in consequence of the eruption of Omate, previously mentioned.

72. Cieza, *Primera Parte de la Crónica*, cap. cxvi, p. 453: "En el Perú no hablan otra cosa los indios, sino decir que los unos vinieron de una parte y los otros de otra, y con guerras y contiendas los unos se hacian señores de las tierras de los otros, y bien parece ser verdad, y la gran antigüedad desta gente por las señales de los campos que labraban."

AN ARIKARA STORY-TELLING CONTEST

By GEORGE A. DORSEY

Among the Arikara the telling of tales is a common practice, especially during the winter nights. In addition to the great mass of legends and traditions which form the tribal lore, and which are related both in the family circle and during ceremonial gatherings, short tales of personal adventure, generally containing an element of the supernatural, are often recounted among the men during the intervals of a ceremony. The following incidents were related while the food was being prepared for a ceremony at the lodge of Strike-Two, an hereditary chief of the Arikara — the first, by Bull's-Neck :

"Another man and I went on a buffalo hunt. We saw a bunch of buffalo. We crawled up to them, but they ran away. Every time we came near them they ran away, so we talked and tried to get close to them. One time when the buffalo were in a ravine, we lay down on our bellies and crawled until we came in sight of the buffalo ; then both of us shot, but both of us had aimed at the same buffalo. We went up to the buffalo and commenced to skin it. The other man called me, and said : 'Look at the buffalo's rump !' I looked, and there I saw an eye. We both exclaimed, 'No wonder we could not approach the buffalo any closer, for this one has an eye in his rump !'"

At the conclusion of this tale, the other men began to laugh. After the laughter had subsided, Bull's-Neck continued with the following :

"That man sitting over there killed a rabbit and brought it to my house. I skinned the rabbit, and on cutting it open I found one large heart hanging down from the heart. The other heart was in its proper place. That man sitting over yonder killed the rabbit and saw the two hearts ; he will tell you if I am telling a true story."

Again there was laughter, but no one in the circle seemed as yet ready to continue the contest, whereupon Bull's-Neck continued with another tale, as follows :

"I was riding on my pony, hunting my ponies. I went to yonder hills. As I neared the top of the hill I saw an old buffalo skull sitting on top of the hill. As I approached the skull, my pony neighed. As soon as my pony neighed, I saw the skull turn over. That young man yonder was with me, and he knows that what I tell is true. We did not turn the skull back in place, but left it as it turned over, and to this day it is sitting as we left it."

This tale provoked even more laughter than the ones preceding it, and one of the priests spoke up and called the old man a liar. He received the compliment with perfect good nature, and continued with still another story :

"That young man sitting yonder, his wife who is in the other room, and myself, went after wood. We went into a place where there was dry willow. The willows were so thick that I could hardly get through them. The woman called me, and I went. There, where she was, was a young eagle or chicken-hawk trying to fly through the willows, but the wind was blowing hard, so that the willows blew together and the hawk could not fly away. I went to it and hit it with a stick. I then took the hawk and killed it, plucked its feathers, and laid it upon the wood in a wagon-box. I left the feathers upon the wings and tail. I wanted to roast the bird when I reached home. The woman spoke as we started, saying, 'Look at that bird flying ! It looks like the bird you had in the wagon ! The woman further said, 'I believe it is.' I looked for my bird, but it was gone. I looked overhead. I became frightened and went away from the people. I went to the mountains and stayed for several days, but as my bird did not come back, I returned home, and never saw it any more."

By this time, others thinking that they should be given an opportunity, a man named Enemy's-Heart spoke up, saying, "Give us a chance to tell a story ; I will relate to you an incident that is true." And he told the following :

"I went buffalo hunting with another man. We found a bunch of buffalo cows. We killed one that looked rather thin, and hollow in the belly as if it had no entrails. The other man then took some grass and began to rub it upon the buffalo. I said, 'You are not doing right ; this is the way to do that !' I took some wild sage and began to rub the buffalo with it, over the belly, under the fore-legs, and all over. I was grunting all this time. When I was through, I said to the other man, 'Now cut the buffalo upon the breast and see if there is any fat.' The other man cut the buffalo

open, and when he did so, he said, 'Why, you have done something wonderful; you have made the buffalo fat!' We skinned the buffalo, and when we got to the belly, we noticed that it was very hollow. I cut the leg off at the shoulder; then I cut the shoulder. While I went to find a stone to sharpen my knife, the other man called me, and said: 'This cow has a calf in her, but it is not in her womb, but in her paunch!' Surely a calf was moving in the cow's paunch! We took out the paunch, laid it aside, and went home with our meat. The people did not believe us, so we took them to the place, and they saw the calf in the cow's paunch."

Upon concluding, Enemy's-Heart turned to old Bull's-Neck and said, "All this that I have told you is true." All now laughed, and Enemy's-Heart continued, relating the following:

"I was hunting antelope in the winter time. I killed two. I skinned them, and left the meat upon the ground. I went home and caught my ponies and took another man with me to where the meat was. We packed the ponies, then we went on. We came along the Missouri river. I saw a jackrabbit sitting close to the road. The other man called my attention to the rabbit. I got off my pony, took aim at the rabbit, and shot it. We went, and to our great surprise we found a deer lying there in place of the rabbit. This rabbit had turned to a buck, for it had long antlers. We skinned it and took the meat home. When I got home I related the incident to some old men. I was afraid it meant something bad; I felt strange and scared. When the old men told me it was all right, I felt better. I kept the hide and antlers for many years."

At the conclusion of this story, Bull's-Neck seemed somewhat provoked, and exclaimed: "You could not do what you say you did; your story is not true! It reminds me, however, of an experience which I once had and which is true." Whereupon he related the following:

"I was out hunting one day with another man. I climbed a hill, and saw a buffalo sitting in the hollow. I could plainly see his horns. I called for the other man and told him that there was a buffalo sitting down in the bottom, but he would not believe me. I then told him to look. He turned to me, and said, 'I do not see any buffalo sitting down, but I see one lying down; it is dead; I do not believe it is alive.' I then said, 'I am sure it is alive!' So we went to where the buffalo lay, and if the buffalo had jumped up and attacked us, both of us would have been hurt. So we walked, holding each other. We came up to the buffalo. It was not

breathing, nor alive. The legs were crossed. We took our whips and whipped the buffalo. The buffalo was not sleeping, for it jumped up and snorted. We ran away from the buffalo, and the buffalo ran another way."

Again there was laughter about the circle, the implication being that Bull's-Neck's tale was not founded on fact. The old man looked very sober, and exclaimed, "But I had another experience, equally curious," and related the following incident:

"I was walking from yonder hills and came across a coyote. I caught hold of its tail and began to drag it. I came far away from the hills, when all at once the coyote moved about and ran away from me. It must have been asleep. I watched it as it went across the prairie, and said to myself, 'Why did I not kill it?' Well, the coyote ran away from me."

At the conclusion of this tale by Bull's-Neck, an old warrior named Bear's-Teeth, one of the hereditary chiefs of the Arikara, related the following:

"A young warrior had been dreaming about the eagles. One night this young man had a dream. He saw an eagle in his dream, and it said, 'You must wear the eagle-feather through your scalp-lock for the next few days.' The next day the man took one of his eagle-feathers and cut it at the end; then he placed the feather through his hair. The next night this man had a dream. The eagle came to him and said, 'You have done wrong. I fly high. No one can cut my feathers. If you cut my feathers, tomorrow you will be cut.' The man arose and went out of his tipi. He looked over the country. No enemy was in sight, and he said to himself, 'That eagle came to me in my dream; I will not think about it any more.' As he went into his tipi again he heard some one yell, 'Enemy coming!' The man rushed out, mounted his pony, and went toward the enemy.

"In the battle that followed, this man and a Sioux attacked each other on horseback. As they approached they got off their ponies and grappled with each other, each taking out his butcher knife. The man who had the dream was stabbed under the left arm. The Sioux was killed, and the Arikara was brought home wounded.

"In the night he saw the eagle, who said, 'You are not to die; you are to live.' The next day the man told his friends that he was to live, that he had seen the eagle in his dream. The man recovered and became one of the principal men of the Arikara."

By this time the announcement came to the lodge that the food was ready for the feast, so the story-telling ceased.

RACIAL DIFFERENCES IN PALM AND SOLE CONFIGURATION

By HARRIS HAWTHORNE WILDER

INTRODUCTION

A comparatively small number of investigators have interested themselves in the epidermic markings on the volar surface of the human hand and foot, and of these but two have suggested in them a possible ethnographic value. The first was Arthur Kollmann, ('83 and '85)¹ who made use of all the opportunities afforded him and studied the actual palm and sole surfaces of numerous representatives of various races. He did not employ, and probably did not know, the method of printing the surfaces, and studying these impressions instead of the actual objects, and his observations were thus not only extremely difficult to make, but impossible to record more than in a general way; in addition to which came the greatest disadvantage of all—that of not being able to study a large enough number of individuals of any given race to eliminate the individual variation. Thus, in the comparison of hands, his list included two Chinese; two Japanese; two Turks; three Armenians; three native Australians, then on exhibition in Berlin; two African negroes, both with white blood; and six negroes from America. In the investigation of soles he fared better, making use of several traveling troupes on exhibition in Berlin, although by this means he must have studied in each case closely related individuals, and thus have been liable to have taken merely family characteristics for those of racial value. Here his list included 21 Ceylonese, 21 Kalmucks, 1 Armenian, 1 Australian, a number of African and several American negroes, and several Araucanians from Chile.

Although in this latter case, that of the feet, Kollmann possessed material enough for some results, had he employed prints and had he selected unrelated individuals, his standpoint was not

¹ See the Bibliography at the close of the article.

quite right for the production of definite results, since in the first place he studied patterns alone and had no knowledge of main lines, triradii, and other essential features, and in the second, his main endeavor was to find Simian characteristics in the lower races, a condition which he thought *a priori* probable. In this he came to no definite results.

The other investigator along this line was Francis Galton ('92) who, as in all his work, confined his comparison to the finger-tips. His results also were indefinite.

Aside from these two investigators it should be mentioned that Hepburn ('95) investigated the feet of a dead negro, and speaks as though he had had other cases under observation. In these he finds nothing, however, which he could not have seen equally well in members of his own race.

The present paper is the result of the suggestion made by me a year and a half ago¹ that "it would be of much interest to compare the sculpture of the palms and soles in the various races of men, as it is at least possible that *there may be sufficient difference to constitute important racial characteristics.*"

As the method of treatment of this subject is largely by the employment of descriptive formulæ, and as information concerning these is in part scattered through various former papers of mine,² and in part has not yet been published, it seems best to begin this paper with a brief description of the essential features found in palms and soles, and with instruction concerning the method of writing descriptive formulæ expressive of the conditions found in individual cases.

I.—PALM AND SOLE CHARACTERS, AND THE METHOD OF RECORDING THEM BY MEANS OF DESCRIPTIVE FORMULÆ.

The Palm. — The palmar configuration in man has become more modified than has the sole, and is thus simpler in its configuration,

¹ "Palms and Soles," *Amer. Jour. of Anatomy*, vol. 1, p. 434.

² Facsimile prints, marked by the main lines and other features, and showing both palms and soles, are given in *Amer. Jour. of Anatomy*, vol. 1, No. 4 (Sept., 1902), and in *Popular Science Monthly*, Sept., 1903. Two palms (Maya) and two soles (Negro), similarly marked, appear as plates X and XI of this article. These will be of much help in understanding the general description immediately following.

though secondarily so. The method employed in describing it has therefore only a remote relation to the original morphology of the parts, but seems well fitted to its actual condition.

In its interpretation the first points to be established are the *four digital triradii* situated below the bases of the four fingers. From each of these points three lines radiate which are to be followed on a print by means of pen or pencil as far as they may be followed without crossing any of the ridges. Of these three lines, the *radiants*, two of them pass upward between the fingers and serve merely to define small triangular *digital areas*, which in reality belong to the systems covering the volar surfaces of the fingers and have intruded themselves like small wedges upon the palm. The four remaining radiants, one from each digital triradius, traverse more or less of the palm, though with a great variety of possible relations and interrelations, and are termed the *four main lines*, since by locating these the general topography of a given palm is outlined. They are designated by the capital letters A-D, beginning on the inner or radial side. As their origins are from points relatively fixed in position, their courses can be expressed with sufficient accuracy by locating their termini, and this is readily done by means of the artificial numerical scheme shown in fig. 2, *a*, in which numbers are arbitrarily fixed to the various marginal points and interspaces in which these lines may terminate. The courses of the four main lines are thus designated by a formula consisting of four figures, the order being, for several reasons, the reverse of the usual one, beginning with line D, the fourth one, instead of A, the first. In rare cases, especially in line D, the main line meets a lower triradius, thus being prevented from reaching the margin at any point. When this occurs, the radiant forming the continuation of the main line is followed and its terminal number employed, thus reducing the condition to that of a normal line bearing a triradius at a given point along its course. The existence of the triradius is indicated in such cases by the use of a small *t* added as an exponent to the number. Examples of main line formulæ arranged in numerical sequence for ease in reference are shown in tables II and III.

Aside from the above, the conditions near the wrist should also be noted. Here, in perhaps the majority of cases, there is found a

well-defined *carpal triradius*, the presence of which is indicated by a C added as a fifth term to the main line formula ; but occasionally the lines of the ulnar and radial regions merely diverge, forming what may be considered the upper portion of an extra-limital triradius, or one which does not appear since its location would be on the normal skin beyond the limits of the ridges ; this condition is expressed in the formula by P, i. e., a "*parting*." Various modifications of these two conditions are easily expressed by means of Galton's device of "descriptive suffixes" in the form of exponents, many of which are used in table vi and explained just below it. See also the list of abbreviations, pages 253, 254.

Patterns in form similar to those of the finger tips may occur in several places, namely, on the *thenar* and *hypothelar* regions and on either of the three interspaces included between the main lines, the *three palmar areas*. Of these patterns the hypothelar, when present, has always a genuine morphological value, and is directly descended from one that is more constant in appearance in lower forms ; the thenar is really the equivalent of two, and is often indicated as such by being composed of two loops placed in opposite directions ; and the three palmar patterns may either be *true* (i. e. of morphological value), or *false* (i. e., of accidental occurrence). The former is always accompanied by an extra triradius called a *lower triradius*, which assists in its formation, but the latter is formed merely by the abrupt recurving of one of the main lines, and is without trace of triradius.¹

In formulation the hypothelar and the thenar are designated by H and θ respectively ; the three palmar patterns are designated by the numbers 1-3, and their nature is indicated either by an exponent, *l* for a loop, or false pattern, and *t* (triradius) for a true one ; or by the words "loop" and "triradius" as in table vii.

This brief description of palmar characters and their formulation is very incomplete and may be supplemented by my former papers on the subject, especially that in *Popular Science Monthly*, September, 1903.

¹ The distinction, although a practical one, may not in all cases be strictly true from a morphological standpoint, since it is conceivable that a true pattern may, through suppression of radiants, be practically without the characterizing lower triradius. For a fuller treatment of this matter see Miss Whipple, 1904.

The Sole.—There are many practical difficulties in the way of an attempt to formulate the sole by the method employed in the case of the palm, the principal ones being the following :

1. The more primitive character, and hence the greater complexity of the sole.

2. The frequent location of the digital triradii and other important features in the concavity between the ball of the foot and the balls of the toes, where printing cannot well be done.

3. The more frequent occurrence of large and important lower triradii, the radiants of which are extensive and enter into important relations with the main lines and other parts.

Of these difficulties the most serious is the second, which points out the incompleteness of an ordinary print, and urges the employment of a system which makes use of those parts always shown in a print, and which are not in any way dependent upon digital triradii or other features apt to be beyond the limit of a usual impression. As a series of designations of marginal and other topographical points may be occasionally needed, I have prepared for that purpose a sole-diagram comparable with that of the palm, and given above in connection with it (fig. 2, *b*). If one abandons the main lines as too uncertain in determination to be used as a starting-point, the most natural, because the most conspicuous and universal, character would be the *hallucal pattern*, that upon the raised eminence below the great toe. This feature can be seen with great ease, and with a little practice its type may be determined with accuracy upon the natural foot, thus making it a matter of the greatest convenience in such practical cases as the identification of burned or otherwise badly mutilated bodies. This is the most primitive pattern found in man and quite frequently exhibits the typical arrangement of ridges as seen in fig. 3, *a*. This is the primitive whorl type, and shows for its core a succession of concentric circles, which are frequently very perfect. This core, which is often quite extensive in area, is bounded externally by three triradii, each embracing the core with two of its radiants like a capital Y, while the third radiant, known as the *divergent*, extends directly away from the center of the pattern. In conformity with other mammalian patterns, the three triradii are designated as the *outer*

modifications of this. Of these the commonest is the suppression of the divergent of triradius *c* which gives the entire pattern a rounded aspect on its outer border. Such a condition may be designated as W^d . In like manner we may express a reduction (not a loss) of either of the other triradii as W^a and W^b , the first of which is not uncommon. Lastly, the core may become modified as a spiral (very common in the white race) or as an S-shaped

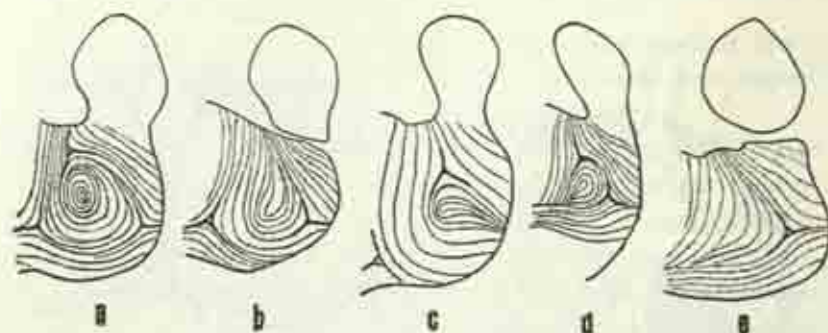


FIG. 3.—Types of hallucal patterns; tracings from actual cases. Two-fifths natural size. *a*, Cat. No. 338, Maya; primitive type, embraced by three triradii. *b*, Cat. No. 337, Maya; type A, pattern opens through outer (upper) triradius. *c*, Cat. No. 301, Chinese (right reversed), type B, pattern opens through inner triradius. *d*, Cat. No. 58, white; type C, pattern opens through lower triradius. *e*, Cat. No. 338, Maya (right reversed); type AC, pattern opens by both outer and lower triradii.

figure, and these conditions are designated by the exponents *sp*. and *s*. respectively, either with or without other exponents. Thus we may have W^a , W^{as} , W^{asp} , etc.

This typical pattern often degenerates through the loss of one or more of its triradii, and the consequent opening up of its ridges in the direction of the missing triradius. A triradius may simply suffer the obliteration of its divergent, as frequently in the case of triradius *c*, without allowing the pattern to open; but if really gone, the ridges, no longer enclosed by the embracing radiants, will, as it were, gush forth to the margin of the print. There are, of course, three main types of these, easily designated by the capital letters A, B, and C, to correspond with the triradii which have given way (fig. 3, *b-d*), but occasionally a pattern may open at two of these points, thus making the rather unusual conditions of AB, AC, or

BC. These various conditions, although they may be laborious to describe, are readily understood when first seen, and easily recognized afterward. Where the filing and cataloguing of a large number of sole-prints becomes a necessity, as in an identification bureau, it is recommended that the type of hallucal pattern be made the first term in the formula, a logical sequence of which may easily be made, the symbols being arranged in alphabetical order and subdivided by their exponents.

The further description of the sole is best made by studying the various conditions of the three plantar areas, corresponding to the three palmar areas of the hand, and although the four main lines which delimit and designate these may usually be made out, a little practice will enable one to locate the areas with considerable precision even without this aid, and in cases where no digital tri-radii appear on the print. This plan is similar to the one first suggested by me for use in the case of the palm (1902 b) and differs from the method now employed and described above mainly in laying the emphasis upon the areas themselves, their interrelations and their patterns, rather than upon the lines which bound them.

In describing a plantar area the number of characters to be expressed is not large, and the principal varieties, together with the abbreviations recommended for use in descriptive formulæ, are the following:

1. *An open area*, i. e., one whose ridges reach the margin of the print. Of these there are two possible forms, one in which the opening is upon the inner margin (O) and one in which the opening is to the outer margin (5). The first is very common, the second rare. A narrow opening, that is, one consisting of a few ridges only, is expressed by Oⁿ.
2. *A closed area*, i. e., one whose ridges do not reach either margin, being stopped or turned back by some other formation. This latter may be either another area which curves around its lower end, or a lower tri-radius which embraces the area with two of its radiants. The symbol for a closed area is Cl and the agency of a tri-radius is expressed by an exponent t. Aside from the usual form of the lower end of a closed area, which is that of a rounding curve, there sometimes occurs the form expressed as Cl^v, in which the area comes to a sharp point; also the form Cl^f, somewhat like the last but with the point more prolonged and curved around an adjacent area.

3. *Confluent areas*, or where the ridges are continuous from one to another. This is designated by a + sign followed by a number designating the area with which it is confluent. Thus + 1, applied to area 2 or area 3, would mean that the ridges of the area in question curve or flow around into the territory of area 1, and so on. A confluence is seldom complete for either area involved, and still more rarely mutually so. In such cases, those of *semi-confluent* areas, the condition is expressed by two or more symbols expressive of the course of the various ridges, or rather, groups of ridges, always beginning with those nearest the great toe (inner or tibial side). Thus, in designating area 2, the expression Cl' + 3 would signify that a part of its ridges, those nearest the inner side, were enclosed by the radiants of a lower triradius, and that the remainder were confluent with area 3.

4. *An area looped above*.—This occurs most frequently in the case of area 1, although not unknown in the others, and consists of a series of curved ridges which define the upper border of the area. This condition, formulated as L, and added to the other designations of the area, is produced by a downward curve of one or both of the digital lines that lie adjacent to the patterns, which occasionally meet and form an arch, but more frequently pass one another, one of these running along the digital areas above the plantar areas, while the other curves downward and becomes involved with these latter in various complex relations.

The above set of symbols have proven fully adequate in the description of the 184 separate soles formulated in this paper, and it seems reasonable to suppose that the system will prove sufficient for all cases, at the most by the addition of a few exponents that will easily suggest themselves.

To the above formulæ may be added the symbol H to express a hypothenar pattern when present, and that of K to represent a *calcar*,¹ the very unusual pattern occurring on the heel. These may all be united into a single formula of six possible places, giving in order the conditions of (1) the hallucal area, (2-4) the three plantar areas, (5) the hypothenar, and (6) the calcar. The first practical use of this system is the one used in this paper and seen in tables VIII, IX, XVII, and XXII, below.

Aside from the sole characters above provided for, lower tri-

¹ The phonetic form of this symbol seems advisable in order to distinguish it from the C of the carpal area.

radii are of great morphological importance, but it has been thought best not to consider them save by a few descriptive exponents in formulating sole conditions. They receive some special attention farther on, under the description of Maya feet, where they assume special importance.

For the reader's convenience there follows here a list of the various symbols employed in the descriptive formulæ of palms and soles, together with their meaning; in most cases the use of the descriptive exponents is explained also in connection with the tables in which they are used.

CLASSIFIED LIST OF ABBREVIATIONS

I. — The Main Features

PALMS

- Lines A-D. The four main lines.
- d_1-d_4 . The four digital triradii.
- 1-13. As applied to the main lines, these numbers express the point of termination. (See diagram, fig. 2, *a*.)
- C. Carpal triradius.
- P. Parting.
- H. Hypothenar pattern.
- θ . Thenar pattern.
- 1-3. As used in the pattern formula, these numbers signify the three palmar patterns.
- $\perp_1-\perp_4$. A lower triradius; the small figure with it indicates the palmar area with which it is associated.

SOLES

- Lines A-D. The four main lines; seldom used.
- W. Hallucal pattern of the whorl type.
- A. B. C., AB., BC. Various types of hallucal pattern derived from W by the breaking down of certain of the triradii. (See above.)
- Area 1-3. The three plantar areas.
- 1-16. As applied to the main lines, areas, etc., to expressed termini; seldom used. (See diagram, fig. 2, *b*.)
- O. An open area, i. e., one that opens to the inner margin.
- Cl. A closed area.
- + (with 1-3 added). An area confluent with the one indicated by the number.
- L. An upper loop, i. e., one bounding the top of an area.
- $\perp_1-\perp_4$. A lower triradius; the small figure with it indicates the plantar area with which it is associated.

II. — *Descriptive Exponents*

1. IN CONNECTION WITH THE CARPAL TRIRADIUS (C)
 - x. Large triangle, forming triradius.
 - h. High.
 - l. Low.
 - o. Toward the outer margin.
 - c. Central.
 - p. Like a parting.
- H. Connected with the hypothenar pattern.
2. IN CONNECTION WITH A PARTING (P).
 - b. Oblique in direction.
 - bt. Oblique, ending in a triradius.
 - btr. Oblique, ending in a rudiment of a triradius.
 - ct. Like a carpal triradius.
3. IN CONNECTION WITH THE PATTERN^s (1-3)
 - r. Rudimentary (i. e., vestigial).
 - l. False; formed by a loop of a main line.
 - t. True; formed by a lower triradius.
 - u., d., *up* and *down*, referring to the upper and lower loops forming the "thenar" pattern. Morphologically the upper loop is a first interdigital, belonging in the series with the other palmar patterns (1-3), while the lower loop is the true thenar. u, d, and ud indicate the presence of one or the other of the loops, or of both.
4. IN CONNECTION WITH THE HALLUCAL PATTERN
 - a. the outer (= upper) triradius.
 - b. the inner (= marginal) triradius.
 - c. The lower triradius.

[Either of these attached as an exponent to a W signifies that the given triradius is small and almost broken through; thus almost forming the type represented by the corresponding capital letters.]

 - d. The common form where the lower triradius does not appear through the loss of its divergent, i. e., where the ridges bordering the pattern on its outer side curve around it without showing a triradius.
 - w. Almost a whorl.
 - sp. Core in the form of a spiral.
 - s. Core an S-shaped figure.
 - sm. A long seam, or line of interruption of the ridges, showing the beginning degeneration of a triradius.
5. IN CONNECTION WITH THE PLANTAR AREAS
 - j. An area curves with its lower end around another area.
 - v. The ridges of an area converge below to a point or nearly so.
 - n. Open but very narrow.
 - t. Limited below by a triradius.

II. — STUDIES OF VARIOUS RACES

A. — MAYAS

Material. — For the purpose of testing the ethnological value of the palm and sole markings one could hardly wish for better

material than that furnished by the Mayas of the interior of Yucatan, which, although confessedly no longer a pure race, as they may have been when discovered by the Spaniards, are yet remote enough from other influence to have retained in great part their original characteristics.

For the valuable material upon which I have based my studies of the Maya people I am indebted to Mr Alfred M. Tozzer, of the Peabody Museum at Cambridge, Mass., who, at the cost of much trouble and personal inconvenience, has obtained for me the prints—either full sets or those of the hands alone—of 22 individuals. As may be expected, it is no easy task to obtain prints of primitive races, and since, as stated by Mr Tozzer in a letter written during the work, "each print, especially those of the feet, represents a certain amount of coaxing and arguing to overcome the natural prejudice of a half-civilized people," my debt to him for this valuable material increases in proportion.

TABLE I.—*Lists of Prints used in the Study of the Mayas.*¹

No.	NAME.	SEX.	RELATIONSHIP.	TRIBE.	REMARKS.	PRINTS.
331	Juan[a] Mix	♀	Sister of 342	Maya		H—
332	Juan Marquez	♂		Mexican	"Undoubtedly a good deal white"	H—
333	Benito Can	♂	Brother of 334 and 335	Maya	} "Fairly pure Indian"	H. F.
334	Luis Can	♂	Brother of 333 and 335	Maya		H. F.
335	Crisostomo Can	♂	Brother of 333 and 334	Maya		H. F.
336	Clotilde Vegara	♀	Niece of 337	Maya	"A little white blood"	H—
337	Leona Cordero	♀	Mother of 350	Maya	"A little white blood"	H. F.
338	Felipe Neo	♂		Maya		H. F.
339	Petrona Coroo	♀		Maya	"Wife of Felipe Neo"	H—
340	Ferenin Tus	♂		Maya	} "As pure Mayas as one finds"	H. F.
341	Nestor Tul	♂		Maya		H. F.
342	Martina Mix	♀	Sister of 331	Maya		H—
343	Juan Mex	♂		Maya		H—
344	Juan Ruiz	♂		Maya		H—
345	Anita Chan	♀		Maya	"White blood not very far back"	H. F.
346	?	♂?		Maya		H. F.
347	Sequeriano Hoyo	♂		Maya		H. F.
348	Navora Martin	♀	Mother of 349	Maya	"White blood not very far back"	H. F.
349	Juanita Martin	♀	Daughter of 348	Maya	"Remarkably white for Maya"	H. F.
350	Juan Herrera	♂	Son of 337	Maya	"A little white blood"	H. F.
351	—	♂		Tabasco	} "Pure Maya stock"	H—
352	—	♂		Tabasco		H—

¹ Collected by Mr Alfred M. Tozzer.

² H = hands; F = feet

The preceding list of the individuals who furnished the prints, together with the sex, relationship to one another, and comments concerning the race, will show more exactly of what the material consists, and may be useful for later reference.

The remarks are quotations from Mr Tozzer and serve to show "that to find a pure Indian with absolutely no trace of Spanish blood is almost impossible." Whether it is because of this that the prints in so many respects resemble those of the white race, or whether we would find the case similar in an absolutely unmixed people like the Andamanese, is impossible to say. All that can here be done is to present the conditions found in these Maya prints as impartially and exactly as possible, to formulate what conclusions seem to me to be warrantable, and then to leave the matter to the judgment of the reader.

Palms.—The first discussion will be naturally that of the main lines, including the carpal condition, which will map out for us the general outlines, after which may be considered the patterns and other details. Of the 22 sets, two of them, the right hands of Nos. 346 and 351, could not be read; the remainder, consisting of 22 lefts and 20 rights, were extremely satisfactory. Of these the main line formulæ, placed in numerical order, are shown in table II, as follows:

TABLE II.—Main Line and Carpal Formula of 42 Maya Hands.

NO.	FORMULA.	NO.	FORMULA.	NO.	FORMULA.
351 L	7 · 5 · 5 · 1 · C	347 R	9 · 7 · 5 · 3 · C	344 L	10 · 8 ¹ · 6 · 1 · C
348 L	7 · 5 · 5 · 1 ¹ · C	350 L	9 ¹ · 7 · 5 · 3 · P	337 L	10 · 8 · 6 · 5 · C
343 L	7 · 5 · 5 · 1 · C	338 R	9 · 7 · 5 · 5 · C	352 R	10 · 8 ¹ · 6 · 5 · C
331 L	7 · 5 ¹ · 5 · 1 · C	335 R	9 · 7 · 5 · 5 · (?)	332 L	10 · 9 · 6 · 3 · C
349 L	7 · 5 · 5 · 2 · C	336 R	9 ¹ · 7 · 5 ¹ · 5 · P	339 L	10 · 9 · 6 · 3 · P
342 L	7 · 5 · 5 · 3 · C	352 L	9 · 8 · 5 · 1 · C	342 R	10 ¹ · 9 ¹ · 6 · 5 · C
335 L	7 · 5 · 5 · 3 · C	340 L	9 ¹ · 8 · 5 · 1 · C	332 R	10 · 9 · 6 · 5 · C
349 R	7 · 5 · 5 · 5 · C	341 L	9 · 8 · 5 · 5 · C	337 R	10 · 9 · 6 · 5 · C
345 R	7 · 5 · 5 · 5 · C	341 R	9 · 8 · 5 · 5 · C	340 R	11 · 8 ¹ · 7 · 11 · C
345 L	7 · 5 · 5 · 5 · P	333 L	9 · 9 · 5 · 2 ¹ · C	344 R	11 · 9 · 7 · 5 · C
347 L	8 · 6 · 5 · 2 · C	346 L	9 ¹ · 9 · 5 ¹ · 2 · C	333 R	11 · 9 · 7 · 5 · C
336 L	8 · 6 · 5 · 3 · C	334 L	9 ¹ · 9 · 5 · 3 · C	331 R	11 · 9 · 7 · 5 · C
343 R	8 · 6 · 5 · 5 · C	334 R	9 · 9 · 5 · 5 ¹ · C	350 R	11 · 9 · 7 · 5 · P
338 L	9 · 7 · 5 · 3 · C	348 R	9 · 9 · 5 · 5 · C	339 R	11 · 9 · 7 · 5 · (?)

NOTE.—The numerical exponents signify possible alternative interpretation. t signifies a lower triradius in the course of the line. L and R signify left and right.

In the above, 20 separate formulæ are represented, 10 of which occur in left hands alone, 6 in rights alone, and 4 in both. Of the entire number 7 are represented by single hands, 7 more by but 2, and the remaining 6 have 3 or more representatives each. It is of importance to notice that in the first column (14 cases) there are but 3 rights, in the last (also 14) but 4 lefts, while in the middle column the lefts and rights are equally divided. A morphological significance is given to this through the fact that *the formulæ are arranged in accordance with their own numbers, or, in other words, in accordance with the gradual upward movement of the main lines, and that, consequently, in the characteristic human tendency toward a crowding of the ridges upward toward a horizontal position* (Miss Whipple, 1904) *the right hands are considerably in advance of the left.*

This tendency is shown in tabular form as follows:

In 22 lefts, line A takes a position below (5) 19 times or 86%.

In 20 rights, line A takes a position below (5) but once, or 5%.

In 22 lefts, line D takes position (7) 8 times, and position (11) not at all.

In 20 rights line D takes position (7) twice, and position (11) 6 times.

A still more definite proof of this is seen in the relative occurrence in the two hands of the formula 11:9:7:5, which represents the extreme of this tendency. In 20 Maya right hands it is the commonest formula, appearing 5 times, or 25 per cent., while in the lefts it does not occur. This condition might be considered accidental were it not that in 100 right hands of the white race recently investigated, it is also the most common formula, and occurs 22 times (22 per cent.), while in the same number of left hands it is found but 4 times (4 per cent.).¹ The Negro prints (see below) exhibit the same phenomenon. In this same set of whites line A assumes a lower position in 58 lefts and in but 23 rights; line D does not show the tendency as strongly as in the Mayas.

The relative occurrence of the various formulæ of the Maya prints is shown in table III, which may be tested with regard to its ethno-

¹ Table 1, p. 402, in "Palm and Sole Impressions," etc., *Pop. Sci. Monthly*, Sept. 1903. This table, together with one deduced from it giving the relative positions assumed by the main lines, will be found in the appendix to this paper.

logical value by comparing it with the table just cited, based on the study of 200 hands of the white race. In these two tables there is a fundamental difference in the relative occurrence of what may be termed the *lower formulae*, or those in which the first two terms are below 10.8., and the others usually 5 or below. Of these the 42 Maya hands show 28 representatives, or 66 $\frac{2}{3}$ per cent., while of 200 hands of whites there are but 98 representatives, or 49 per cent. This tendency appears to a much greater extent in the Negroes (77 per cent.), and will be considered at length farther on in this paper.

TABLE III.—Occurrence of Main Line Formula in Maya Hands.

FORMULÆ.	L	R	BOTH.	FORMULÆ.	L	R	BOTH.
7.5.5.1	4	0	4	9.9.5.2	2	0	2
7.5.5.2	1	0	1	9.9.5.3	1	0	1
7.5.5.3	2	0	2	9.9.5.5	0	2	2
7.5.5.5	1	2	3	10.8.6.1	1	0	1
8.6.5.2	1	0	1	10.8.6.5	1	1	2
8.6.5.3	1	0	1	10.9.6.3	2	0	2
8.6.5.5	0	1	1	10.9.6.5	0	3	3
9.7.5.3	2	1	3	11.8.7.11	0	1	1
9.7.5.5	0	3	3	11.9.7.5	0	5	5
9.8.5.1	2	0	2	Totals.	22	20	42
9.8.5.5	1	1	2				

Turning now from the study of the formulæ as a whole to that of the various terminal positions of the separate lines, we may find it convenient to construct such a table as the one given here (table IV), which is readily deduced from table III by counting the number of occurrences of each line in each position and tabulating the results. Thus, to give an example, if we take line C, the second row in the formulæ, we can ascertain the number of times it appears in the position (8) by finding each place in which 8 occurs in the second row, and then ascertaining by the right-hand columns the number of times, in each hand, which the given formula represents. Thus, beginning with the formula 9.8.5.1, the first in which line C occurs as (8), we find two left hands and no rights; in the next formula one left and one right; in the fourth below that, 10.8.6.1, one left and no right, and so on, until, when all are computed, it is found that line C assumes the position represented by (8) in 5 lefts and 3 rights, or 8 times in all. The last column under each of the main lines gives the percentage of the whole which the number of

each occurrence in both hands represents; thus the 8 times of occurrence of line C in position (8) are given as 19 + per cent., in the total of 42 hands.

TABLE IV.—*Frequency of Occurrence of the Various Terminal Positions, with Percentages (Mayas).*

TERMINUS	LINE D				LINE C			
	L	R	Both	% (both)	L	R	Both	% (both)
1	—	—	—	—	—	—	—	—
2	—	—	—	—	—	—	—	—
3	—	—	—	—	—	—	—	—
4	—	—	—	—	—	—	—	—
5	—	—	—	—	8	2	10	24—
6	—	—	—	—	2	1	3	7+
7	8	2	10	24—	2	4	6	14+
8	2	1	3	7+	5	3	8	19+
9	8	7	15	36—	5	10	15	36—
10	4	4	8	19+	—	—	—	—
11	—	6	6	14+	—	—	—	—

TERMINUS	LINE B				LINE A			
	L	R	Both	% (both)	L	R	Both	% (both)
1	—	—	—	—	7	—	7	16+
2	—	—	—	—	4	—	4	9+
3	—	—	—	—	8	1	9	21+
4	—	—	—	—	—	—	—	—
5	18	10	28	66+	3	—	21	50
6	4	4	8	18+	—	—	—	—
7	—	6	6	14+	—	—	—	—
8	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—
11	—	—	—	—	—	1	—	2+

This table IV is constructed in the same way as the one published in the article just mentioned, and reproduced as an appendix to this paper representing the positions of the main lines in the hands of 200 whites, and a comparison of the two would show absolutely what differences exist in the relative occurrence of each position in the two races, provided only there were a sufficient number of Mayas to render the percentages perfectly reliable. Something, indeed, may be obtained by a comparison with what I have, as the number 42 is by no means an inconsiderable one, and as proportions should be the subject of comparisons rather than the actual figures in each case, I have prepared table V, in which the percentages of occurrence of the various positions for each main line are

compared for both Mayas and whites. It should be noted, however, that in the tables representing the whites (see Appendix), lines which enter a lower triradius are represented by the symbol alone with no reference to the further course of the line, and as such a nomenclature is insufficient for our present comparison, in order to deduce the percentages given here, I have gone through my collection and replaced this sign wherever it occurs with the definite number representing the terminal position. This will account for a slight disparity in percentages between those given here for the white race, and those stated in the original table.

TABLE V.—*Percentages of the Various Positions of the Main Lines.*

TERMINI.	LINE D.		LINE C.		LINE B.		LINE A.	
	Maya.	White.	Maya.	White.	Maya.	White.	Maya.	White.
1	—	—	—	—	—	—	16+	1
2	—	—	—	—	—	—	9+	9.5
3	—	—	—	—	—	.5	21+	20.5
4	—	—	—	—	—	—	—	10
5	—	—	24—	8.5	66+	47	50	58
6	—	—	7+	11.5	19+	13.5	—	—
7	24—	11	14+	33	14+	33.5	—	—
8	7+	12	19+	15	—	5	—	—
9	36—	25.5	36+	26.5	—	.5	—	—
10	19+	13.5	—	5	—	—	—	—
11	14+	38	—	—	—	—	2+	1

From this final table, which represents the consummation of our labors thus far, as regards the main lines, we may detect what differences there are between the two races, and ascertain the ethnological importance of this comparison; we must remember, however, that the number of Maya prints that serve as a basis for the percentages here given is too small a one to be wholly reliable, and that the heterogeneous set of individuals referred to as the "white race" contain an admixture of very many original strains, hopelessly intermingled since prehistoric times, which can consequently hardly be expected to show any definite racial characteristics. The only fair comparison would be that between 100 individuals each of two relatively pure races, as the Andamanese and the Hudson Bay Eskimo for example, in which the differences may be expected to be more pronounced. As deduced from the above table the Maya main line characteristics, as compared with the somewhat vague standard of the "white race," are as follows:

- (a) *A low, or very low, position of line A.* Sixteen per cent. terminate within the carpal triradius, and 9 per cent. enter this point, making a total of 25 per cent. which open below the free margin, as compared with 10.5 per cent. in the whites. Exactly 50 per cent. of the termini are too low to be counted as (5) as compared with 31 per cent. in the whites. As a hypothenar pattern almost never occurs in the Mayas, position (4) seems to be unknown.
- (b) *Line B seldom terminates above (6) and opens on the outer margin in exactly two-thirds of the cases examined.* In the whites 39 per cent. of B termini are above (6); in Mayas 14 per cent.
- (c) *Line C opens on the outer margin three times as often as in whites (24 per cent. vs. 8.5 per cent.), but is most frequently either obsolete (8) or curved abruptly inward (9) forming a narrow loop.* Fifty-five per cent. of the cases show one of these two relations, as opposed to 41.5 per cent. in the white race. In the latter 5.5 per cent. of the cases pass beyond (9); in Mayas there are no instances of it.
- (d) *The most frequent position for line D is (9), (36 per cent. as opposed to 25.5 per cent. in the whites), and as it is almost universal in those individuals characterized as being the purest Mayas, it may safely be taken as the most typical Maya position.* Next in order is position (7), in which, with its 24 per cent. of instances, it considerably surpasses the 11 per cent. of the white race. A union with line B (10) is also more common than in the whites (19 per cent. vs. 13.5 per cent.).

The results of the study of the carpal region are given in table VI, in which a comparison is also shown by giving at the left similar results deduced from the hands of 100 persons of the white race. This area is usually characterized by the presence of a carpal triradius, which, although in most cases morphologically the lower inner triradius belonging to the hypothenar pattern (Miss Whipple, 1904), is nevertheless independent of this latter in its occurrence, and often appears where there is no such pattern or where the pattern is so far removed from it that its connection is not realized. This is the condition expressed by the first six designations of the table, where the descriptive suffixes refer merely to size and relative position of the triradius; occasionally, however, this triradius is plainly a part of the hypothenar pattern, a relation indicated by the last

two designations C^H and C^{bH} , the latter introducing an additional exponent to signify position. C^o , the seventh designation, signifies a somewhat incomplete triradius that might almost be considered a parting.

TABLE VI.—*Comparison of Carpal Characters in Whites and Mayas.*

WHITES, 300 HANDS.					MAYAS, 40 HANDS.				
Character	Left	Right	Both	%	Character	Left	Right	Both	%
C	31	27	58	29	C	6	4	10	25
C^a	3	3	6	3	C^b	3	2	5	12.5
C^h	6	9	15	7.5	C^L	8	7	15	37.5
C^L	7	5	12	6	C^o	2	3	5	12.5
C^o	2	4	6	3					
C^c	7	8	15	7.5					
C^H	1	3	4	2					
C^{bH}	6	8	14	7					
C^{bH}	6	1	7	3.5					
Total C	69	68	137	68.5		19	16	35	87.5
P	23	24	47	23.5	P	2	2	4	10
P^o	1	1	2	1					
P^{ob}	5	2	7	3.5	P^o	1	—	1	2.5
P^{bt}	2	3	5	2.5					
P^c	—	2	2	1					
Total P	31	32	63	31.5	Total P	3	2	5	12.5
Area	36	39	75	37.5	Area	9	7	16	40

Abbreviations: C=carpal triradius, P=parting, Area=that below the carpal triradius, enclosed by its lower divergents. The exponents are "descriptive suffixes" and are to be interpreted as follows: x=large; h=high; l=low; o=toward the outer margin; c=central; p=like a parting; H=forming a triradius of a hypothenar pattern; b=oblique; bt=oblique, ending in a triradius of the hypothenar pattern; btr=oblique, ending in a rudiment of a triradius; c=like a carpal triradius.

The typical parting, P, is the less frequent case in which the ridges of the wrist merely divide at the middle and pass in two directions, often leaving a small area in the form of a very narrow V. That such a condition is morphologically that of a carpal triradius deficient below and lacking the transverse ridges which are necessary to complete the third side of the triangle, is shown by the existence of such transition forms as C^o or P^o , between which the distinction is often arbitrary. A parting frequently extends in an oblique direction upward and outward to the hypothenar center (P^h) where it may become directly continuous with a triradius, which is mor-

phologically the carpal triradius in a somewhat unusual position. This condition I have designated as P^{bt} , but this passes by almost imperceptible gradations into a simple C. Where the triradius is rudimentary the designation becomes P^{bit} .

Since the carpal triradius is morphologically a part of the great hypothenar pattern which occurs but twice in 44 Maya hands, it might naturally be supposed that the former character would also be infrequent; *the reverse, however, seems to be the truth, and a carpal triradius occurs in the Mayas in 87.5 per cent. of the cases as against 68.5 per cent. in the whites; similarly the occurrence of a parting is in the Mayas but 12.5 per cent., and in the white race 31.5 per cent.* The commonest type of carpal triradius in the Maya hand is a very low one, too near the margin to leave room for a carpal area, a type that occurs in 37.5 per cent. of all the hands examined, as opposed to but 6 per cent. in the case of the whites. When a parting occurs in a Maya hand it is of the simplest type, and appears correlated with the existence of white blood. (Compare table II with table I.)

TABLE VII.—Occurrence of Patterns in Palm. (Mayas and Whites.)

DESIGNATION OF PATTERN.	MAYA (44)				WHITE (100)			
	L.	R.	Both.	%	L.	R.	Both.	%
Hypothenar.	1	1	2	4.5	20	21	41	41
Thenar (up and down).	12	10	22	50.0	4	3	7	7
1 (Triradius).	0	2	2	4.5	1	1	2	2
2 (Triradius).	0	0	0	0	1	0	1	1
2 (Loop).	5	10	15	34	15	22	37	37
3 (Triradius).	8	5	13	29.5	8	7	15	15
3 (Loop).	7	6	13	29.5	25	19	44	44
Total.	33	34	67	152 ¹	74	73	147	147

The occurrence and comparison of palmar patterns in the hands of Mayas and whites (44 of the former and 100 of the latter) are shown in table VII, in which will be noticed at once the most positive result yet obtained, namely, *that the thenar pattern is characteristic of the Maya hand and the hypothenar of the white.* Fifty per cent. of the Maya hands possess a thenar pattern and but 7 per cent. of the whites, while in the case of the hypothenar the figures are

¹ See note, table XVI.

almost reversed : 4.5 per cent. to 41 per cent. The difference is a little more noticeable if we consider individuals, not hands ; since, of the 22 Mayas whose hands appear in the table, 13 were characterized by a thenar and but one by a hypothenar, and of the 50 whites of the same table 24 possess a hypothenar and but four a thenar.

It is important to note that the term "thenar" as used here is employed in its topographical and not in its morphological sense, and implies any pattern or definite pattern rudiment occurring upon the anatomical thenar region. A typical thenar pattern, used in this sense, is in reality a double one, and its most usual form consists

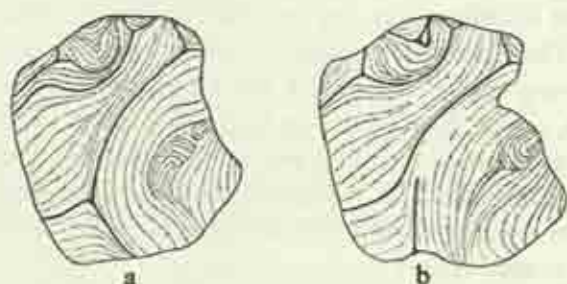
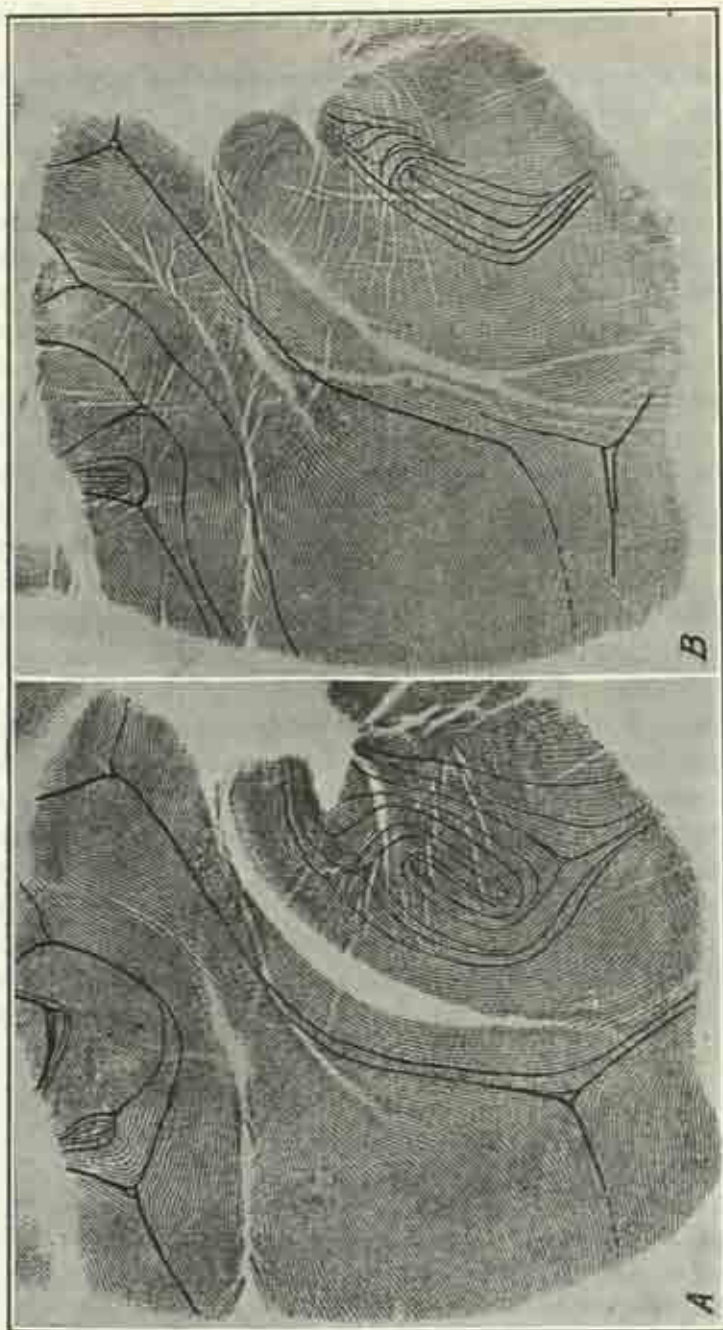


FIG. 4. — Types of Maya palm prints. Two-fifths natural size. Compare with plate X. (a, Cat. No. 352. b, Cat. No. 339.)

of two loops placed end to end, that is, with the sharpest part of the curve of each in contact and directed in opposite ways. (See the Tabasco hand, fig. 4, a.) Of these two loops, distinguished in formulæ as *u* and *d* (*up* and *down*), only the lower one (*d*) is in reality a thenar, the upper one (*u*) being the first of the series of interdigitals occurring typically between the various digits, and corresponding to the interval between the thumb and index. Each of these loops, the true thenar and the first interdigital, represents a primitive mammalian pad, and they are brought into this close proximity in the lower Primates as a result of the opposition of the thumb. In a topographical "thenar" pattern, either of these two loops may be alone represented (fig. 4, b), or both may occur side by side ; or, again, one may be well developed and the other more or less rudimentary, consisting perhaps of a few oblique lines without a loop (plate X). Thus in the 22 instances among the Mayas, four (two rights and two lefts) exhibit the upper loop alone, six



PALM PRINTS OF MAYAS, SHOWING THENAR PATTERNS (NATURAL SIZE)
A, Catalogue No. 344; formula: $20 \cdot 87 \cdot 6 : 3 \cdot C^{20}$, *B*, Catalogue No. 349; formula: $7 \cdot 8 \cdot 5 : 3 \cdot C^7$.

(three rights and three lefts) the lower one alone, and the remaining 12 both loops, at least as rudiments, seven in left hands, and five in rights. Of the seven thenars that appear in the 100 white hands, one is represented by the upper loop, three by the lower, and the remaining three by both, the patterns, when they occur, being as typical and well-developed as in any Maya. In the other patterns, the 1st-3d palmar being those of the 2d, 3d, and 4th interdigital pads, respectively, a distinction is made in the table between true and false patterns, the former, which are the only patterns in the morphological sense, being those in which a definite triradius occurs, other than the digital one. False, or loop, patterns are defined by the recurving of a main line, most commonly line C, and seem to be merely the result of the general upward tendency of the ridges in the (human) attempt to place them in the horizontal position, i. e., straight across the palm. A comparison of these patterns does not reveal any marked difference in the two races, the 2 (loop), for example, showing relatively 34 and 37 per cent. In pattern 3 the Mayas are more apt to show a true one (with a triradius), but if both types of pattern be added in each race, the result is 59 per cent. in both Mayas and whites. In fact, the total occurrence of patterns is remarkably constant in the two races, being, in comparison with the number of hands studied, 152 per cent. in the Mayas and 147 per cent. in the white race; and a similar constancy of occurrence is noted in each race in the rights and lefts. In this connection it is noteworthy that the percentages of thenar and hypothenar are nearly reversed in the two races, thus retaining the average occurrence of patterns.

Summary of Maya Palm Characteristics.

- (a) *Main lines:* A large percentage of occurrence of the "Lower formulæ," in which the position of line A is apt to be especially low (3), (2), or (1), showing that there is a pronounced downward slant to the ridges crossing the palm. Line B opens to the outer margin twice as often and line C three times as often as in the white race, although for the latter line the most frequent position is (9). This same position (9) is also the most characteristic one for line D, and seems to occur in proportion to the purity of the Maya blood.

- (b) *Carpal area*: A carpal triradius is almost universal, the characteristic type being a very low one at the margin of the print, and with almost no carpal area; a parting is rarely found, and seems in every instance to indicate white blood.
- (c) *Patterns*: A great frequency of the thenar pattern, and a corresponding rarity of the hypothenar, the percentage of occurrence of the two being about the reverse of that in the whites; a third lower triradius, and consequently a true pattern 3, is much more frequent than in the whites, but the sum total of both triradius and loop patterns is the same in the two races.

Soles.—As shown above, the configuration of the human sole does not lend itself as readily to expression by means of brief descriptive formulæ as does the palm, and this for two main reasons; first, that the friction skin, bearing with it certain elements essential to the complete interpretation of the configuration, extends up on the sides of the foot considerably beyond the region of contact, or that of an ordinary print, and, secondly, that the conditions are often much more complicated than in the palm. Thus certain of the digital triradii are apt to be situated in the hollow under the toes, where no satisfactory print can be obtained, both because of the abrupt curve of the surface as well as from the fact that the ridges in this sheltered locality are soft and poorly developed. The great complexity of many soles is due (1) to lower triradii, which are not only far more frequent than in the palm, but possess a more extensive influence, entering into various relations with the main lines and other features; (2) to the tendency of the digital lines to become recurved and to run over the sole; (3) to the fact that the interdigital areas are, for the greater part, in contact with one another, without the intervention of intermediate areas; and (4) because the patterns themselves are apt to be more complex.

In attempting, then, the study and comparison of the soles of various human races, I find it impracticable to use main line formulæ or to conform in other respects to the method found serviceable in the case of the palm, but prefer to substitute for them features which seem the most available for comparison, the hallucal patterns and the interrelations of the various areas, points that appear clearly marked upon all ordinary prints, and which are in themselves easily described and formulated.

If, after becoming well accustomed to the sole configuration in members of our own race, one turns, as I have done, to a set of Maya sole-prints, they will produce at once an impression both of excessive similarity to one another and of a general unlikeness to those with which he is familiar. This is seen in the four outlines presented in fig. 5, which represent nearly the widest range of

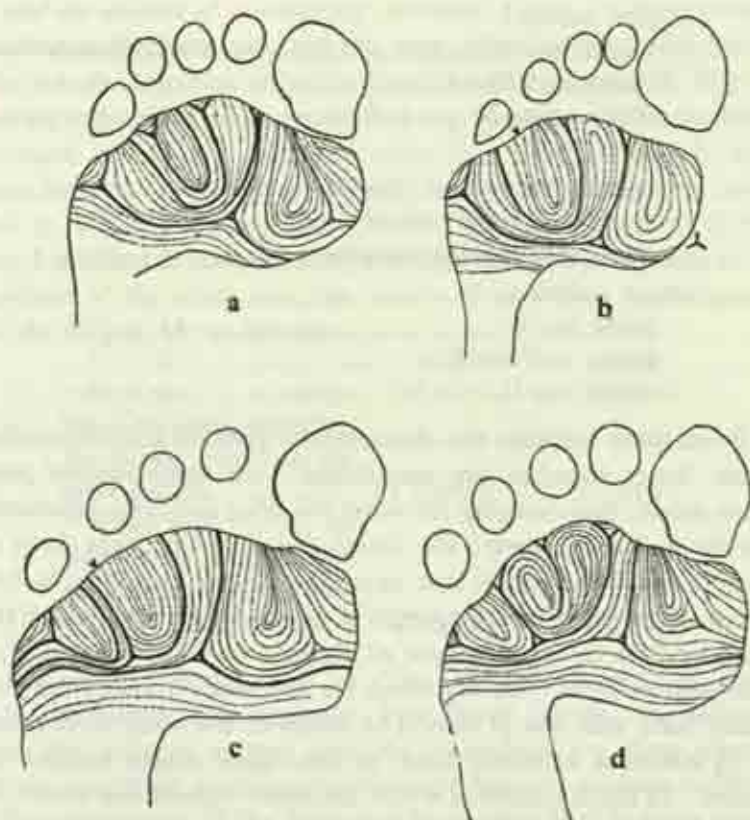


FIG. 5. — Types of Maya sole prints. Two-fifths natural size. Compare with plate XI. (a, Cat. No. 337. b, Cat. No. 348. c, Cat. No. 335. d, Cat. No. 340, right reversed.)

variation found in my collection of 26 (13 individuals; see table I). That these prints are similar to one another in some general way strikes one at once, but it may take some little time and a further chance for comparison before it is noticed that this similarity is due in great part to the almost constant presence of a large lower triradius,

placed below the interval between the great toe and the rest, and possessing two extensive lower radiants which stretch almost horizontally across the sole and entirely exclude from the inner margin the lines and ridges of the three plantar areas. The radiants of this triradius are fairly constant in direction and relation, and are as follows in the various individual cases:

Upper¹ radiant:

Within line A.....	15 instances
Fusing with line A.....	3 "
Without line A.....	3 "

Inner radiant:

Below inner hallucal triradius.....	18 "
Fusing with inner hallucal triradius.....	2 "
Above inner hallucal triradius.....	1 "

Outer radiant:

Below line D.....	11 "
Fusing with line D.....	4 "
Above line D.....	6 "

From these statistics the characteristic position and relationships of this lower triradius are ascertained: *the upper radiant passes within line A, thus bringing the entire triradius into close relationship with the hallucal pattern*; the inner and outer radiants form together a nearly horizontal line, extending below both the hallucal pattern on the inside and the origin of line D on the outside, and thus *excluding from the inner margin all the ridges that form a part of any of the plantar areas*. In this effect the four cases in which the outer radiant fuses with line D should be added to the other eleven, making 15 instances in which none of the upper ridges escapes this barrier. In the six cases in which the outer radiant lies above line D, it runs through the middle of the 3d plantar area, and only those few ridges, 8-10 in number, which lie between it and line D, are allowed to escape.

It will be seen from the above that only 21 lower triradii are accounted for out of 26 soles, and this is because five do not

¹ The designations *upper*, *inner*, and *lower*, as used here, are merely topographical, and are the best suited to descriptive use; the true morphological relations cannot in all cases be determined.

possess the character. In four of these, however, the triradius is rudimentary, that is, its position is marked by a convergence of ridges, and in one of these cases they are disposed in such a way as to shut off the inner margin as though a definite triradius were present. *It is a tempting hypothesis to account for such cases as due to the influence of white blood, since an open access to the inner margin and the absence of a retaining triradius form a type especially abundant in the white race, and this may indeed be the truth, owing to the actual admixture of white blood in the present-day Mayas.* It seems impossible, however, to find any character in the exclusive possession of a given race, and even this condition, which may almost be termed the "Maya type," occasionally occurs in every detail in a white. To make a more definite comparison of this point, I selected at random from my collection the sole-prints of 13 individuals of the white race, the results from which, as compared with the Mayas, are as follows :

	Mayas (26 soles)	Whites (26 soles)
"Maya type," i. e., a large lower triradius, excluding the plantar areas from the inner margin.....	21 (81%)	5 (19%)
"White type," i. e., no large lower triradius, the plantar areas opening freely to the inner margin....	8 (30%)	18 (70%)

The recent investigations of Miss Whipple show that there are in the human sole typically four lower triradii, one belonging to the hallucal pattern and one to each of the three plantar patterns ; and that, furthermore, they are brought so near together by the convergence of the four areas in question that in some cases, especially in that of the 1st and 2d (hallucal and 1st plantar) it is impossible to decide to which one a given triradius belongs. A large lower triradius occurring in the white race in approximately the same place as in the Mayas is perhaps best accounted for as a fusion of the two, especially as it occasionally appears partly double ; but in one important respect the triradius in question differs in the Mayas from its condition as found in the whites, and that is, in the

almost constant position of its upper radiant inside of line A, and in its consequent close relationship to the hallucal patterns (with certainty in 19 out of 26), thus suggesting that as a rule it is, in the Mayas, not a fusion of \perp_1 and \perp_2 but the former alone; while it seems in the whites more often to represent either \perp_2 , that is, the lower triradius of the 1st plantar pattern, or a fusion of this with that of the hallucal pattern.

The two remaining lower triradii (\perp_3 and \perp_4) are more definite in position and usually easy to distinguish. The first of these, that of the 2d plantar pattern, appears just below the corresponding area and is usually so arranged that its upper and outer radiants together form a broad loop, enclosing the 2d plantar pattern, while the remaining radiant, the inner one, rises from the center of the aforesaid loop and runs obliquely to the inner margin. This triradius in the above, or typical form, is fairly frequent in the white race, occurring four times in the 26 feet used for comparison, but is not once indicated in the same number of Mayas. The fourth lower triradius, on the other hand, seems to be frequent in the Mayas and rare in the white race. This is the one shown in fig. 5, *d*, and appears, always in connection with more or less definite patterns, between the 2d and 3d plantar areas. In the 26 Mayas 8 instances of this are seen, or about 30 per cent., but in the 26 whites it occurs but once as a complete triradius and is indicated once by a convergence of ridges.

Summing up the results obtained covering the lower triradii of the Mayas, although the material employed is far too scanty for definite results, we have the following:

- (a) A large triradius, approximately beneath the interspace between the hallux and the second toe, is almost universal among the Mayas; its two lower radiants extend horizontally across the foot in such a way as to exclude the three plantar areas from the inner margin; its upper radiant is more usually within than without line A, suggesting that its morphological significance is that of the hallucal lower triradius, or \perp_1 . A similar triradius is infrequent among the whites and, when present, appears through its general relationship to be either a fusion of \perp_1 and \perp_2 or the latter alone.
- (b) The lower triradius of the 2d plantar area (\perp_3), not infrequent in the white race, does not appear with certainty in the Mayas.

- (c) The lower triradius of the 3d plantar area (Δ_1) is common in the Maya race, but infrequent among the whites.

For the study of plantar areas I have prepared three tables, the first of which, table VIII, gives the formulation of the 26 Maya soles, the second, table IX, a similar formulation of four like sets of whites, 26 each; and in the third, table X, there are given the actual occurrence and the percentage of each type of pattern both in the sole as a whole and in the separate plantar areas in whites and Mayas. By means of table IX the important point is established that the number 26 is sufficient to give the characters of a race with approximate correctness, since the figures of the four sets, A-D,

TABLE VIII.—Sole Formula of 13 Mayas.

No.	LEFT SOLE				RIGHT SOLE			
333	A	O	5	Cl	A	5	Cl ^v	Cl
334	A	5	Cl	Cl	A	5	Cl	Cl
335	A	Cl	Cl	Cl	A	5	Cl	Cl
337	A	+3	Cl+3	+1+2	A	+3L	Cl	+1O
338	W	+3	Cl	+1O	AB	+2+3	Cl	+1O
341	A	+3	Cl	+1O	W	O	Cl ^v	O
340	A	+3L	ClL	+1	A	+2L	+1ClL	Cl
345	A	O	O	O H	A	5	5 ^v	Cl H
346	A	Cl ^v	O	O	B	ClOL	O	O
347	A	5	Cl	Cl	A	5	Cl	Cl
348	A	+3L	Cl	+1	A	+3L	Cl	+1O
349	A	Cl ^v	Cl+1	O	A	+3	Cl	+1O
350	A	+3	Cl	+1	W	+35	Cl	+1

NOTE.—The W patterns are all typical whorls, with cores formed of concentric circles, and with three triradii.

are in the main not very different from one another or from the general average, a principle the establishment of which allows us to draw conclusions from the small number of Maya prints with some little confidence. It must be acknowledged, however, that while in the 52 whites represented there are no cases of blood relationship so far as I can ascertain, several of the Mayas are thus related, as given in table I, and that, consequently, certain of the characters considered racial may be merely those of a family. Thus in the oft recurring formula of table VIII, A·5·Cl·Cl, four out of the six cases belong to the brothers "Can," Nos. 333-335, and thus invalidate the conclusion that the formula in question is a racial character.

TABLE IX.—Sole Formule of 52 White Females (Anglo-American) Arranged in Four Series of 13 each, for Comparison with the Same Number of Maya Sole Prints.

Series A. 13 Individuals (Female)			Series B. 13 Individuals (Female)		
No.	Left Sole	Right Sole	No.	Left Sole	Right Sole
2	W ^d	W ^d	61	A	W ^{hap} O
8	A	A	62	A	A
30	A	A	63	B	B
383	A	A	64	A	A
33	A	A	65	W ^{hap} O	W ^{hap} O
43	A	A	67	W ^{hap} O	W ^{hap} O
44	A	A	68	W ^{hap} O	W ^{hap} O
55	A	A	71	A	A
56	W ^{hap} O	W ^{hap} O	72	A	A
57	W ^{hap} O	W ^{hap} O	73	A	W ^{hap} O
58	C	W	74	W ^{hap} O	W ^{hap} O
59	W ^{hap} O	W ^{hap} O	75	W ^{hap} O	W ^{hap} O
60	W ^{hap} O	W ^{hap} O	77	A	A
Series C. 13 Individuals (Female)			Series D. 13 Individuals (Female)		
No.	Left Sole	Right Sole	No.	Left Sole	Right Sole
78	W ^{hap} O	W ^{hap} O	184	A	A
79	W ^{hap} O	W ^{hap} O	199	W ^{hap} O	W ^{hap} O
80	B	B	200	A	B
81	W ^{hap} O	W ^{hap} O	201	B	A
94	A	A	202	A	A
113	W ^{hap} O	W ^{hap} O	203	W ^{hap} O	W ^{hap} O
213	A	A	204	A	A
377	A	A	224	B	B
380	A	A	228	W ^{hap} O	W ^{hap} O
387	A	A	234	A	A
389	A	A	235	W ^{hap} O	W ^{hap} O
390	A	A	236	W ^{hap} O	W ^{hap} O
391	A	A	237	A	A

TABLE X.—*Showing Proportions Occurrence of Special Sole Characters in the Four White Series, A—D, and in the Maya.*

CHARACTERS	ACTUAL FIGURES						PERCENTAGES					
	A	B	C	D	Av. ¹	Maya	A	B	C	D	Av. ¹	Maya
Open areas [O]	46	49	48	53	49	18	59	62.8	61.5	67.9	62.8	23
Closed areas [C]	28	20	25	17	24½	35	35.9	37	32	21.7	31.7	44.8
Confluent areas [+]	7	8	9	16	10	27	9	10.3	11.5	20.5	12.8	34.6
Areas with upper loops [L]	11	13	7	3	8½	8	14	16.6	9	3.8	10.9	10.2
Areas opening outward [S]	1	0	2	1	1	10	1.3	0	2.6	1.3	1.3	12.8
Hallucal pattern A	10	13	16	12	12½	21	38.4	50	61.5	46.1	49	80.8
Hallucal pattern other than A	16	13	10	14	13½	5	61.5	50	38.4	53.8	51	19.2
O	13	15	16	18	15½	4	50	57.6	61.5	70	59.7	15.4
	12	10	11	14	11½	3	46.1	38.4	42.2	53.8	45.1	11.5
	21	24	21	21	21½	11	80.7	92.2	80.7	80.7	83.6	42.2
C	8	8	9	2	6½	4	30.8	30.8	34.6	7.7	26	15.4
	15	17	12	14	14½	21	57.6	65.4	46.1	53.8	55.7	80.7
	5	4	4	1	3½	10	19.2	15.4	15.4	3.8	13.5	38.4
+	4	4	3	8	4½	13	15.4	15.4	11.5	30.8	18.3	50
	0	3	3	3	2½	3	0	11.5	11.5	11.5	8.6	11.5
	3	3	3	5	3	11	11.5	3.8	11.5	19.2	11.5	42.2
L	7	8	5	1	5½	6	26.9	30.8	19.2	3.8	20.2	23
	2	5	2	1	2½	2	7.7	19.2	7.7	3.8	9.6	7.7
	2	0	0	1	½	0	7.7	0	0	3.8	1.9	0
S	1	0	0	1	½	8	3.8	0	0	3.8	1.9	30.8
	1	0	0	0	½	2	0	0	0	0	1.9	7.7
	0	0	2	0	0	0	0	0	7.7	0	0	0

Plantar area characters; occurrence irrespective of area. Percentages on basis of total possible occurrence, i. e., 26 x 3 = 78.

Hallucal patterns. Percentages on basis of 26, i. e., one for each sole.

Plantar area characters; occurrence on each area. Percentages on basis of 26.

Plantar area characters; occurrence irrespective of area. Percentages on basis of total possible occurrence, i. e., $26 \times 3 = 78$. Hallucal patterns. Percentages on basis of 26, i. e., one for each sole.

Plantar area characters; occurrence on each area. Percentages on basis of 26.

¹ The averages are those of the four white series, A—D, for comparison with the Mayas.

In comparing the Maya formulæ with those of the whites, tables VIII and IX, the most apparent difference is *the large number of open areas in the former and of the closed areas in the latter*, differences which are well shown in table X, where the average of the four white sets may be compared with the single Maya set. Out of the 78 possible patterns in each case (26×3), 49 of them, or 62.8 per cent., are open in the whites, and but 18, or 23 per cent. in the Mayas; while if the closed patterns be similarly compared, there are on an average not quite 25 out of 78 in the whites, as contrasted with 35 in the Mayas, or 31.7 per cent. to 44.8 per cent.

The next comparison, that of the occurrence of confluent, or partly confluent, areas, shows *nearly three times as many cases in the Mayas as in the whites*, or 13 per cent. against 34.6 per cent. Areas exhibiting the phenomenon of upper loops are of practically equal occurrence in each race, 10.9 per cent. vs. 10.2 per cent., but *in the computation of areas which open outward, the Mayas show 12.8 per cent. against 1.3 per cent. in the whites; that is, a fair proportion of occurrence against one that is a great rarity*. This is plainly correlated with the almost constant occurrence in the Mayas of a large lower triradius, stretching with its radiants across the sole and cutting off the inner margin, thereby directing the ridges of the first two areas, and of area 1 especially, toward area 3 and the outer margin. Nearly all of these instances are those of area 1, which fails wholly or in part to rise high enough to come within line D and the 4th digital triradius.

Comparing the separate plantar areas by themselves we note the following (table X, lower half, two right-hand columns):

Area 3 is in both races more apt to be open than are the others, and area 2 is more frequently closed. An open area 3 occurs in 83.6 per cent. of the whites, and a closed area 2 in 80.7 per cent. of the Mayas. The most common fusions are those between areas 1 and 3, 2 being seldom involved. An area with an upper loop is rare, except in area 1, where it is fairly common in both races (20-23 per cent.). The opening outward of an area (position 5) seems never to be possible for area 3, and in the white race is rare for the other two areas; in the Mayas it occurs occasionally in the case of area 2, and in area 1 is so common (30 per cent.), in correlation with the large lower triradius, that it may be considered a race character.

The hallucal pattern is overwhelmingly of one type, A, the one the core of which opens upward to the interval between hallux and digit II (80.8 per cent.). Nowhere near so great a proportionate occurrence of this type occurs among any of the other races examined, and in the whites, where it seems to be quite characteristic, the actual occurrence is but 49 per cent. In the Mayas the outer triradius, i. e., the one between it and area 1, is usually preserved, but is generally absent in the whites. Practically the only other pattern that occurs is the whorl, which appears in its most primitive form, with three triradii and with a core of concentric circles.

Summary of Maya Sole Characteristics.

- (a) *Plantar areas (as a whole)*: Usually excluded from the inner margin by means of the radiants of a large lower triradius between hallucal and first plantar area. In correlation with this, areas 1 and 3 become confluent in a broad sweeping curve, enclosing area 2.
- (b) *Plantar areas (separately)*: Area 1 confluent with area 3, either completely or with some of the ridges of area 1 separated by line D, and thus forced to open at the outer margin. Area 2 a broad loop surrounded by the U-shaped ridges of the confluent areas 1 and 3, thus making it a closed area. Area 3 either confluent with area 1 or with a lower triradius which embraces a part of its ridges, making it partially closed.
- (c) *Hallucal pattern*: Usually the A type, with outer triradius (i. e., the one between it and plantar area 1) persistent (19 out of 26). Aside from this there sometimes occurs the primitive whorl (W) with a core of concentric circles and with all three triradii present.
- (d) *Hypothenar and Calcar patterns*: The hypothenar seems to occur but rarely. The calcar has not been observed.
- (e) *Maya formula*:¹ As composed from the most frequent symbol for each position, the characteristic Maya sole formula would be the following:

$$A \cdot + 3 \cdot Cl \cdot + 1$$

¹ The attempt to establish a racial formula by uniting the most characteristic symbols for each part designated seems in general hardly warrantable, since the resulting combination seldom if ever occurs. Thus I have given up the attempt in most cases, e. g., Maya palms. Here, however, the similarities are so great and certain characters so constant in their occurrence that I let it stand as an experiment.

Other common or, at least, characteristic conditions are for area 1 (5); and for area 3 the escape of a part of its lower ridges by the inner margin (+ 1, O), also its closure by means of a third lower triradius (Cl.). This would give, as other common formulæ, closely related to the above,

$$A \cdot 5 \cdot Cl \cdot + 1O$$

$$A \cdot 5 \cdot Cl \cdot Cl$$

Although in 26 Maya soles the first of these occurs 8 times, and the third 6 times, 14 in all, or, if we include two with a W hallucal pattern, 16, i. e., 71 + per cent., in 104 white soles they occur but 5 times, or, with the same latitude as to hallucal patterns, 9 times (7 per cent.). As to characteristic white formulæ, the commonest is the simple $A \cdot O \cdot O \cdot O$, which occurs, with latitude as regards type of hallucal pattern and with a few other slight modifications, 39 times in the 104 soles, or 37.5 per cent. Still cases occur in both races which might well belong to the other; thus, No. 60 of series A, table IX, might well be a Maya, save for the spiral core to the hallucal pattern, and Nos. 345 and 346 of table VIII might be white. As a matter of fact there is white blood in No. 345, and perhaps in 346, but who shall say that the Maya-like formulæ of certain whites denote aboriginal ancestry? Even this is, of course, possible, but in view of the occasional similarity in individual cases in all the races thus far examined, such a conclusion is neither likely nor necessary.¹

B. — AMERICAN NEGROES

Material. — My Negro material is a little more extensive than is that from the Mayas, and is wholly due to the kindness of my assistant, Miss Whipple, who personally collected the entire set, in great part from two institutions in Providence, R. I., the Shelter for Colored Children, and the Home for Aged Colored Women. Miss Whipple received much kindness and assistance from the matrons

¹In this connection it may be interesting to note that in both soles of the woman mummy of the "Basket-people," the restoration of which has been recently described by me (*Amer. Anthropologist*, 1904, vol. VI, pp. 1-17), the formula was the simple $A \cdot O \cdot O \cdot O$, in one case with a well-formed hypothenar loop. The right hand, also, showed an extensive hypothenar pattern of the loop type. The main line formula was 11-8-7-5-C, also more like the whites than the Mayas.

and other officials of those institutions, help that has contributed in no small degree to the completion of this paper.

The following table will show the material employed and the relationship and purity of race of the individuals involved:

TABLE XI.—*List of Prints used in the Study of the American Negroes.*¹

CAT. NO.	SEX	NAME OR DESIGNATION	RELATIONSHIP, RACE, ETC.
124	♀	Mrs Thomas	
125	♀	Bessie	Daughter of 124
126	♀	A. C. W. No. 1	Inmate, A. C. W.
128	♀	A. C. W. No. 3	$\frac{1}{4}$ to $\frac{1}{2}$ Negro, inmate, A. C. W.
129	♀	A. C. W. No. 4	Matron, Home for A. C. W.
130	♀	A. C. W. No. 5	Aunt of 129, inmate, A. C. W.
166	♀	Viola Jackson	Sister of 167 and 168
167	♂	Arthur Jackson	Brother of 166 and 168
168	♂	George Jackson	Brother of 166 and 167
169	♂	Oswald	Brother of 170
170	♀	Louise	Sister of 169
171	♂	Andrew	Brother of 172
172	♀	Hope	Sister of 171
173	♀	Alice	Sister of 174
174	♀	Mary	Sister of 173
175	♀	Ethel	Sister of 176
176	♀	Lulu	Sister of 175, light color
177	♀	Leola	Very black
178	♂	John	
179	♂	Joseph	
180	♂	Eddie	"Possibly some white blood"
181	♂	Martin	Father Irish, mother nearly white
182	♀	Clarence	Very black
365	♀	Maggie Logan	Nurse maid

Palms.—The study of the palm prints of the above 24 individuals yielded the results expressed in table XII, in which are given the main line, the carpal, and the pattern formulæ.

Of main-line formulæ, which are arranged in numerical order in table XIII, there are 24 varieties, although the first, 6.5.5.3, is practically a 7.5.5.3, in which the loop is reduced in zero, thus rendering line D entirely obsolete; and in the single instance of 7.9.5.11, the fourth term is almost a 5 with an intervening triradius.

From this table it will readily be seen that *the lower formulæ, or those in which the first two terms are below 10.6, are more marked than in the Maya race. Thus in the whites 98 out of 200 formulæ, i. e., 49 per cent., were below this point; the Maya showed 28 out of 42,*

¹ Collected by Miss Inez Whipple. All are complete sets (palms and soles) except No. 125, with palms alone.

TABLE XII.—Main Line, Carpal, and Pattern Formulae of 48 Negro Hands.

CAT. NO.	MAIN LINE AND CARPAL FORMULÆ—LEFT.	MAIN LINE AND CARPAL FORMULÆ—RIGHT.	PATTERN FORMULÆ—LEFT.	PATTERN FORMULÆ—RIGHT.
124	7-5-5-3-C ^o	7-5-5-3-C ^o	0-0-0-0-3 ¹	0-0-0-0-3 ¹
125	7-5-5-5-P	7-5-5-5-C ^o	0-0-0-0-3 ¹	H-0-0-0-3 ¹
126	7-5-5-3-C ^o	8-6-5-5-C ^o	0-0-0-0-3 ¹	0-0-0-0-3 ¹
128	11-10-8-5-C ^o	9-9-5-5-C ^o	0-0-0-2 ¹ -0	0-0-0-2 ¹ -0
129	6-5-5-3-C ^o	8-6-5-5-C ^o	0-0-0-0-0	0-0-0-0-3 ¹
130	7-5-5-5-C ^{ba}	7-5-5-5-C ^{bo}	0-0-0-0-3 ¹	0-0-0-0-3 ¹
166	7-7-5-5-C ^o	11-9-7-5-C ^h	0-0-0-2 ¹ -3 ¹	0-0-0-2 ¹ -3 ¹
167	9-7-5-5-C ^o	9-7-5-5-C ^o	0-0-0-0-3 ¹	0-0-0-0-3 ¹
168	10-9-6-5-C ^o	7-9-7-5-C ^o	H ¹ -0-0-2 ¹ -3 ¹	0-0-0-2 ¹ -3 ¹
169	9-9-5-5-C ^o	11-9-7-5-C ^o	0-0-0-2 ¹ -3 ¹	0-0-1 ¹ -2 ¹ -0
170	9-7-5-5-C ^o	9-7-5-3-C ^o	H-0-0-0-3 ¹	H-0-0-0-0
171	9-8-5-5-C ^o	9-7-5-5-C ^o	0-0-0-0-0	0-0-0-0-3 ¹
172	9-7-5-1-C ^o	9-7-5-2 ¹ -C ^o	0-0-0-0-3 ¹	0-0-0-0-3 ¹
173	7-9-5-5-C ^o	11-9-7-5 ¹ -C ^{ba}	0-0-0-2 ¹ -3 ¹	0-0-0-2 ¹ -3 ¹
174	7-8-5-3-P	11-9-7-5-C ^o	0-0-0-0-3 ¹	0-0-0-2 ¹ -3 ¹
175	7-7-5-5-C ^o	7-9-7-5-C ^o	0-0-0-0-3 ¹	0-0-0-2 ¹ -3 ¹
176	7-5-5-5-P	8-6-5-5-P	0-0-0-0-3 ¹	H-0-0-0-3 ¹
177	11-9-7-5-P	9-7-5-5-C ^o	H-0-0-2 ¹ -3 ¹	0-0-0-0-3 ¹
178	7-5-5-2-P	8-6-5-3-C ^o	0-0-0-0-3 ¹	0-0-0-0-3 ¹
179	7-9-5 ¹ -11 ¹ -C ^o	11-9-7-5 ¹ -C ^o	0-0-1 ¹ -2 ¹ -3 ¹	0-0-1 ¹ -2 ¹ -3 ¹
180	7-7-5-5-C ^o	11-9-7-5-C ^o	0-0-0-0-3 ¹	0-0-0-2 ¹ -0
181	7-5-5-1-C ^o	7-5-5-3-C ^o	H-0-0-0-3 ¹	0-0-0-0-3 ¹
182	7 ¹ -5 ¹ -5-3-C ^o	9-7-5-5-C ^o	0-0-0-0-3 ¹	0-0-0-0-3 ¹
305	10-8-6-3-P	11-8-7-5-C ^o	0-0-0-0-0	0-0-0-0-0

NOTE.—The numerical exponents signify possible alternative interpretation. *t* signifies a lower triradius, either in the course of a line or occurring in the formation of a pattern. *r* means that a pattern is rudimentary.

or 66½ per cent., while in this set of Negroes there are 37 out of 48, or 77 per cent. It would be of great value could the proportions quoted here be found to obtain universally among these races, and in spite of the small number of individuals from which these statistics are deduced, since they seem to rest upon so general a set of characters, and since the difference of percentage is so considerable, I am inclined to think that some such relation will be found to obtain in general. The establishment of such a point, however, demands the compilation of data from many hundreds, if not thousands, of individuals known to be of pure blood, and in this first paper upon the subject the main object is to inquire whether distinct racial differences do exist, rather than to attempt to establish them upon such scanty data. Regarding the relative tendency to vary in the two hands, it seems that here, as in the other races dealt with, the left is considerably more variable than the right. In these 24 different formulæ

13 are found in left-hands alone and 6 in the rights alone, while 5 are common to both. In 20 Maya formulæ 10 were found in the lefts alone, 6 in rights alone, while 4 were common; and in 62 white formulæ the figures are 23 for the lefts alone, 14 for rights alone, and 25 for both.

TABLE XIII.—Occurrence of Main Line Formula in Negro Hands.

FORMULÆ.	L.	R.	BOTH.	FORMULÆ.	L.	R.	BOTH.
6·5·5·3	1	0	1	9·7·5·2	0	1	1
7·5·5·1	1	0	1	9·7·5·3	0	1	1
7·5·5·2	1	0	1	9·7·5·4	1	0	1
7·5·5·3	3	2	5	9·7·5·5	1	4	5
7·5·5·5	3	2	5	9·8·5·5	1	0	1
7·7·5·5	3	0	3	9·9·5·5	1	1	2
7·8·5·3	1	0	1	10·8·6·3	1	0	1
7·9·5·5	1	0	1	10·9·6·5	1	0	1
7·9·5·11 ¹	1	0	1	11·8·7·5	0	1	1
7·9·7·5	0	2	2	11·9·7·5	1	6	7
8·6·5·3	0	1	1	11·10·8·5	1	0	1
8·6·5·5	0	3	3				
9·7·5·1	1	0	1	Totals.	24	24	48

Formulæ occurring in lefts alone, 13. Formulæ occurring in rights alone, 6. Formulæ common to both, 5.

The abnormally large proportion of occurrence in the right hand of the highest formula, 11·9·7·5, seen in both whites and Mayas, occurs here also, and in fact in so nearly the same proportion in all as to indicate strongly the presence of a general law. Thus in 24 right palms this formula occurs 6 times, or exactly 25 per cent., and in left-hands but once, or approximately 4 per cent. For 200 palms of the white race the corresponding figures are: rights 22 per cent., lefts 4 per cent.; and for 42 Maya palms, 25 per cent. and 0. In this vastly greater success of the right hand to perfect what has been shown to be in man the position of greatest physiological advantage for the friction ridges (Miss Whipple, 1904), we are forcibly reminded of the doctrine of USE-INHERITANCE, since all the races under discussion are right-handed, and since the degree of success attained is in all cases practically the same. This is but one of numerous instances that are constantly coming up in the investigation of friction ridge configuration, all suggesting the great applicability of this study for the solution of questions of general biological interest.

The results of the consideration of the separate main lines and their terminations are given in table XIV, easily deducible from tables XII and XIII, but arranged in a more convenient form for reference:

TABLE XIV—*Frequency of Occurrence of the Various Terminal Positions, with Percentages (Negroes).*

TERMINI	LINE D				LINE C			
	L	R	Both	% (both)	L	R	Both	% (both)
1	—	—	—		—	—	—	
2	—	—	—		—	—	—	
3	—	—	—		—	—	—	
4	—	—	—		—	—	—	
5	—	—	—		9	4	13	27+
6	1	—	1	2+	—	4	4	8.3+
7	14	6	20	41.5+	6	6	12	25
8	—	4	4	8.3+	3	1	4	8.3
9	5	7	12	25	5	9	14	29+
10	2	—	2	4+	1	—	1	2+
11	2	7	9	19—	—	—	—	

TERMINI	LINE B				LINE A			
	L	R	Both	% (both)	L	R	Both	% (both)
1	—	—	—		2	—	2	4+
2	—	—	—		1	1	2	4+
3	—	—	—		6	4	10	21—
4	—	—	—		1	—	1	2+
5	20	15	35	73—	13	19	32	66.6+
6	2	—	2	4+	—	—	—	
7	1	9	10	21—	—	—	—	
8	1	—	1	2+	—	—	—	
9	—	—	—		—	—	—	
10	—	—	—		—	—	—	
11	—	—	—		1	—	1	2+

Table xv gives a comparison of the final results with those obtained from Mayas and whites (see also table v, and table II in appendix), and is thus the most important of the three in pointing out the amount of racial difference, and the extent to which one can use the main lines and their termini as ethnological criteria.

From this we may deduce the following results, which are to be considered the final results of the present paper in regard to main lines, since the prints of Chinese and other races which I possess are too few to present in tabular form:

Line D: The position (7) for this line is a marked Negro characteristic, especially as compared with the white race; over 41 per cent., as compared with 11 per cent. For the latter race the

higher positions are especially characteristic, positions (10) and (11) together receiving more than half, as contrasted with 23 per cent. in the Negroes. The characteristic Maya position is (9), 36 per cent., as contrasted with 25 per cent. in both whites and Negroes. Position (10) is very unusual in Negroes, and position (11) in both Negroes and Mayas is about half as common as in whites.

TABLE XV.—*Comparison of the Main Line Positions in Tables V and XIV.*

TERMINI	LINE D			LINE C		
	Maya	White	Negro	Maya	White	Negro
1	—	—	—	—	—	—
2	—	—	—	—	—	—
3	—	—	—	—	—	—
4	—	—	—	—	—	—
5	—	—	—	24—	8.5	27+
6	—	—	2+	7+	11.5	8.3
7	24—	11	41.5+	14+	33	25
8	7+	12	8.3+	19+	15	8.3
9	36—	25.5	25	36+	26.5	29+
10	19+	13.5	4+	—	5	2+
11	14+	38	19—	—	.5	—

TERMINI	LINE B			LINE A		
	Maya	White	Negro	Maya	White	Negro
1	—	—	—	16+	1	4+
2	—	.5	—	9+	9.5	4+
3	—	—	—	21+	20.5	21—
4	—	—	—	—	10	2+
5	66+	47	73—	50	58	66.6+
6	19+	13.5	4+	—	—	—
7	14+	33.5	21—	—	—	—
8	—	5	2+	—	—	—
9	—	.5	—	—	—	—
10	—	—	—	—	—	—
11	—	—	—	2+	1	2+

Line C: Position (5) is a little more common in Negroes than in Mayas, and in both is more than three times as common as in the white race, in which it occurs but seldom. For this latter race, position (7) is the most frequent, and is less than half as common in the Mayas, while the Negroes stand in this particular intermediate between the two. Position (9) has been given as the Maya characteristic, but is also quite common in the other races. A complete suppression of the line seldom occurs in the Negro (8.3 per cent.), but is about twice as frequent in both Mayas and whites, the Mayas leading by a little.

Line B: In all these races the most usual position is (5), but here the Negro has the decided lead. In fact this position accounts for three-fourths of the cases, and position (7) the remaining fourth. Position (6), that is, a fusion with line D, is quite common in the Mayas, about one-fifth of the cases, while in the white race position (7) claims one-third.

Line A: In Negroes a low position is not especially common, much less, indeed, than in whites, as the latter show 41 per cent. below (5) and the former but 31 per cent. For the same positions the Maya percentage is 46, — not very different from the whites, save in the important respect that in the Mayas a large part of these low positions are (1), i. e., before the carpal triradius. Thus the true conditions in these races are better seen by comparing the total percentage of positions (1) and (2), which are in Mayas 25 per cent., in whites 10.5 per cent., and in Negroes but 8 per cent. The Negroes in this respect are actually higher than the whites, and far ahead of the Mayas. In the Negro, then, position (5) is emphatically the most characteristic.

In my first attempt at looking for racial differences the material I used was that of the Negro prints Nos. 124–129, in which, as an inspection of table XIII will show, almost every formula was either 7.5.5.5; or else one easily derived from it. This I set down at once as the Negro formula, and although my later studies have necessitated a modification of my first views as to its universality, *I still think it may be typical and would like to consider that any great aberrancy from it is due to the influence of other blood.* Whether this will be borne out by later facts or not, no one can say, but the investigation of a large number, at least 100, of the prints of the natives of the Guinea coast, collected in Africa and not too near Liberia or any white settlement, might corroborate it.

It will appear at once that any near approach to one another of lines C and D would admit of three varieties: (1) where C is below D, (2) where they meet, and (3) where C passes above D; or 7.5', 8.6', and 9.7', respectively, and thus these three forms would be practically the same. Again, the figure for line A might be 4, 3, or even 2 without practically modifying the several interrelationships, and thus the typical formula would admit of at least the following varieties:

7' 5' 5' 5'
 7' 5' 5' 3'
 7' 5' 5' 2'
 8' 6' 5' 5'
 8' 6' 5' 3'
 8' 6' 5' 2'
 9' 7' 5' 5'
 9' 7' 5' 3'
 9' 7' 5' 2'

These present a different aspect when written, but might be hardly distinguishable from one another in an actual print. In the 48 Negro hands under inspection these formulæ represent 27 of them, or 56.2 per cent., while in the 42 Mayas (not admitting any case of position 1 for line A) there are 15, or 35.6 per cent., and in 200 whites, making the same reservation, yet admitting such a form as 7'5'3'2', 7'5'5'4', etc., there are 73, or 36.5 per cent. This large occurrence in the Negroes (56.2 per cent.) as contrasted with the 35.6 per cent. and 36.5 per cent. of the other two races makes the hypothesis advanced above appear rather probable. Further investigation in this direction will be awaited with great interest.

In the carpal region a parting instead of a triradius is met with 7 times in the 48 hands, or 14.6 per cent., about as in the Mayas and much less than in the whites. The two most characteristic forms of triradius are the centrally placed one, 43.8 per cent., and the one situated near the outer margin, 33 $\frac{1}{3}$ per cent., both with quite a little carpal area below them. The very low position so common in Mayas does not seem to occur.

The pattern formulæ given in table XII furnish the data used in table XVI, which gives the occurrence of each type of pattern in each hand, and the percentage in each case, as well as the percentages of Mayas and whites copied from table VII for ease of comparison. From this it will be seen that *both hypthenar and thenar patterns are of infrequent occurrence, this loss being more than made up by the almost universality of one or the other type of pattern on the 3d palmar area.* The percentage of occurrence of a loop pattern on the second area, caused by a recurving of line C to the inner side, is singularly constant in all three races, 33 $\frac{1}{3}$, 34, and 37 per cent., respectively.

TABLE XVI.—*Occurrence of Patterns in Palms (Negroes) with Comparison of Mayas and Whites.*

DESIGNATION OF PATTERN.	NEGRO (48).				MAYA (44).	WHITE (100).
	L.	R.	Both.	%	%	%
Hypothenar	4	3	7	14.6	4.5	4.1
Thenar (up and down)	5	4	9	18.7	50	7
1 (triradius)	1	2	3	6.2	4.5	2
2 (triradius)	0	0	0	0	0	1
2 (loop)	7	9	16	33.3	34	37
3 (triradius)	9	8	17	35.4	29.5	15
3 (loop)	13	13	26	54.1	29.5	44
Total. ¹	39	39	78	222.3	152	147

¹ Here, as in table VII, the totals have little value, but serve to show the relative occurrence of patterns in the various races.

In the third area the false or loop pattern is much commoner than the true one formed by means of a triradius, as is also true in the white race, but in the Mayas the two are exactly equal in occurrence. The total number of Negro hands on which the third area has a pattern is not quite 89.5 per cent., the number obtained by adding the percentage of occurrence of each type as given above, since in a few cases both types appear simultaneously, but the percentage is not far out of the way and may be safely quoted at 85 per cent., as contrasted with 59 per cent. in both Mayas and whites, *thus establishing it as a Negro characteristic.*

Summary of Negro Palm Characteristics.

- (a) *Main lines*: An overwhelming percentage of occurrence of the lower formulæ, but without the especially low position of line A, characteristic of the Mayas. The commonest formulæ are 7.5.5.5., 8.6.5.5., and 9.7.5.5., and various slight modifications of them, representing 56.2 per cent. of the 42 cases investigated, while in both Mayas and whites the proportion is 35-36 per cent. Correspondingly the higher formulæ (those beyond 10.6) are conspicuous for their infrequency. (Cf. table XIII with table I of the appendix.)
- (b) *Carpal area*: A triradius is almost constant, about as in the Mayas, the two most characteristic forms being the central and lateral. A well-defined carpal area is usually present, and the very low position of the triradius, rendering the area obsolete, so common in the Mayas, is of infrequent occurrence.

(c) *Patterns*: Correlated with the occurrence of the lower formulæ a loop pattern on area 3 is very common, since position (7) for lines D or C, or the fusion of the two, would produce it. Since, as it happens, a genuine (triradius) pattern occurs on the same area in more than a third of the cases, sometimes indeed side by side with a false or loop pattern, it results that area 3 is seldom without one or the other type (85-90 per cent.). This brings the total of pattern occurrences far beyond that in the other races examined, although, as a matter of fact, the other patterns are considerably less frequent than in the whites or Mayas. Hypothenar and thenar are of about equal occurrence, but the former is but a third as frequent as in the whites, and the latter less than two-fifths as frequent as in the Mayas.

Soles.—As material for this investigation I have sole prints of all the Negroes given in table XI, with the exception of No. 125, making a total of 23 individuals. Of these the sole characters are shown by means of descriptive formulæ in table XVII from which the actual occurrence of each character, with their percentage values, may be easily deduced.

TABLE XVII.—Sole Formulæ of 23 American Negroes.

CAT. NO.	SOLE FORMULÆ—LEFT					SOLE FORMULÆ—RIGHT				
124	B	5+3	Cl	+1	—	W ^h	+3	Cl	+1	—
126	W ^h	OL	O	Cl ^h	—	W	O	O	Cl ^h	—
128	BC	+3	Cl	+10	H	BC	Cl	13	O	H
129	BC	+3	Cl	+10	—	BC	+3	Cl	+10	—
130	W ^h	O	Cl ^h	Cl ^h	H	W ^h	Cl ^h	5	Cl	H
166	W ^h	O	O	O	H	W ^h	O	O	O	—
167	W ^h	+3	Cl+3	+1	H	A	+3	Cl	+1	—
168	W	O ^h L	Cl	Cl ^h	—	W	5	Cl ^h	Cl	—
169	A	O ^h	Cl ^h	O	H	A	O	O	O	—
170	AC	O	O	O ^h	—	AC	O ^h	O	Cl ^h	H ^h
171	W ^h	OL	OC ^h	O	H	W ^h	OC ^h	Cl ^h	O	H
172	W ^h	O	Cl ^h	O	H	W ^h	O	O ^h	O	—
173	W ^h	O	Cl ^h	Cl ^h	H	W ^h	O ^h	O ^h	O	H
174	W ^h	O	O ^h	O	—	W ^h	O	O ^h	O	—
175	BC	+3	Cl	+1	H	BC	+3	Cl	+1	—
176	B	O	Cl ^h	O	H	B	+2	Cl+1	O	H
177	B ^h	Cl ^h	Cl	Cl ^h	—	B ^h	Cl ^h	Cl	Cl ^h	—
178	W ^h	OL	O	O	H	A	OL	O	O	H
179	B ^h	5L	Cl+3L	Cl+2	H	B ^h	+3L	Cl	+1	H
180	B ^h	+3L	+3ClL	+1	—	B ^h	Cl ^h L	ClL	O	—
181	A	O	O	O	—	A	O	O	O	H
182	W ^h	OL	O ^h	O ^h	H ^h	B ^h	O+3	Cl	+10	H ^h
365	W ^h	O	O	O	—	W ^h	O	O ^h	O	—

TABLE XVIII.—*Showing the Occurrence of Special Characters in the Soles of Table XVII.*

Characters	ACTUAL FIGURES				PERCENTAGES ¹			
	Area 1	Area 2	Area 3	Total	Area 1	Area 2	Area 3	Total
Open areas [O]	27	19	27	73	58.7	41.3	58.7	52.9
Closed areas [C]	6	26	11	43	13.1	56.5	23.8	31.1
Confluent areas [+]	13	4	13	30	28.3	8.7	28.3	21.7
Upper loop [L]	10	3	0	13	21.7	6.51	0	9.4
Open outward [S]	3	1	2	6	6.51	2.17	4.34	4.34

From a comparison of this table with table x, in which are collected the corresponding data from whites and Mayas, there may be deduced the following facts, more or less important as Negro characters:

The proportion of open areas, 52.9 per cent., lies between the 62.8 per cent. of the whites and the 23 per cent. of the Mayas; and that of the closed areas is the same as in the whites (31.1 vs. 31.7 per cent.). The figures for the separate areas show that in the Negroes areas 1 and 3 are equally apt to be open, while in whites and Mayas area 3 shows a much stronger tendency in this direction than area 1. As in the other races, area 2 is the most often closed, the tendency being almost that of the whites (56.5 vs. 55.7 per cent.). The tendency toward the fusion of areas is intermediate between Mayas and whites, the three sets of percentages of Mayas, Negroes, and whites respectively being 34.6, 21.7, and 12.8 per cent. As in the other cases, areas 1 and 3 are usually the ones that fuse. The figures for the occurrence of an upper loop are in close accord with those of the other races, and seem to emphasize a general human tendency beyond the influence of race. Areas that open outward are a little more frequent than in the white race, but not nearly so common as in the Mayas, doubtless owing to the infrequency of the large lower triradius, characteristic of the Mayas.

The deductions thus far are of a negative character, and do not serve to point out any trait especially distinctive of the Negro race. The tendency to the approximation of, or in numerous instances the almost complete identity with, the proportions of the whites, may suggest the almost universal admixture of blood, not only ad-

¹ For the separate areas the percentages are calculated on a basis of 46, the number of soles; for the totals the basis is 138, the number of areas (46×3).

mitted as a general fact, but shown by unmistakable bodily characteristics in many of the individuals under present examination. What might be the results from prints taken from the native race in Africa can be only surmised, but the results thus far render such an investigation of great importance.

A far more hopeful set of characters, in which positive results may be obtained, is that of the hallucal pattern. Remembering the statistics concerning Mayas and whites, especially the almost universal occurrence of the A type in the former and the moderate frequency of the W type in the latter, it is of much interest to note the following comparison of statistics:

TABLE XIX.—*Comparison of Hallucal Patterns in Negroes, Mayas, and Whites.*

TYPE	ACTUAL FIGURES			PERCENTAGES ¹		
	Negro	Maya	White	Negro	Maya	White
W	22	3	38	47.8	11.5	38
A	6	21	49	13.1	80.7	49
B	10	1	10	21.7	3.8	10
C	0	0	1	0	0	1
AC	2	0	1	4.34	0	1
BC	6	0	1	13.1	0	1
AB	0	1	0	0	3.8	0

Here will be seen in the Negroes two positive characters and one negative one, namely, the high percentage of occurrence of the W and B types, and the subordinate position held by type A. The first of these characters, the dominance of type W, shows considerable increase over the white race, where this character is quite conspicuous, and between the Negroes and the Mayas the difference is a marked one. Besides that of the percentage of occurrence, type W differs in the three races in another way, and that is by its triradii and the formation of its cores. In the Mayas this type, when it occurs, is in its most primitive condition, with three triradii and with a core of concentric circles, while in both whites and Negroes, the outer triradius, i. e., the one between hallux and digit II, has usually disappeared (= exponent *d*). The core of the pattern in the whites is most frequently a spiral (27 out of 38); in the Mayas the primitive con-

¹ In calculating the percentages it must be remembered that the observations are based on 46 Negro and 26 Maya soles. For the whites 100 soles were taken from table IX, rejecting the last four—Nos. 236 and 237.

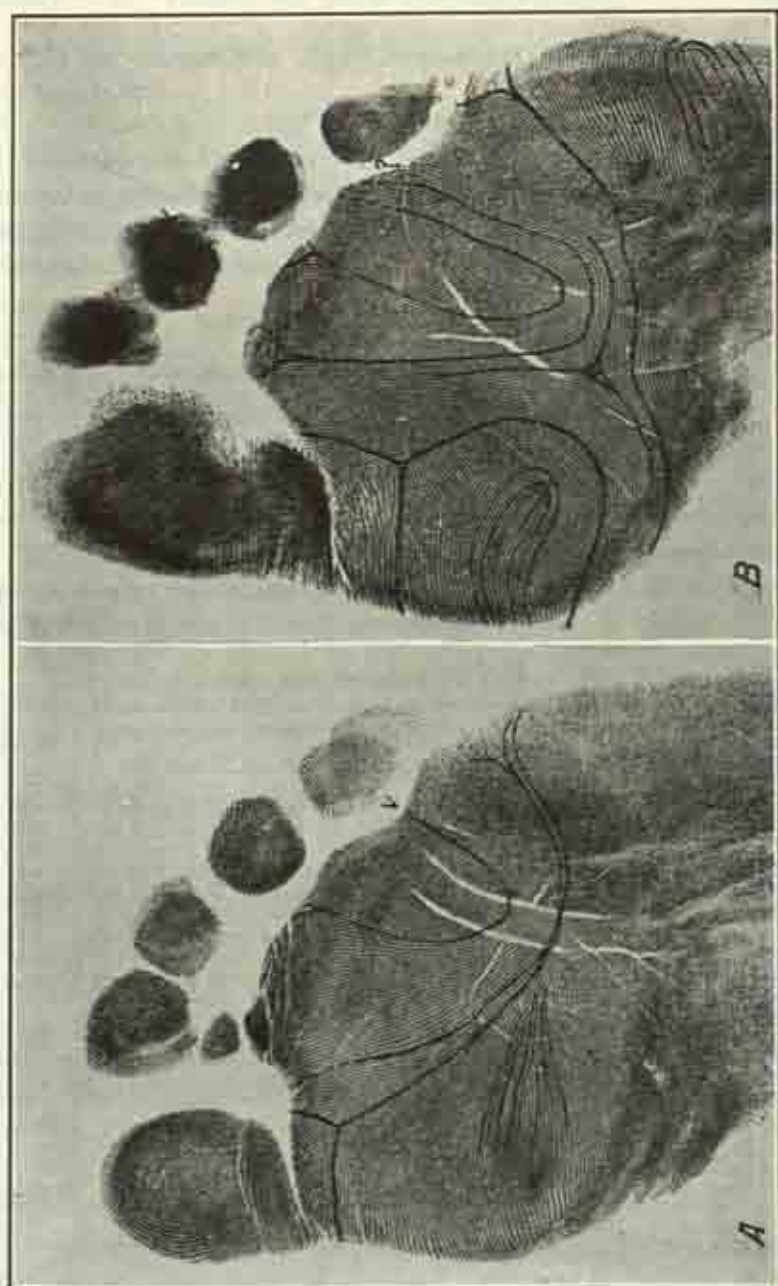
centric circles ; and in the Negroes either the latter or an S-shaped figure, seldom a spiral (2 out of 22).

The second Negro character, which is especially striking when one looks through a set of prints, is the frequency of type B, either by itself or in connection with some other change, as BC (plate xi). Out of 46 soles under discussion, B alone occurs 10 times, and in connection with C six times more, making a total of 34.8 per cent. As this type displays no conspicuous core other than a loop that is often very broad, it frequently appears as though a definite hallucal pattern were lacking, and, indeed, in my first examination of these prints, before the underlying morphological principles had been established, I characterized such cases as "no hallucal pattern." Such a phenomenon, occurring so frequently in a set of prints, cannot fail to arrest attention, and if found to be definitely characteristic of the Negro, will prove a convenient element in diagnosis of race.

A hypothenar pattern (H) seems almost as common in the Negroes as in the whites ; and of the calcar pattern, occurring in the whites at the ratio of about 1 per cent., no trace is found in the 46 Negro soles.

Summary of Negro Sole Characteristics.

- (a) *Plantar areas* : All that can be said here is that in the usual features, such as open and closed areas, etc., the Negroes show nothing that can be considered characteristic. In some points they stand intermediate between Mayas and whites, generally nearer the latter, and in others the correspondence between Negroes and whites is almost exact, points which may be due to the infusion of white blood, which is conceded to be universal.
- (b) *Hallucal patterns* : The most frequent type is the W, the core of which is formed either of concentric circles or an S-shaped figure. The outer triradius is deficient. Type B occurs with far greater frequency than in any of the other races examined, and, through this fact as well as its conspicuous character, may be of considerable use as a racial criterion. Type A is conspicuous for its infrequency, especially as it is the dominant character in the Mayas and very common in the whites.
- (c) *Hypothenar and calcar patterns* : The hypothenar pattern occurs as frequently as in the whites ; a calcar pattern has not yet been recorded.



SOLE PRINTS OF NEGRO CHILDREN, SHOWING CHARACTERISTIC HALLUCAL PATTERNS (NATURAL SIZE).
A, Catalogue No. 173; formula: $BC + 3 \quad CI + 3 \quad -$; *B*, Catalogue No. 176; formula: $B + 6 \quad CI + 3 \quad O. H.$

(d) No characteristic *Negro formula* can be ventured upon at present.

C. — CHINESE.

Material.—I have been able thus far to obtain but very little material representing the Mongolian race, my entire collection being limited to prints of nine Chinese, of but four of whom I possess both palm and sole prints (table xx).

TABLE XX.—*List of Prints of Chinese.*¹

CAT. NO.	NAME	CAT. NO.	NAME
299	Chung Gip	315	Quan Dong
300	Quan Sing	316	Chin Kay
301	Quan Gea	317	Hay Wah
302	Quan Wah	318	Ung Dong
314	Wo S. Mon		

Those that I have are, for the greater part, extremely well taken, and are due to the efforts of Mr Chung Gip of Springfield, Mass., whom I wish to thank in this connection.

TABLE XXI.—*Descriptive Formulae of the Palms of Nine Chinese.*

CAT. NO.	MAIN LINE AND CARPAL FORMULÆ		PATTERN FORMULÆ	
	Left Palm	Right Palm	Left Palm	Right Palm
299	7 · 5 · 5 · 2 · P ¹	8 · 6 · 5 · 3 (?)	H · 0 · 0 · 0 · 3 ¹	H · 0 · 0 · 0 · 3 ¹
300	7 · 5 · 5 · 5 · C	8 · 6 · 5 · 5 · P ¹ ₂	0 · 0 · 0 · 0 · 3 ¹	0 · 0 · 0 · 2 ¹ · 3 ¹
301	7 · 5 · 5 · 3 · C ⁰	8 · 6 · 5 · 3 · C ⁰	0 · 0 · 0 · 0 · 3 ¹	0 · 0 · 0 · 0 · 3 ¹
302	10 · 8 · 6 · 2 · C ⁰	illegible	0 · 0 ⁰ · 0 · 0 · 0	illegible
314	5 ¹ · 5 · 5 · 5 · P ¹	10 · 8 · 6 · 5 · C ⁰	H · 0 · 0 · 0 · 3 ¹	0 · 0 · 0 · 0 · 3 ¹ ₂
315	9 · 7 · 5 · 3 · P ¹	9 · 8 · 5 · 3 · P ¹	0 · 0 · 0 · 0 · 3 ¹	0 · 0 · 0 · 0 · 0
316	11 · 8 · 7 · 2 · C ⁰	11 · 8 · 7 · 5 · C ⁰	0 · 0 · 0 · 0 · 0	0 · 0 · 0 · 0 · 0
317	7 · 5 · 5 · 1 · C ⁰	illegible	0 · 0 · 0 · 0 · 3 ¹	illegible
318	10 · 7 · 6 · 3 · C ⁰	10 · 7 · 8 · 5 · (?)	H · 0 · 0 · 0 · 3 ¹	0 · 0 · 0 · 0 · 3 ¹

TABLE XXII.—*Descriptive Formulae of the Soles of Four Chinese.*

CAT. NO.	LEFT SOLE	RIGHT SOLE
299	A ⁰ · 0 · 0 · 0 · —	A · 0 · 0 · 0 · —
300	W ⁰ ₂ · 0 · 0 ¹ · 0 · —	W ⁰ · 0 · 0 ¹ · 0 · —
301	A · 0 · 0 ¹ · 0 · —	B · 0 · 0 ¹ · 0 · H
302	A ⁰ · 0 · 0 ¹ · 0 · —	A ⁰ · 0 · 0 · 0 ¹ · 0 · —

From the descriptive formulæ of these prints (tables XXI and XXII) several points may be obtained, *important in relation to the*

¹ Collected by Mr Chung Gip.

² Palms and soles both; the others are represented by palms alone.

general question of the paper, that of the racial value of the markings. It will be noticed that the formulæ of the palms are in no way different from those of the other races studied; that, for example, the "Negro formula" 7·5·5·5 occupies a prominent place, and that the higher formulæ also are well represented. In the patterns of the palm, both thenar and hypothenar occur and are of the typical form, showing nothing unusual save perhaps in the single instance of No. 299 right, where the hypothenar pattern takes an unusually low position, yet one that can be duplicated among my collection of hand-prints of the white race.

The formula 5·5·5·5 (314 left) is indeed unique, being the first instance of its kind yet noted, but the singular condition is due to a coincidence of a third lower triradius and an open line C at the same time, thus causing line D at about the middle of the palm to bend sharply back upon itself. The condition is singular, but it may be doubted if it is a distinctively Chinese character, since the remainder of the prints bear such a familiar appearance. *An important point may be noted in the soles: the almost universality of open areas, and if this can be established by other prints as a Chinese or Mongolian character, it will be a point of great ethnological importance.* However, three of the four individuals investigated have the same surname (i. e., first name), Quan, and are probably closely related, thus giving the likelihood that the coincidence is a family rather than a racial character.

In general it may be said that the study of these few Chinese prints is of value in still further emphasizing the conclusion already reached that *the individual palm and sole characters are of no value as racial criteria, and repeat themselves, both in typical form and in all their variations, in human beings of every race thus far examined, races representing extreme, though in no cases absolutely pure, types.*

III. — GENERAL CONCLUSIONS

1. In all the races studied thus far, there is much individual variation in the palm and sole markings.

2. As a result of this a given print can be duplicated, so far as its main features are concerned, among individuals of a totally distinct race.

3. If, however, instead of a single set of prints, a large number be studied and the average occurrence of the various features obtained, these averages will be constant or nearly so for a given race. As a racial diagnostic such results will serve to distinguish peoples widely different from one another, but it is hardly probable that they will be reliable in the case of related tribes. Thus, a collection of Maya prints may be distinguished from an equal number of whites, but it may be surmised that the Mayas could hardly be distinguished from an allied Indian tribe.

4. The number sufficient to obtain reliable averages is not necessarily a large one, as it has been shown that from sets of 13 individuals similar results are obtained. The accuracy, however, increases with the number of prints employed, and, since the two hands show differences in amount of variation, it may be suggested that an ideal set for the study of the palms would consist of the left hands alone of 100 different individuals; for the soles, in the absence of knowledge concerning the relations of left and right, it would be safe to take the same.

5. The greatest amount of variation observed is that seen in the white race, formed in all probability from a vast number of original ethnic elements; and the least is that found in the Mayas, thus suggesting that the nearer one gets to a primitive race the less the amount of variation.

6. The above fact (5) suggests the hypothesis that in an absolutely pure race there may be but one general type of palmar and plantar configuration, admitting slight variations due to difference in proportion between the areas and other elements. It is greatly to be desired that prints be obtained from the purest racial stocks now living, to prove or to disprove this hypothesis.

APPENDIX

The following tables show the main-line formulæ and their relative occurrence in the palms of 100 females of the white race. They are taken from an article by the author in *Popular Science Monthly*, September, 1903, by permission of the editor, Prof. J. McKeen Cattell:

TABLE I.

FORMULE	L	R	FORMULE	L	R	FORMULE	L	R	FORMULE	L	R
1 ¹ 7.5.5	1	1	8.6.5.5	2	6	10. 7.6.5	3	4	11. 8.7.2	1	2
1 ² 8.7.5	1	0	8.7.6.5	0	1	10. 8.6.3	0	1	11. 8.7.3	1	0
1 ³ 9.5.5	1	1	9.7.5.1 ¹	1	0	10. 8.6.5	1	2	11. 8.7.4	0	2
1 ⁴ 9.7.5	0	1	9.7.5.1	1	0	10. 9.6.2	1	0	11. 8.7.5	4	3
1 ⁵ 10.8.11	0	1	9.7.5.2	3	1	10. 9.6.3	1	0	11. 8.9.5	0	1
7.1 ² 5.4	0	1	9.7.5.3	3	2	10. 9.6.4	1	1	11. 9.7.1 ¹	1	1
7.5.3.2	1	0	9.7.5.4	0	4	10. 9.6.5	2	2	11. 9.7.1 ¹	1	0
7.5.5.2	2	0	9.7.5.5	5	11	10.10.6.5	0	1	11. 9.7.3	2	1
7.5.5.3	6	1	9.8.5.3	4	1	10.10.8.5	0	1	11. 9.7.4	2	0
7.5.5.4	1	1	9.8.5.4	1	0	11. 7.5.3	1	0	11. 9.7.5	4	22
7.5.5.5	2	2	9.8.5.5	2	2	11. 7.5.5	1	0	11.10.8.1 ¹	0	1
7.9.5.3	1	0	9.8.7.5	0	1	11. 7.7.1	1	0	11.10.8.4	1	0
7.9.5.5	0	1	9.9.5.3	1	0	11. 7.7.2	1	0	11.10.8.5	1	4
7.9.5.11	1	0	9.9.5.5	2	2	11. 7.7.3	1	1	11.11.8.5	0	1
8.6.5.2	2	0	10.7.6.2	5	0	11. 7.7.4	1	0			
8.6.5.3	9	4	10.7.6.4	1	0	11. 7.7.5	8	4			

TABLE II.

TERMINUS	LINK D			LINK C			LINK B			LINK A		
	L	R	Both	L	R	Both	L	R	Both	L	R	Both
1 ¹	—	—	—	—	—	—	—	—	—	1	1	2
1 ²	—	—	—	—	—	—	—	—	—	2	1	3
1 ³	—	—	—	—	—	—	—	—	—	—	—	—
1 ⁴	3	4	7	—	1	1	—	—	—	—	—	—
1	—	—	—	—	—	—	—	—	—	2	0	2
2	—	—	—	—	—	—	—	—	—	16	3	19
3	—	—	—	—	—	—	1	0	1	30	11	41
4	—	—	—	—	—	—	—	—	—	8	9	17
5	—	—	—	12	4	16	53	41	94	40	74	114
6	—	—	—	13	10	23	15	12	27	—	—	—
7	14	6	20	37	29	66	29	38	67	—	—	—
8	13	11	24	15	15	30	2	8	10	—	—	—
9	23	24	47	21	32	53	0	1	1	—	—	—
10	15	12	27	2	8	10	—	—	—	—	—	—
11	32	43	75	—	1	1	—	—	—	1	1	2

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ARCHEOLOGY OF THE OZARK REGION OF MISSOURI

By D. I. BUSHNELL, JR.

INTRODUCTION

The southern part of Missouri presents an interesting and extensive field for archeological research, and one of which little is known.

The surface of the southern half of the state, south of Missouri river, is very rough and irregular; the bluffs which extend along the Mississippi, and the ridges of Jefferson, St. François, and other border counties may be considered the foot-hills of the Ozarks, which, as they continue westward, gradually rise until, in Green and Dallas counties, they attain an elevation of about two thousand feet. Throughout the region are many rapid streams of clear spring water; the Osage, the Gasconade, and many lesser streams flow northward and empty into the Missouri, while the James, the Black, and others flow in a southerly course and join White river, itself a tributary of the Arkansas. A great part of the country is covered with a heavy growth of timber — oaks and cedars on the ridges and many varieties of soft wood in the lowlands.

That the country was well adapted to the wants and requirements of the native tribes is evident, and that it was at one time thickly peopled is shown by the great number of village or camp sites and other prehistoric remains which have been discovered. The existing evidence and remains of the Indian occupancy may be divided into three classes:

1. Remains in the caves.
2. Village and camp sites.
3. Extensive groups of small mounds.

I.—THE CAVES

Numerous caves exist in the limestone bluffs bordering the Gasconade, the Piney (a branch of the Gasconade), the Niangua, and

other streams throughout the Ozarks. Many are quite large; those near the Gasconade and Piney rivers usually consist of one large chamber having an opening from ten to fifteen feet in height and often fifty or sixty feet in width, while from the main chamber passages lead to other cavities. Few caves are without a stream of clear, cold water several inches deep and four or five feet in width. In many it is possible to ascend the streams several hundred yards.

The caves show evidence of having been occupied for a long period. At the openings are masses of wood ashes and charcoal, filling the space between the sides to a depth of five feet or more — in one cave the depth of the deposit is more than seven feet. The accumulations do not appear to be stratified, but apparently resulted from long-continued occupancy. Intermixed with the charcoal and ashes are implements of stone and bone, fragments of pottery vessels, and shells from the river beds, as well as bones of various animals, birds, and fishes, which served as food. Such vast quantities of ashes are conclusive evidence that man occupied the caves during many generations, possibly centuries.

In a cave near the Piney, a few miles above its mouth, is a small stream about three inches in depth and several feet in width, which enters the main chamber through an opening not more than four feet in height. A few yards up the stream the passage widens several feet and continues so for a short distance; this was caused by pieces of chert having been detached from the mass, *in situ*. The stone had been quarried and used by the Indians, and the bed of the stream was strewn with broken and roughly-formed implements.

This general description will apply to all caves in the valleys of the Gasconade and Piney, as well as to many others in various parts of the Ozarks. No indications of the existence of man preceding the modern Indian have as yet been discovered in the caves.

II. — VILLAGE AND CAMP SITES

The village and camp sites occur in the bottoms, on the banks of the rivers. Where two streams unite there is always evidence of a settlement; in several instances stone implements may be found scattered over an area of ten acres or more, indicating the site of a large village. An extensive village site exists on the right bank of

the Gasconade, a few miles below the mouth of the Piney. Near the center is a shell-heap, fifty or sixty feet in length, in which have been found fragments of pottery vessels and broken implements of stone and bone. Another site, although smaller, occupies the level area on the left bank of the Gasconade opposite the mouth of the Little Piney. On the right bank of the Piney, at the mouth of Spring creek, are the remains of an extensive settlement, near the center of which is a large shell-heap.

Graves are found on the summit of the bluffs overlooking the streams and lowlands. The bodies had been placed either upon the surface or in a slight depression made by removing the thin layer of earth and mold which covered the rocks. Upon and over the remains were placed stones, forming heaps from two to four feet in height. Only small fragments of bone remain, and few ornaments or objects of stone or pottery are ever found in contact with the burials.

A large settlement was also situated at the mouth of the Piney, in Pulaski county; and, indeed, evidence of camps may be found on every prominent and desirable point along the water-courses.

In the valleys of James and White rivers, sites are even more numerous and more clearly defined than in the vicinity of the Gasconade. That part of the state being thinly settled, much of the bottom land has not been cultivated, consequently many of the ancient sites remain as they were left by the Indians.

A very important and apparently extensive site is situated on the E $\frac{1}{2}$, of lot 1, S. W. $\frac{1}{4}$ of Sec. 9, Tp. 22, R. 23, Stone county, on the left bank of White river. Near the center of the site were found four large sandstone mortars, the concavity of the largest being about fifteen inches in diameter and six inches in depth, while the block of stone was more than two feet in thickness. Mortars of similar form, though much smaller, were found on many sites along both rivers. One interesting specimen was found on the village site situated on the E $\frac{1}{2}$ of Sec. 22, Tp. 23, R. 24, Stone county, on the left bank of James river. A rectangular block of sandstone has been used, the concave surface being six inches in diameter. A village covering several acres was once situated on the left bank of White river, near the mouth of Bull creek, in

Taney county; while only a few miles below, on the opposite side of the river, were indications of a much larger settlement. Numerous camp sites were discovered on the banks of the river, and were always found where creeks entered the larger streams.

Quantities of stone implements were found scattered over the surface of the twenty or more sites which were examined in the valleys of James and White rivers, but not a fragment of pottery was discovered. Evidently earthenware was neither made nor used by the occupants of these villages. On the other hand, while many potsherds are found on the ancient sites along the Piney and the Gasconade, no stone mortars have ever been discovered there. The entire region is worthy of careful and thorough examination; the results would be of scientific value and doubtless many interesting specimens would be revealed.

These numerous sites, some of which are very extensive, certainly indicate the existence, during some former time, of a large population in the valleys of the Ozarks.

III. — GROUPS OF SMALL MOUNDS

On the high plateau of Dallas county, north of the Niangua, which is a tributary of the Osage, are extensive groups of small, low, artificial mounds. In one a fire-bed was discovered beneath only a few inches of earth and vegetable mold; in another a small arrowpoint was found near the original surface; but neither objects nor indications of fire were discovered in any other mound, although many were examined. These mounds occur in groups of from one hundred to one hundred and fifty; within an area smaller than ten square miles, eight hundred and sixty were counted. They are placed in parallel rows, usually along water-courses or on the western slopes. Many of the mounds were measured and the average diameter found to be forty-five feet, elevation twenty-seven inches.

No indications of villages were discovered in the vicinity of the mounds, and no implements of stone or bone were found on the surface. It is difficult to conceive for what purpose the mounds were erected, unless to serve as elevated sites upon which the habitations were placed. If this be the correct explanation, there should cer-

tainly be indications of the occupancy, either in the form of implements or of ashes and charcoal. Nothing of this character, however, is found, and the absence of graves in the vicinity is also difficult to explain.

Near Iron Mountain, in St. François county, more than five hundred of these small mounds, arranged in parallel rows following the direction of the water-courses, were counted within a radius of three miles. The most interesting group is situated in the valley west of Iron Mountain. One mound of this group is shown in plate XII. No objects or graves were discovered in the vicinity.

A group of some fifty similar mounds is situated on the right bank of the Meramec, about six miles above its mouth, in Jefferson county. A few mounds of the same type are also found on the bank of the Mississippi, above the mouth of the River des Peres, within the city of St. Louis.

Many other mound groups are known to exist in different localities, but the description of one is applicable to all.



A SMALL MOUND NEAR IRON MOUNTAIN, SAINT FRANÇOIS COUNTY, MISSOURI

"CASCO FOOT" IN THE FILIPINO

By GEORGE A. SKINNER

Away back in the obscurity of prehistoric times, someone in the archipelago which we call the Philippines built a boat for the navigation of the rivers of those islands. What the type of the primitive boat was is difficult to determine, perhaps, but from the lack of change that has characterized the people since anything has been known about them, one may assume that the modification in structure, if any has occurred, has been gradual and not greatly marked. The presence of certain peculiarities of the people who spend their lives on these boats attracted the attention of the writer soon after arriving in the Philippines, and the abnormal development of the feet especially interested him. There were but few opportunities to obtain photographs of the feet, but the accompanying illustration (pl. XIII, 2) shows a notable example.

A brief description of the *cascos*, as these boats are called, may throw some light on the peculiar foot-development—deformity, one is tempted to call it,—but as such feet are very useful to their owners in plying their particular vocation, one must consider that feet of this formation are an attempt on the part of nature to adapt these people to their occupation.

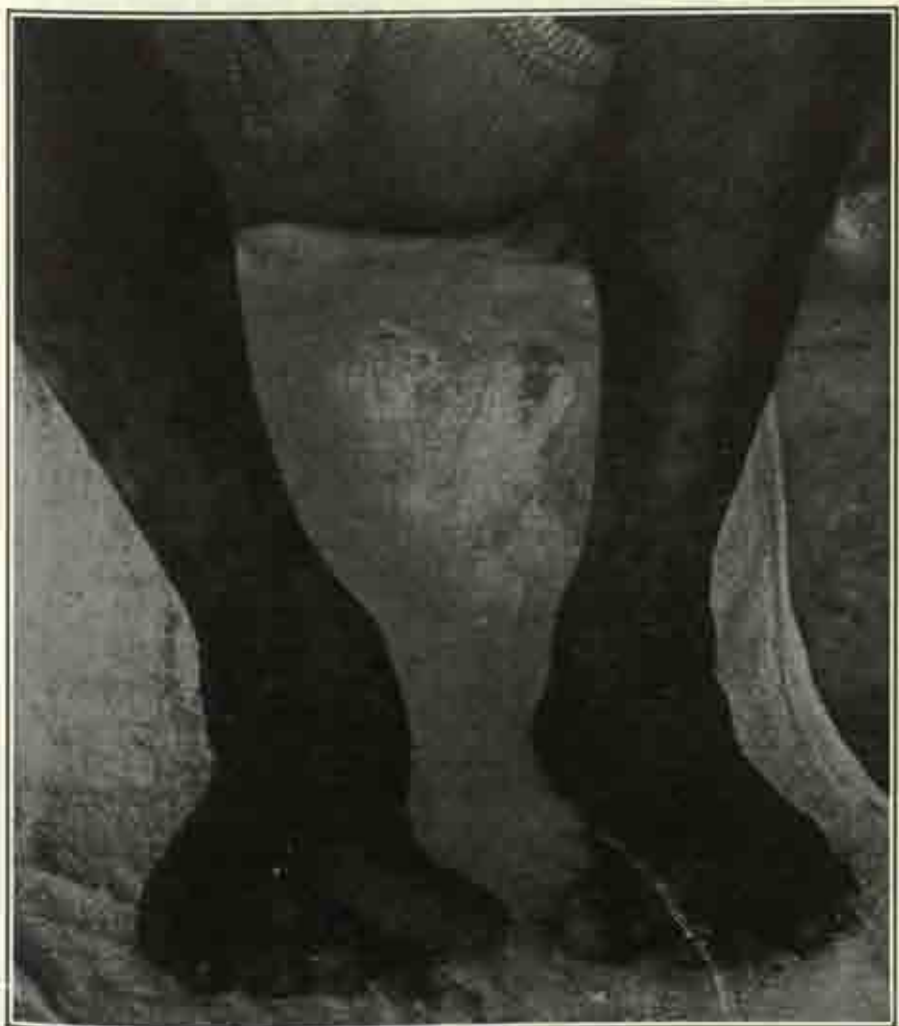
The *cascos*, as observed in the northern and central parts of Luzon, vary in length from twenty to more than a hundred feet. This description applies to the river boats and not to the sea-going *cascos*. There are seven pieces in these *cascos*—a bottom plank, four side planks, the bow post, and the stern piece. Whatever the length of the boat, the planks forming the sides and bottom are always in single lengths, and this seems to limit their size, as I have never seen one with jointed planking. Along the edges of the planks, where they come in contact with the bottom or side pieces, a row of holes, about six or eight inches apart and nearly an inch in diameter, are bored, and by means of these holes the planks are

laced together with rattan thongs. Two of the side planks are somewhat narrower than the other two, and these are first laced to the bottom and to the bow post. Then the wider planks are laced to the ones last mentioned, forming an overlapping joint with the wider plank outside. The stern piece is then put in place and likewise secured by lacing. All the holes are then calked with coconut fiber, which is first dipped in pitch or tar, if the builders happen to have it. The general form of the casco is that of boats the world over. Their lines as a rule are graceful and they are surprisingly seaworthy. When the hull is completed, strong bamboo poles are placed across the upper surface of the upper plank, and the ends project about three feet over the side in the medium and large boats, proportionately less in the small ones. A boat about a hundred feet long usually approximates five feet deep, and these proportions are relatively maintained whether the casco is a large or a small one. To the projecting poles smaller bamboo poles are laced longitudinally, forming a running-board, on which the boatmen stand when pushing the craft up-stream. Across the running-board, at intervals of ten or twelve inches, are laced bamboo strips, against which the toes are braced when the boat is propelled. A covering, made of a variety of palm leaves, on light but strong bamboo frames, reaches nearly the whole length of the casco, thus protecting the occupants and cargo alike from sun and rain. At the stern is a small elevated platform, just high enough to enable the pilot, who stations himself at that point, to view the length of the vessel. A glance at the illustration (pl. XIII, 1) will probably make the description clearer.

To propel the casco the *bugadores* (boatmen) use long bamboo poles, one end of which is armed with a spike, while the other has a knob of polished wood which rests against the shoulder. When the start is to be made the men place these poles in position against the shoulder, then commence to push by walking toward the end of the casco. When the load is heavy, or the boat is being propelled up-stream, the effort required is very great, and under such circumstances both hands and both feet are used, the entire weight of the body and all the strength of each man resting on the knob of his pole, the other end of course resting on the bottom of



1. Filipino Bugadores at Work



2. Feet of a Filipino Bugador
CASCO FOOT IN THE FILIPINO

the river. The toes and hands both grasp the cross-pieces on the running-board, or the feet may even be elevated until they rest on the casco covering. The positions will be understood readily by noting the attitudes of the men represented in the photograph.

The second man has just commenced to push, the third one is well toward the middle of his exertion, while the fourth and the first ones are just completing a turn and are ready to walk toward the bow of the casco to start again. The third man is using both hands and both feet as mentioned above. The constant use of the toes in this work leads to a peculiar and very great development of the feet. The great toe is especially large and is separated from the other toes until it somewhat resembles a thumb. The prehensile properties of the toes is remarkable, not only in these casco men but in children and in the Filipinos in general. If they drop a small article they almost invariably pick it up with the toes and place it in the hand with the foot without stooping; indeed I have seen this done when a basket of eggs was balanced on the head.

The feet represented in the illustration were observed on a well-developed, middle-aged man, who had spent all his life on the cascos; but as we had no language in common I could not obtain his history, and it was with some difficulty that I persuaded him that no harm would come to him if he posed in front of the camera. The feet shown are quite typical of these boatmen, and although I saw many, this was the only one whom I had an opportunity to photograph. The skin of the bottom of the feet is of leathery hardness, for the feet are seldom covered except on occasion of great ceremony, and then only with sandals. The general muscular development of these men is often superb.

Another peculiarity of the casco-men is the development of what has the appearance of a fatty tumor on the shoulders, where the pole rests while they exercise all their strength against it; but they seem to suffer no inconvenience therefrom. A single effort made by a person unaccustomed to the task will at once demonstrate how necessary this protection is. The "tumor," or cushion, appears to develop soon after the work is begun in youth, and it remains throughout life with little or no change. I have ex-

amined these casco propellers in youth and in extreme age, but could detect no difference in this shoulder growth by the sense of touch. Whether it disappears after a man stops work I am unable to say from observation, although it probably would pass away to a large extent.

I have never observed the abnormal development of the feet in the children, hence it appears to be an occupation development and not hereditary. But, as mentioned above, the prehensile function of the toes takes place early in life, largely because the feet are unhampered by shoes.

SOME EXPLODED THEORIES CONCERNING SOUTH- WESTERN ARCHEOLOGY

By U. FRANCIS DUFF

Since the beginning of systematic investigation in regard to the archeological and ethnological problems of the southwestern portion of the United States, many theories — or perhaps I should say guesses — concerning them have been exploded.

Among these iridescent dreams and wild imaginings, born of fancy and a very limited knowledge of the subject, may be mentioned the exaggerated estimates of early population. In this, misled by the great number of ruins of pueblos, cliff-dwellings, and cavate lodges, the exuberant genius of the observer has had full sway. Some have declared the population ran into the millions. One writer, who had made an investigation of the remains in the valley of the Rio Verde in Arizona, estimated the number of people once occupying it as having been a million and a half, which is, in all probability, twenty-five or thirty times the number of Indians ever existing at any one time in the territory now covered by New Mexico, Arizona, Colorado, and Utah combined.

For many and various reasons the sedentary Indians of the Southwest changed the location of their homes very frequently. This might have been the result of disease, of a failure of water, scarcity of game, or other cause. A great many changes were no doubt the result of sickness, for when an epidemic begins its ravages, the primitive intelligence of the Indian instantly attaches to it some superstitious significance, and his most available remedy is to flee from it. One may therefore imagine what a ruinous mass a many-storied pueblo, consisting frequently of hundreds of rooms, and without even the semblance of sanitary protection, would become in the course of years. To avoid total destruction on the breaking out of a contagious disease, prompt removal to another site would be a necessity. Long drought in any one part of the country might produce the same result, and no doubt often did so. There

are but two inhabited pueblos in the entire Southwest — Acoma and Isleta — that are now on the sites which they occupied at the time of Coronado's *entrada* in 1540. Many pueblos were abandoned also through missionary influence, the missionaries aiming at a policy of concentration in order that they could administer to them more easily. The Pueblo revolt in 1680 resulted in the desertion of practically all the Indian towns, and the nomad tribes, through constant depredation on their more peaceful neighbors, frequently caused the latter to abandon their villages and move to other sites. This constant changing of location, probably for ages before the historical period began, accounts, in part at least, for the large number of ruins scattered throughout the valleys and mountain ranges of the Southwest.

Charles F. Lummis, the able investigator of our southwestern country, asserts that "the Pueblos never counted 30,000 souls." This is the figure also given by A. F. Bandelier and practically agreed to by Cosmos Mindeleff in the *Thirteenth Annual Report* of the Bureau of American Ethnology. The Pueblo population of the region in 1903, according to the report of the Commissioner of Indian Affairs, is less than 10,000.

Another popular fallacy is the belief that the cliff-dwellers and the pueblo or village Indians were distinct and separate races. No doubt the cliff-dweller originally lived in villages situated in the valleys or on the mesas, and was driven to occupy the great natural cavities in the sides of the chasms that here scar the land, simply because they offered a greater degree of security against marauding tribes than did the more exposed type of habitation. On investigation it appears that many of the centers of cliff occupancy had other villages in connection with them, situated either in the lowlands along usually near-by streams, or on adjacent heights. While these eyries might have offered other inducement to their occupants, it evidently was safety, or at least a reasonable degree of security, that caused them to put themselves to the endless labor of getting their supplies up the faces of the almost appalling cliffs in which many of their homes were built.

Some have ventured the assertion, which has been believed by many uninformed persons, that the cliff-dweller was a dwarf, basing

the statement on the fact that the doors of their dwellings are seldom more than three or four feet high and relatively narrow. This mode of construction was a most natural one, for a low door, which would put an invader to the necessity of stooping to enter, could be more easily defended than a large one, and would be better protection from severe weather. An examination of the human remains found in the cliff-dwellings proves conclusively that the inhabitants of these lofty abodes were people of ordinary size, and that they were no more dwarfs than were the mound-builders giants.

In view of the facts mentioned, it is scarcely worth while to discuss the theories of the advocates of a belief in a former vast population in the prehistoric Southwest — such as that the people were entirely swept away by some great pestilence, that they migrated in a body, or that they were driven out by fumes emanating from volcanic eruptions.

While traditions of migrations exist among all the tribes, many of the latter probably being made up of accretions from other tribes, as in the case of the Navaho and the Hopi, there is no evidence whatever that any great exodus has occurred.

The dead are not found scattered promiscuously through the ruins, but, almost without exception, are observed to have been laid away with the usual rites. This fact would also preclude the possibility of any great massacre having taken place.

Bandelier mentions what has, beyond question, been a potent means of decrease in the population — the constant inter-killing in the tribes on the charge of being possessed of evil spirits and of practising witchcraft. Sorcery, indeed, is practised even at the present time, as recorded by Mr Lummis and others, and as the records of the civil courts of New Mexico show. Intertribal wars and wars with the Spaniards have been even more disastrous.

It has even recently been stated in print, with a view of substantiating a belief in the great antiquity of southwestern occupancy, that ears of corn embedded in lava have been taken from ruins in central New Mexico. This apparently lavafied corn has more likely resulted from the destruction of the village or villages by fire, certain of the materials of which the walls were composed vitrifying through the intense heat of the burning

timbers and running over the corn stored in some of the rooms of the structure.¹

The "Gran Quivira" myth to the effect that the place was the depository of vast wealth, was long ago exploded by Bandelier, and later in a popular article by Mr Lummis, published in *Scribner's Magazine* for April, 1893, afterward reprinted in his delightful volume, *The Land of Poco Tiempo*.

At different times reports of finds of gold in southwestern ruins have been circulated, but the best information later obtainable tended only to disprove them. Nor have any precious stones been discovered, aside from turquoise beads and ornaments, of which those found in Pueblo Bonito, in Chaco cañon, by Mr G. H. Pepper of the Hyde Expedition, are the most noteworthy.

Science demands only facts, and it is well that all adventitious and extraneous matter—the cobwebs of tradition and the crude imaginings of the ill-informed—should be swept away. In this work Messrs A. F. Bandelier, Charles F. Lummis, and those connected with the Bureau of American Ethnology at Washington have been widely recognized factors, and it may now be said that, largely through their efforts, southwestern archeology and ethnology have been placed on a scientific basis.

¹ Owing to the belief prevalent in the Southwest, especially in central and western New Mexico, of the existence of pueblo ruins within the great lava flow in the vicinity of Mount Taylor (locally called San Mateo), I made a special investigation of the question in 1897 and 1899, pursuing every clue encountered and finally tracing the origin of the myth to a cowboy, residing in the vicinity of San Rafael, near Grant Station, on the Santa Fé Pacific Railroad. This individual, it was asserted, while rounding-up stray cattle in *malpais*, had seen the ruins, the walls of which were of stone, and that the lava had poured in the door and window openings. When I offered to reward him handsomely if he would take me to the spot, he denied having seen any ruins of the character mentioned, nor was I able to obtain more definite information from four local surveyors who had traversed the country during many years. Later search resulted only in the discovery—within the limits of the once molten stream, to be sure,—of some rude stone walls that had been constructed at a period long subsequent to the flow and at points not actually touched by it. Encrusted corn, such as that mentioned by Professor Duff, has been found in several localities in New Mexico, but there is little doubt that the incrustation consists not of lava but of slag from the immense communal ovens, such as those uncovered by the Hemenway Expedition in the Salado valley of Arizona. — EDITOR.

HEREDITARY RESEMBLANCES IN THE BRAINS OF THREE BROTHERS¹

By EDWARD ANTHONY SPITZKA

To demonstrate the influence of heredity in the configuration of the human brain has long been the wish of brain anatomists. A few cases of brains of new-born twins and triplets are on record,² but owing to the comparatively primitive degree of individual differentiation in the disposition of the cerebral fissures and gyres in the brains of the new-born, no safe conclusion could be reached. No adequate adult material of this kind has been described except the brains of the two distinguished physicians Seguin, father and son, which it was the writer's good fortune to obtain for comparative study four years ago.³ It may be mentioned here that in the Seguin brains I attributed certain interesting points of resemblance to hereditary transmission. I again had the good fortune to test the question of encephalic morphological transmission in the brains of three brothers who were recently executed together for a murder in New York state. Through the kindness of the prison officials, notably Mr George Deyo, the warden, and Dr J. B. Ransom, the prison physician, it was my privilege to perform the autopsies, and I naturally

¹ Read before the Association of American Anatomists, Seventeenth session, Philadelphia, Pa., December 29, 1903.

² N. Rüdinger, Ueber die Hirne von Zwillingen, *Anat. Anz.*, Ergänzungsheft. x. ix Bd., 1904, p. 177. G. Retzius, *Das Menschenhirn*, Stockholm, 1897, Text, p. 90. Waldeyer, Ueber Gehirne von Drillingen, *Correspondenzbl. d. deutsch. Ges. f. Anthropol., Ethnol. u. Urgeschichte*, xxxiii, 11 u. 12, Nov.-Dec., 1902, p. 128.

³ E. A. Spitzka, A Preliminary Communication of a Study of the Brains of Two Distinguished Physicians, Father and Son, *Proc. Assoc. American Anatomists*, Fourteenth session, 1900, pp. 70-92; *Phila. Med. Jour.*, vii, No. 171, April 6, 1901, pp. 680-688. E. A. Spitzka, The Redundancy of the Preinsula in the Brains of Distinguished Educated Men, *N. Y. Med. Record*, lxx, No. 1597, June 15, 1901, pp. 940-943. Since the publication of my paper on "Three Eskimo Brains" (*American Journal of Anatomy*, vol. ii, No. 1, pp. 25-71, 1902), I have been informed by Lieutenant Peary that "Nook-tah" and "Ah-wee-ah" were father and daughter. As in the case of the Seguins, the absence of the other parent's brain seriously interferes with the search for conclusive evidences of hereditary transmission.

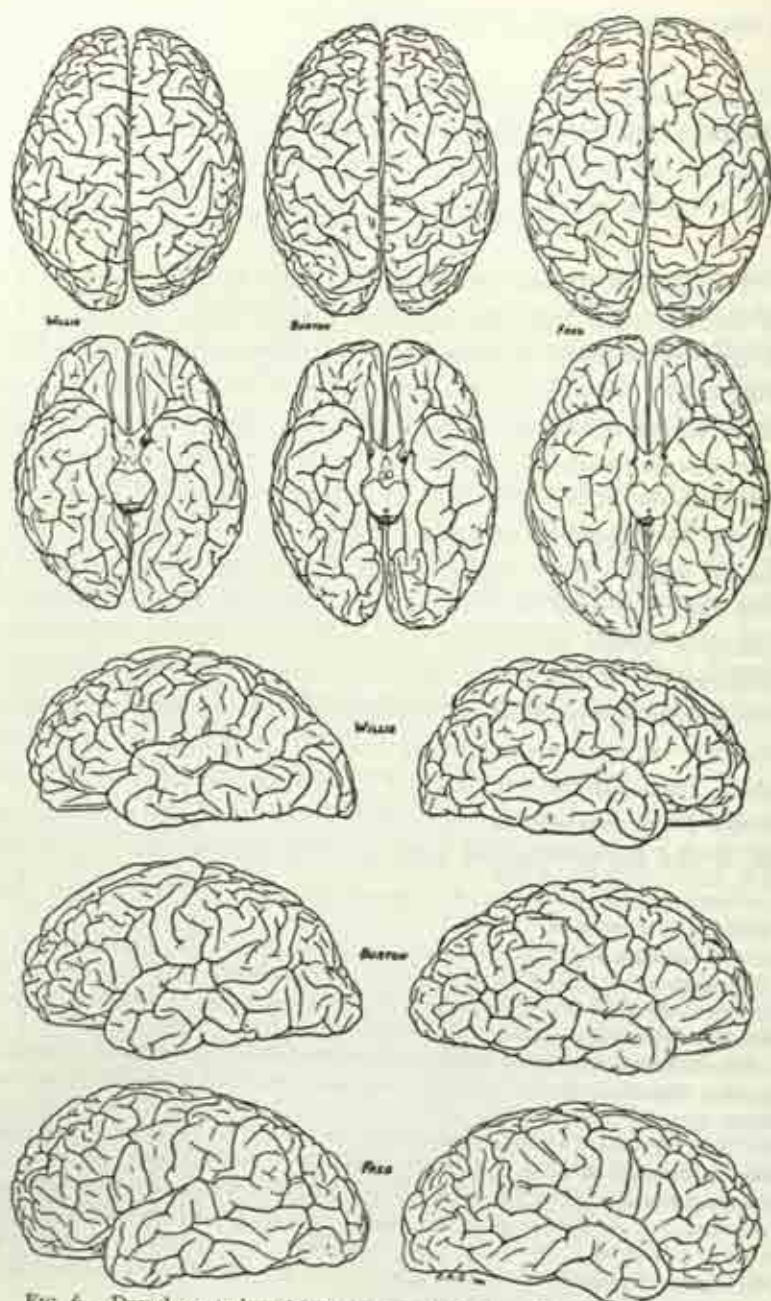


FIG. 6.—Dorsal, ventral, and lateral views of the three Van Wormer brains.

directed my attention especially to the brains. The opportunity afforded by this triple execution was certainly most rare, and a similar case will not soon occur again, unless it be during some widespread epidemic of a fatal disease, or in the course of an overwhelming catastrophe.¹

To doubt that heredity plays an important rôle in the development of the brain were to cast aside a vast array of facts which prove any portion of the body-structure to be rigorously limited by this factor. The transmission of ancestral conditions is a matter of everyday observation, if we but compare the physical and mental traits of blood relatives. If we recall the many families of musicians, families of linguists, families of biologists; or the French orphan child mentioned by Darwin as having been brought up out of France, yet shrugging like his ancestors; or recalling, on the other hand, those sad cases of transmission of insanity, of alcoholism, of epilepsy, in short, of most any kind of disease or defect, the far-reaching importance of this life-force must be manifest to everyone. Nevertheless, the problem of why "like begets like" is one of the most complex topics of biology. With this, the anatomical structure of the human brain is the most complex of all the organs. The study, then, of "brain-heredity" were difficult enough if more material were at hand. Our inquiries in this direction are rendered still more difficult by that other great though not yet thoroughly understood law of organic evolution—the law of variation. If no two animals and no two plants can be said to be exactly alike, this is certainly true of the brains of men. The surface of the human brain, while it is patterned in accordance with a general ground-plan presenting the same essential features in all normal brains, yet shows, if examined in detail, many differences recognizable not only in the brains of different races and individuals, but also in the two cerebral halves of the same individual. The primary fissures and certain other stable formations of the cerebrum do not exhibit many marked modifications in different brains. But there are other parts

¹The writer has recently learned of the acquisition, by Professor L. F. Barker of Chicago, of the brains of two brothers in Dr Sanger Brown's series of hereditary ataxia (*Proc. Association of American Anatomists*, Sixteenth session, 1902). It is also possible that the brains of Dr C. H. E. Bischoff and his son, the anatomist, T. L. W. Bischoff, have been preserved in the Manich collection.

subject to great range of variation — parts which, morphologically speaking, are in a state of "unstable equilibrium" in the evolutionary process. Peculiarities of anatomical configuration of this class, uncommon enough in the general run of brains as they come to the hands of anatomists, if similarly reproduced in the brains of blood-relatives may, I think, be confidently brought forward as evidences

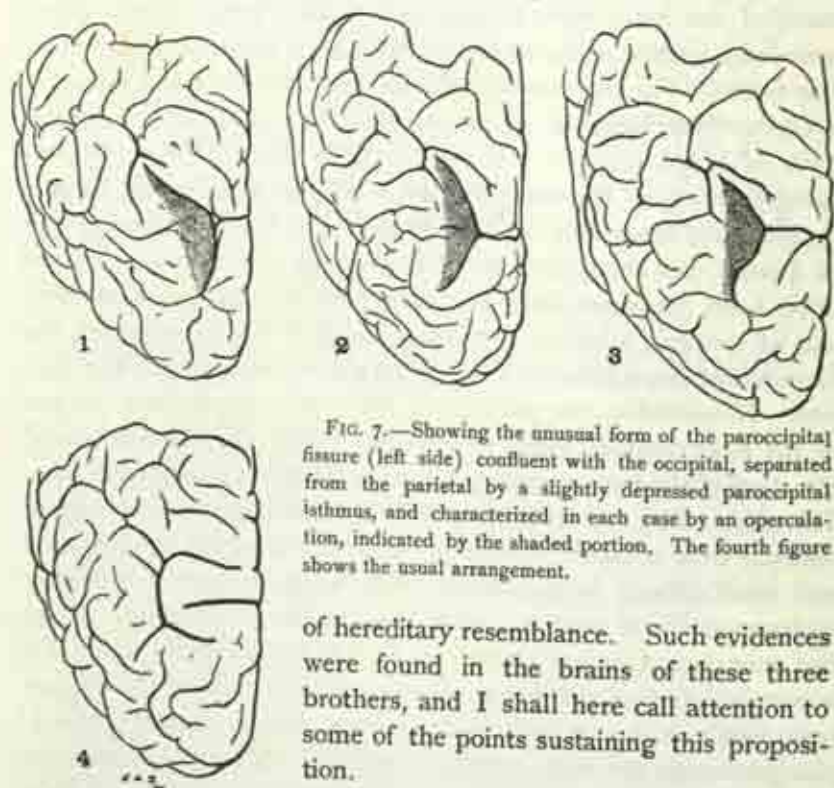


FIG. 7.—Showing the unusual form of the paroccipital fissure (left side) confluent with the occipital, separated from the parietal by a slightly depressed paroccipital isthmus, and characterized in each case by an operculum, indicated by the shaded portion. The fourth figure shows the usual arrangement.

of hereditary resemblance. Such evidences were found in the brains of these three brothers, and I shall here call attention to some of the points sustaining this proposition.

It may as well be stated here that while the brothers resembled each other in outward physiognomy as well as in general physique, they differed with reference to the size of the head, although the conformation was quite similar. It was found that the youngest of the three had the largest head and the heaviest brain, while the eldest had the smallest head and the lightest brain.¹ In the absence of an anthropometric life-record it is im-

¹ The anthropometric data in these cases are given in the writer's report of the post-mortem examination in *The Daily Medical*, vol. 1, No. 1, Feb. 8, 1904, and, briefly, in *Science*, Nov. 27, 1903, p. 699.

possible to say to what this difference in head-size and brain-weight is actually due. The more likely explanation may be found in the fact that there had occurred a somatic improvement with each suc-

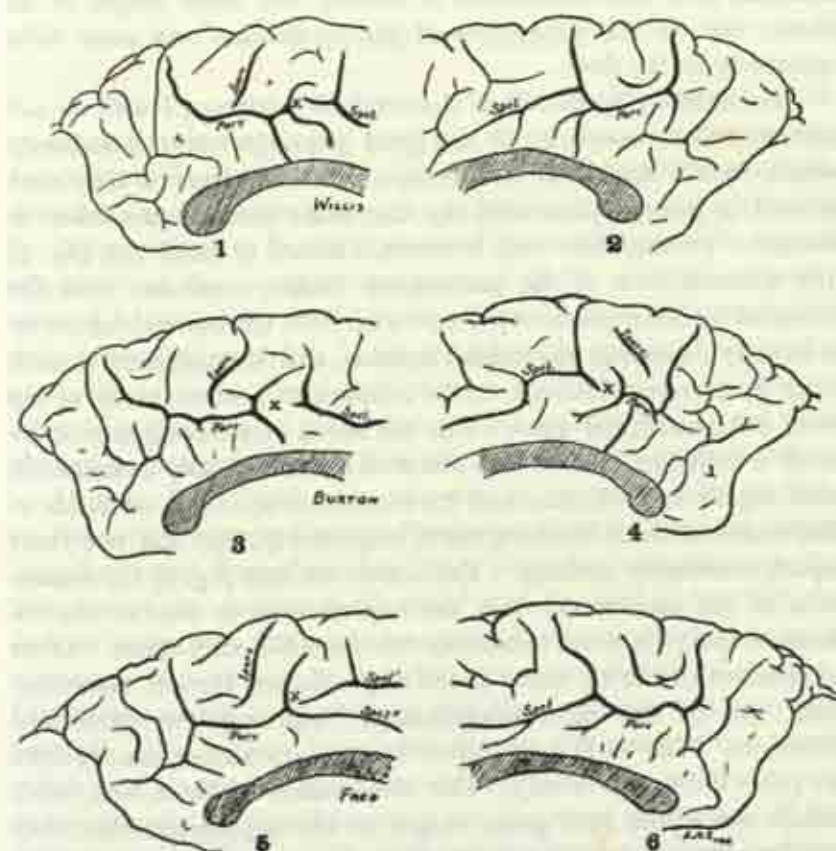


FIG. 8.—Mesal view of paracentral region of both hemispheres in the three brains. Note separation of the paracentral fissure (*Parc.*) from the supracallosal (*Spcl.*) in four (1, 3, 4, 5) of the six hemispheres, while the remaining two (2 and 6) resemble each other. Note also the oblique intraparc. in 1, 3, 4, and 5, while in 2 and 6 there is a curved element.

cessive birth, expressed by a larger size of the head in the third as compared with the first born.

The form of the brains, like that of the heads, is similar in all three (fig. 6); viewed dorsally, the narrower and less bulging left frontal lobe is seen to be a characteristic feature in all three brains;

this is particularly marked in Willis, the eldest. The relative proportions of the various cerebral parts are much the same as ascertained by careful measurements. Although the cerebra differ in absolute size, the callosum is of exactly the same length in all three; nor do the dimensions of the cerebellum and pons differ materially in the three.

To come to the details of the cerebral markings, I wish to call attention to the similarity of the gyral physiognomy — a similarity which would appeal to the average skilled observer if they were placed in juxtaposition with, say, any other three brains taken at hazard. Further than this, however, I desire to point out (fig. 7) the unusual form of the paroccipital fissure, confluent with the occipital by the cephalic stipe, separated from the parietal fissure by a slightly depressed paroccipital isthmus, and characterized in each case by an operculum, i. e., the subparietal portion tends to lap over the paroccipital gyre. I do not recall ever having seen quite such a formation in over two hundred brains carefully examined in this region in particular, and its recurrence upon the same side in the brains of three brothers, born, respectively, four and two years apart, is certainly striking. Yet further we note (fig. 8) the separation of the paracentral from the supercallosal in four of the six hemispheres, while the remaining two resemble each other. Other similarities are to be found in the disposition of the left superfrontals, and of the right supercentrals, with adjacent paramesial elements. The right postcentral fissures are almost exactly alike in two (Willis and Fred). The combination of these with other minor similarities lend great weight to the supposition that they are hereditary signs and not fortuitous.

THE TAPEHANEK DIALECT OF VIRGINIA

By WILLIAM R. GERARD

On May 21, 1607, just a week after the landing of the English on the peninsula that was to form the site of the settlement called Jamestown, Captain Newport, with a party of twenty-three men, started up the river on a voyage of discovery, and finally reached the Indian village of Powhatan,¹ one of the residences of the "great emperor" of the country, consisting of about a dozen wigwams situated upon a high bank on the left side of the stream, a few miles below the lower falls.² On attempting to proceed beyond this place, the explorers found their passage impeded by "great craggy stones" in the midst of wide, violent, and shallow rapids, and were obliged to turn the prow of their pinnace in a homeward direction.

Captain John Smith, who was one of the party, tells us that, on the return voyage, Captain Newport "intended to have visited Paspahagh and Tappahanocke," but, observing something in the behavior of the natives at Wynauk³ that led him to fear that the Indians around the fort might be engaged in some mischief, he took advantage of a change in the wind and returned with all speed to Jamestown, where he discovered that his suspicions had been well founded. We are here introduced, for the first time, to two words which were destined to figure somewhat prominently in the accounts of the colony; the first, because it was the name (as the ears of the settlers caught it) of a "churlish and treacherous nation," residing

¹"*Powhatan*, of which place their great Emperor taketh his name" (Smith), = *paúh-tán*, 'falls in a current' — a kind of pitching rapids which the French aptly call *sauts*, 'leaps,' of water. See Appendix A of a subsequent article in which will be discussed some ill-understood points of Algonquian grammar that involve the meaning of certain words.

²Strachey gives, as the native term for "the falls of the upper end of King's river," *paquachowung* (i. e. *paquatchung*). The word stands for *pa'kwátská'wáng*, 'where there are shallow rapids'; pres. particip. of imper. vb. *pa'kwátská'wán*, 'there are shallow rapids.'

³A "low meadow point" about 13 miles above Jamestown. *Wíndk*, 'strong-scented wood,' was, in the Roanoke, Virginia, and Lenape dialects, the name of the sassafras tree. The name has been preserved, in the form of Weyanoke, as that of a village situated upon the point, in Charles City county.

about eight miles above Jamestown, which claimed the land of which the English had taken possession, and which, as well as the territory itself, derived its name from some previously existing *wiróance*; ¹ and the second, because it was one of the appellations of a people on the south side of the river whose ruler, like the *wiróance* of Paspahagh, on the opposite side, was the "contracted enemy of the English," and never suffered an opportunity of committing some act of hostility to escape him, until a threat from Powhatan had the effect of putting a quietus upon both chieftains, and of causing them to exhibit a more friendly spirit toward the *Otasan-tasuwak*, ² whose progress they had jealously watched.

The chief town of the Tapananocks was situated ten or twelve miles above Jamestown, on the east side of a creek called, according to Strachey, Coiacohanauke. ³

In the latter part of the year, after making three brief explorations of the "country of Chickahamania," ⁴ Captain Smith set out on December 10th to make a thorough exploration of the river that flowed through it. After proceeding about seventy miles he was captured by a hunting party under command of Opechankanu, ⁵ the *wiróance* of Pamaunkee, ⁶ who took him by a circuitous route

¹ See Appendix B.

² *Otá'santánu* means, possibly, 'wearer of leg-coverings,' the reference being to the breeches and long hose worn by the newcomers. The body-garments worn by the English were likened by the Indians to their own winter mantles of skin, and called by them by the same name *má'tshikóre*, or, in another dialect, *má'tshikóte* (later on, corrupted by the English to *match-coat*), = Ojibwe *má'tshigóde*, a woman's petticoat, lit., 'it hangs badly,' i. e., it is loosely suspended and does not conform to the contours of the body.

³ "Coiacohanauke, which we commonly though corruptly (i. e., erroneously) call *Tapananock*." This word stands for *Kaidkuhá'nek*, 'gull-stream.' *Kaiakw*, 'gull,' = Roanoke *kaid'kw*, = Milicite *kid'kw*, = Lenape *kiahákw*, = Caniba *kadéw*, = Ojibwe *gaidikk*, = Cree *kidyák*. The stream is now called Upper Chipoak, or Chipoak's creek; so named probably from Chopoke, who was a brother of the ruler of the Tapananocks and who lived at the village of Chawapo on the east bank of the stream.

⁴ This word stands for *tshikhá'mén*, a 'clearing,' literally, 'swept off,' 'scraped off.' The suffix *-ia* was added by Smith, as in some other words, to give the name a sort of Latin appearance. The word, with an excrement vowel, afterward became the name of the river.

⁵ *O'pítshá'kwéná*, 'man of a white (immaculate) soul.'

⁶ *Pamaunkee* (*Pema'ki*), 'sloping hill,' or 'rising upland'; probably the site of the three great "temples" of the Powhatans, upon some elevations, within the forks of what are now called the Pamunkey and Mattaponi rivers.

through several native towns, and, after a march of five days, returned with him to Orapaks,¹ one of Powhatan's hunting towns in the vicinity of the place where he was taken prisoner. Then, in another journey, the objective point of which was Werawocomoco,² where Powhatan was then living, they led him to the residence of *wiróance* Keketou,³ in Pemaunkee. This "kind king" took him in charge and escorted him to a place called Topahanock, a "kingdom" situated on a creek flowing from the north into a river of the same name.

"This riuer of *Topahanock*," says Smith, "seemeth in breadth not much lesse then that we dwell vpon. At the mouth of the Riuer is a Countrey called *Cuttatawomen*; vpwards, *Maraughtacum*, *Topahanock*, *Appamatuck*⁴ and *Nanstaugstacum*." The river is laid down in Smith's map of 1612 as the Toppahanock, a name by which it was known, by the whites at least, as late as 1649.⁵ In his *Generall Historie* (1624) Smith retains the name Toppahanock for the river, but changes the name of the town, which received its appellation from the creek on which it was situated (and which doubtless gave its name indirectly to the river) to Rapahanock; while some of the writers from whose narratives Smith compiled a part of his work refer to the stream as the "river which some [Indians] call Rapahanocke, others Tapananocke." Since the letters T and R which form the initials of these two names would seem, from a phonetic view point (more especially to those unacquainted with the mechanism of speech), to

¹ Spelled also *Oropike*, the name apparently of a deep pond or small body of water (*-pikts*) in a depression of land (*áro*, for *wáro*).

² *Wiróadká'máku*, 'fertile land'; a tract about two miles in breadth on the east side of what is now known as Timber Neck bay, on York river.

³ *Álktúu*, 'he harangues,' 'makes speeches,' = Nipissing *Álktú*, = Natick *Álktú*, etc.

⁴ *Á'pāmā'úku*, 'curved river,' a designation for the part of a tidal river in which a bend exists; verbally, *ápāmā'úkwé*, 'the river makes a curve,' 'turns about.' The name was applied in Virginia to several places situated in the vicinity of a river-bend, and particularly to an Indian village near a curve in James river, the site of what is now Bermuda Hundred. The village gave its name to Appomattox river, i. e., the river of the Apamateks, who lived in the village just mentioned.

⁵ "The first river up the West is James River . . . ; the second is Charles River . . . ; and the third is called by the Indian name Tapananoke."—*A Perfect Description of Virginia* (1649), in *Force's Tracts*, vol. II.

stand so wide apart as to preclude the idea that one name was a corrupt form of the other, due to a mishearing, it has doubtless been supposed by readers of the early history of Virginia that the words were formed from roots of an entirely different meaning. Such is not the case, however, for the two names are really coradicate, as is shown by a careful study of the "Dictionnaire of the Indian Language" appended to Strachey's *Historie of Trauaile into Virginia*, which reveals the fact that in the confederacy over which Powhatan ruled there were spoken three Algonquian dialects, viz.: (1) an *R*-dialect¹ (that of Powhatan and his family), probably the most widely diffused and exhibiting some local differences; (2) an *N*-dialect; and (3) a peculiar speech resembling the dialects of the Cree group in the use of the letter *t*, in certain positions, for the *r*, *l*, *n*, *s*, and *sh* of the dialects of the other groups of the Algonquian language.

SOME ALGONQUIAN LETTER-CHANGES

In the Cree group² of dialects, which for various reasons, phonetic especially, may be regarded as the oldest of the Algonquian family, the consonant *t* (1) as the initial letter of a limited number of roots,³ but (2) more especially, and *always*, when it directly follows the vocalic initial *a* or *i* of a root; or (3) is the characteristic of a root; or (4) is the initial or "energizing" letter of the termination of ani-

¹ What is meant by an *R*-, *L*-, or *N*-dialect is one in which, in certain positions, and in such positions only, in a root or in the grammatical portion of a word, one of these three letters is used to the exclusion of the two others. Such substitutions or permutations are made according to certain laws of Algonquian letter-change, and not by mere caprice, since in such an event any dialect would be rendered unintelligible and be converted into a mere jargon. An Indian using an *N*-dialect cannot pronounce the letters *r* or *l*, and there is no reason whatever why he should be able to do so; but one who speaks an *R*- or an *L*-dialect must necessarily be able to pronounce *n*, since this letter is the initial of certain particles that are common to all Algonquian dialects, and cannot undergo any change without rendering them meaningless.

² When I speak of Cree, I refer more particularly to the dialect called Prairie Cree ("Cree properly so called," as Père Lacombe styles it), which is spoken by a larger population and with greater purity and elegance than are the other dialects, and has undergone fewer phonetic changes and been less influenced by contact with the Ojibwes.

³ Of the 124 roots and radical words with initial *t*, recorded in Père Lacombe's *Dictionnaire de la Langue Crise*, 63 are peculiar to Cree. Of the remainder, 30 have passed (in some cases with a change of *t* to its sonant *d*) into Ojibwe alone; 21 into Ojibwe and various other dialectic groups; and 6 have undergone the change of *t* to *r*, *n*, and *l*, mentioned above.

mate transitive verbs; or (5) is the initial letter of the termination of certain inanimate verbal adjectives and impersonal verbs, is, *as a rule*, represented in the dialects of the other Algonquian groups by *r*, *l*, or *n*, or, in cases (1) and (3) by *y* (consonant) in Niantic.¹

The *t*, *tt*, or *st* of Cree is often represented in the dialects of other groups by *s*, *ss*, or *sh* (or guttural *ch* in Minsi), as (6) the characteristic of a root; (7) in the formatives of active verbs; (8) in particles that modify the sense of words; and (9) in certain radical words and generic nominal suffixes.

The use, as above noted, of the linguo-dental *t*, in the position occupied in the dialects of the other Algonquian groups, by one or another of the linguo-dentals *n*, *l*, or *r*, is a characteristic peculiarity of Cree, which is differentiated into dialects by the employment, in certain positions, again, of *th*, *y* (consonant), *r*, *l*, and *n*, which, like *t*, correspond to the *r*, *l*, and *n* of other Algonquian groups; but Cree never interchanges its group-characterizing *t* with the *th*, *y*, *r*, *l*, and *n* of its own dialects. A study of Algonquian phonetics seems to show that this *t* is a survival from the primitive Algonquian language, of which Cree ("properly so called") may be regarded as the eldest daughter.

EXAMPLES OF THE ABOVE RULES OF LETTER-CHANGE

1. Cree *tikk*, 'to melt,' = Lenape *rīnk*, *īnk*, = Ojibwe *nīng*, = Virginia *rūng*.

2. Cree *āld'm*, 'beneath,' = Ojibwe *ānā'm*, = Natick and Narragansett *ānā'm*, = Lenape *ārām*, *ālām*, = Caniba *ārā'm*.

Cree *it* (adverbial prefix), 'thus,' 'in such a manner,' = Ojibwe *in*, = Natick *ūn*, = Lenape *ēr*, *əl*, = Virginia *ēr*, = Caniba *ēr*.

3. Cree *pīl*, 'strange,' = Nipissing *pīn*, = Ojibwe *bīn*, = Lenape *pīr*, *pīl*, = Caniba *pīr*, = Penobscot *pīl*.

4. Cree *nī kitōtāū*, 'I speak to him,' = Ojibwe *nīn gānōna*, = Old Nipissing *nī gālūla*, = Caniba *nēgērūra*, = Natick *nēkēnūnāū*.

¹ Two curious exceptions to rule (5) are found in the dialect that was spoken in the vicinity of Jamestown. I refer to the words *mā'tīhikōre*, 'it hangs badly,' the name for a skin mantle; and *pākāhikōre*, 'it is brayed,' whence, by aphæresis, we have our word "hickory." In both of these words the *r* of the suffix would be regularly *t*. The effect of the change in the first-mentioned word is to make it ambiguous, since the suffix *kore* in the same dialect denotes 'flaming' or 'blazing.'

5. Cree *wā'sāskūteu*, 'it blazes,' = Ojibwe *wā'sākōne*, = Caniba *wā'sākūre*, = Virginia *wāsākōre*, = Lenape *wāsāgūleu*.

6. Cree *nitt*, 'to descend,' = Ojibwe *niss*, = Virginia *niss*, = Lenape *nish* (Minsi dial.), *nich*.

7. Cree *-ūtten* (suffix), action of 'going afoot,' = Ojibwe *-össe*, = Abnaki *-üsse*, = Natick *-úsheu*, = Lenape (Minsi dial.) *-öchweu*.

8. Cree *-šī* (particle), action of 'putting' an inan. object, = Ojibwe *-šī*, = Abnaki *-šē*, = Natick *šhi*, = Lenape *-shē*, (Minsi dial.) *-chē*.

9. Cree *mī'tti*, 'firewood,' = Ojibwe *mī'shi*, = Virginia *mū'ssi*, *mū'shi* (wood), = Natick *mish* (wood).

Cree *mōtteu*, 'worm,' = Ojibwe *mōsse*, = Virginia *mūsseu*, = Miami *mōssia*, = Lenape (Minsi dial.) *mōchuēs*.

Cree *tā'ssāw*, 'between,' = Ojibwe *nā'ssāw*, = Natick *nā'shāw*, = Virginia *rā'ssāw*.

As regards the *T*-dialect of Virginia, the *t* here, besides corresponding to the *t* that characterizes Cree as a linguistic group, bears, in certain positions, the same relation to the Wood Cree voiceless spirant *th* that the latter does to the *y*, *r*, *l*, and *n* of the Prairie, Montagnais, Naskapi, and Muskegon dialects respectively. Howse regards this spirant as the primitive letter. But the dialect under consideration differs from Cree in the use of both the French and English nasals, neither of which exists in Cree, but both of which are found in the language of the people who spoke the *R*-dialect and with whom the Tapehaneks came into constant contact. As in the Cree dialects, assibilation seems to have been common in this Virginia speech, an original *t* often passing through *ts* to *sh*; and, as in some other Algonquian dialects, *w* was discarded when it was the initial letter of a root of which the vowel was *a* or *o*. From the few lexical elements that exist, we find that the terminal *n* of verbs and verbal adjectives (which has weathered away in Ojibwe and Abnaki) was preserved, and that there was some borrowing of formatives that are foreign to Cree, but that were used in the other Algonquian dialects of Virginia.

From the above considerations, and some others that will appear farther along, I am led to the conclusion that the people who spoke this dialect belonged to the Cree group, and, at an early period, found their way from Canada to Virginia where, through their new

associations and environment, change of climate, etc., their language underwent certain alterations, but none of sufficient importance to mask its origin.

According to the statements of the early explorers of what is now called Rappahannock river, the Tapehaneks of that stream occupied at least nine villages to the northwest of the seat of the ruler of their territory, but how many to the southwest cannot be ascertained.

The jurisdiction of the ruler of the Tapehaneks on the James, whose residence was upon an eminence now called Wharf Bluff, just east of Upper Chip oak creek, probably extended from Apamateku (now Bermuda Hundred) southeast to Warraskoyac,¹ the seat of *wirôance* Tackonekintaco² on the west side of what is now called Cypress creek, an affluent of Pagan creek, in Isle of Wight county. At a few miles to the south of James river, the territory of the Tapehaneks adjoined that of an Iroquoian people who doubtless owe to them their appellation of *Nâ'towêwok* (*Anglice*, Nottoways), pl. of Cree *Nâ'towiu*, an Iroquois Indian.³

From Smith's map the country of the Tapehaneks, who in 1607 numbered but 25 fighting men (according to Smith, but 60 according to Strachey), seems to have been sparsely settled. Since there was more or less intercourse between these people and the settlers at Jamestown, by "quintan"⁴ and pinnace respectively, it is probable that the words recorded in the Glossary were collected among

¹ Spelled also Waraskweag, for *Wâraskik*, 'swamp in a depression' (of land). Judging from the name of the stream, the village was near what in the South is called a "cypress brake" — a basin-shaped depression of land situated near the margin of a creek and filled with fallen cypress trees.

² He is described as a very aged man, and hence perhaps his name — properly, *Takô'nîkê's'nîkê's*, 'he does not dance and sing' (*kâ'nîkâ'nî*).

³ This term is found also in Ojibwe (in the form *Nâdowê*), in which it appears as a loan-word, and in which it is used also as the name of a species of rattlesnake (*Crotalus tergemina*?). The Algonquians of Albemarle sound knew their Iroquoian neighbors by the name of *Mângwâk* (Lenape *Mîngwâk*, Abnaki *Mîgwâk*). The Iroquois who occasionally descended from the north upon the tribes of the tidewater region of Virginia were designated by the Algonquians north of the James by a term which the English wrote *Massawomek*, doubtless for *Mâ'chewô'mik*, 'great-plain people.'

⁴ Aquintayne (Strachey), = *âkwintên*, = Abnaki *âgwiden*, canoe, literally, a 'float' < *âkwintê*, *âgwiden*, 'it floats upon.' The term *âgwiden* was used metaphorically by the Narragansetts as a designation for an island.

them rather than among those who spoke the same dialect on the Rappahannock.

Finally, then, as is above stated, *Tápēhā'nēk* and *Rápēhā'nēk* are (as may be seen under the root *tap* in the Glossary) dialectic forms of the same word, and mean 'the stream that ebbs and flows' (lit., that 'alternates in flow'), the definite and specific form of *Tápēhā'nē* and *Rápēhā'nē*, 'a stream that ebbs and flows.'¹ In the *N*-dialect the word would have the form of *Nápēhā'nēk*.² Discarding the inappropriate term "Powhatan," which has hitherto been loosely used as a general name for the Algonquian dialects of Virginia, I shall, in the "Glossary of the Tapehanek Dialect" that follows, designate the three dialects by the above-mentioned names, in the abbreviated form of *Tap.*, *Rap.*, and *Nap.*

In the transliterations enclosed in parentheses after the words as printed in Strachey's *Dictionarie*, the alphabet of the Bureau of American Ethnology has been used, with the exception of the letters *c* and *te*, for which I have employed *sh* and *tsh*, and of *q*, for which I have used *ch*. An apostrophe (') before the name of a part of the body of man or animals denotes the aphæresis of a possessive pronoun, and, in the body of a word, the syncope of a vowel; while a superior reversed comma (') before a consonant is a mark of aspiration. A large number of the words in Strachey's *Dictionarie* terminate in *s*, the mark of the English plural. In such cases, in the corrected spelling, I have simply discarded that letter without remark.

For the sake of brevity, the following well-known signs are used: < *from*; > *whence*; = *cognate with*; * *not on record*, but a regular form.

A GLOSSARY OF THE TAPEHANEK DIALECT

aitowh (*etōu*, or *etōhu*), a ball.³ The prefix *ai* is probably miswritten for the usual Virginia prosthetic *ā*; and, if so, the word would

¹ For a description of the peculiar tidal phenomena exhibited by the creeks and 'branches' that flow into the rivers of Virginia, see *An Account of Virginia*, by J. Clayton (1688), in Force's *Tracts*, vol. III.

² In the Niantic dialect it becomes *Ya'pēhā'nēk*, which, abbreviated first to *Yamp-hānē*, and afterward changed to *Yaphānē*, has been transferred as the name of a stream to that of a village in Suffolk county, on Long Island, N. Y.

³ Henry Spelman, interpreter for the colony of Jamestown, writing in 1609, says: "They [the Virginians], vsē, beside, football play, which wemen and young boys do

have been *ātōhu*, an apocopated form, say, of *ātōhuwān*, = Cree *tōhuwān*, a ball < *tōhuwēu*, 'he plays ball,' < root *tōhu*, which is a Cree radical, and, in Ojibwe, occurs only as a particle in words relating to the Canadian game of "lacrosse."

attaankwassuwk (*āta^mkwāsāk*), pl. of *āta^mkwās*,¹ a star, = Prairie Cree *ātākus*, or *ātshākus*, dim. of *ātak*, *ātshāk*, = Wood Cree *ātshāk*, = Ojibwe *ānāng*, *ānū'ng*, = Nipissing *ānānk*, = Old Nipissing *ālānk*, = Sauk *ānākwa*, = Shawnee *ālākwa*, = Kikapu *ānākwa*, = Lenape *ālānkwa*, *ārānkwa*, = Miami *ālānkwa*, = Menomini *anāchh*. In the following dialects, diminutives are used as the common form: Natick *ānākwās*, Quiripi *ārāk*, = Penobscot *ālākus*, = Mohegan *ānākwāth*. These words are all radical.²

attemous (*āttemūs*, or *ātēmūs*), dog,³ = Prairie Cree *āttemūs*, or *ātēmūs*, = Caniba *ārēmūs*, = Penobscot *ātēmūs*, = Milicite *ātēmūs*, = Micmac *ātēmūs*, = Ojibwe *ātēmūs*, = Old Nipissing *ātēmūs*; all diminutives. Simple forms: Prairie Cree *ātīm*, *ātīm* (or *ātīm* in composition), = Wood Cree *ātshīm*, = Naskapi *ātīm*, = Montagnais *ātēmū*, = Ojibwe *ānīm*,⁴ = Old Nipissing *ātīm*, = Menomini *anēm*, = Lenape *ārūīm* or *ālūīm*,⁵ = Natick *ānūīm*, = Niantic *āyīm*.

much play at. The men neuer. They make ther Goales as ours, only they neuer fight and pull one another doune. The men play with a litel balle, letteng it fall out of ther hand and striketh it with the tope of his foot, and he that can strike furthest winns that they play for."

¹ In another Virginia dialect the name for a star was, as written by Smith, *pumma-hump*, a word in which the second *p* is excrement. *Pūmahūm* means 'it sails about.' Among some of the Algonquians the firmament is likened to a vast ocean upon which the stars and planets sail here and there. Hence the Lenape name for the moon, *Nipāhām*, 'it sails at night,' and Mohegan *Nipāhānk*, 'that which sails at night'; and the Nipissing name for the three stars of the belt of Orion, *Atawādmōk*, 'they sail in company.'

² Howie's interpretation of Cree *ātshāk*, as 'other Being,' and Trumbull's explanation of the Natick *ānākwās* as 'he appears,' 'shows himself,' may be mentioned merely as examples of curious speculation.

³ Captain Smith says: "Their Dogges of that Country are like their Woolues, and cannot barke, but howle;" and the word given by Strachey with the meaning of 'to bark' means 'he makes a noise' (see *Cuttowndg*). The animals mentioned by Smith were doubtless of the species described by Lesson under the name of *Canis caribicus*, the dog observed by Columbus on one of the islands of the Lesser Antilles, and now very common in Peru, where it is held in contempt.

⁴ The Ojibwes use the word *animosh*, a derogative form, as the name for a dog, the simple form *anim* being employed only as an opprobrious epithet, in the same way that we sometimes use the terms "dog" and "cur" and the ancient Mexicans used the word *coyotl* (coyote, a congener of the dog).

⁵ Another Lenape name for dog, probably the introduced species, is *mōwēhānēū*, 'he eats bones,' a very apposite term.

The simple forms of the above names (all radical words), in which the *w* (not represented in the spellings given), which forms an integral part of the characteristic *m* of the word, was formerly pronounced (see Appendix C), were originally general terms for a 'wild animal,'¹ and were applied by the Indians specifically to the native dog from its usefulness to them as a beast of the chase and beast of burden; just as the Tupi of Brazil applied the name *tapiira*, 'wild animal,' to the European ox run wild; as the Kechua of Peru transferred the name *llama*, 'wild animal,' to a species of *Auchenia* from its value as a beast of burden; and as the English applied the name *deer* (A.-S. *deor*), 'wild animal,' to a species of *Cervus*, owing to its importance in the chase. They are, through the laws of Algonquian letter-change, doublets of: Ojibwe *-ässim*, Abnaki *-ässēm*, Virginia *-ässüm*, Natick and Narragansett *-äshim*, Micmac *-üssüm*, Lenape (Minsi dial.) *-ächüm*, nominal suffixes (never employed as independent words, except in the case of the Cree cognate *ättim*) denoting a mammiferous quadruped, a wild beast (but, by the Ojibwes, used with qualifying prefixes as names for the different varieties of the dog).

The cognation will be rendered more apparent by the following examples: Cree *wä'päti'm*, *wä'pätti'm*, or *wä'päss'i'm*, 'white dog' (also 'white horse'), = Ojibwe *wä'bässi'm*, 'white dog,' = Abnaki *wä'bässē'm*, 'white beast,' = Virginia *öpässü'm*, 'white beast' (the opossum), = Natick *wä'päshi'm*, 'white beast,' = Minsi *wä'pächü'm*, 'white beast.'

For Cree *t* = *r*, *l*, and *n* of the other Algonquian linguistic groups, see Rule (2); and for Cree *t*, *tt*, and *st* = *s*, *ss*, *sh*, and *ch* (Minsi), see Rule (9) and examples.

attonce (*ätöns*, for *ätüns*), arrow,² = Prairie Cree *ätús*, = Naskapi *ätúsh*, = Caniba *ärús*, = Lenape *ärüns*, *älüns*, (Western) *älünth*, = Pamptico *ärüns*: < a root *ätw*, *ärw*, *atw*, *änw*, of unknown meaning. In some of the northern and western dialects the suffix is changed and the word becomes: Nipissing *änwi*, = old Nipissing *älwi*, = Shawnee *älwi*.

¹ The early observers of the fauna of the northern parts of this country regarded the dogs which they saw in possession of the natives as animals that had been originally wild—a sort of mongrel wolves, that the Indians had domesticated. Josselyn (*Voyages*, p. 94) says of them that they were "begotten betwixt a *Wolf* and a *Fox*, or between a *Fox* and a *Wolf*, which they [the Indians] made use of, taming them, and bringing of them up to hunt with." Harriot (1590) states that he and his companions on Roanoke island occasionally ate "their [the Indians'] *Wolues* or *woluish Dogges*," as the latter came into their hands, and adds: "I have not set [them] downe for good meat." Strachey says of the Virginia animals that they "are not unlike those auneynt dogges called *cracutie*, which were said to be engendred of a wolfe and a bitch."

² See Appendix D.

bagwanchybasson (*pākwa^mtshīpisun*), a girdle. See *paqtwanteruun*.
cattapeuk (*katāpeek*), spring (season). A loan-word from a dialect in which the form was *karāpeek* < *kar*, 'fine,' 'beautiful' = Lenape *kar*, *kal*, = Abnaki *kal*, = Nap. *kwan*,¹ + the participial formative *-āpeek* denoting 'time when,' = Lenape *-āpeek*, = Abnaki *-ābēk*, = Natick *-a^mpek*, = Ojibwe *-ābīg*. The word thus means 'when the weather is fine,' but is more accurately translated by French 'quand il fait beaux temps.' The eastern Algonquian root *kar*, *kal*, seems to be related to the Cree radical *kataw*, 'to be beautiful,' 'fine.'

cotapesseaw (*kōtāpī'sseū*), 'to overset, or a boat to turn keele up' (Strachey), literally, 'it becomes turned upside down.' < Tap. root *kōtāp*, 'to turn in an exactly opposite direction,' = Wood Cree *kūtāp*, = Ojibwe *gōnāb*, = Lenape *kūlūp*, or *gūlūp*, = Caniba *kūrēp*. The root has also the following forms: Prairie Cree *kwēlīp*, = Nipissing *kwēnīb*, or *kwōnūb*, = Natick *kwīnūp*, = Narragansett *kwēnūp*. The suffix *-isseu*, = Ojibwe *-isse*, = Natick *-isheu*, is foreign to Cree, and is borrowed from one of the other Virginia dialects.²

cuppotaw (*kūpū'teū*), deaf; lit. 'he (or she) is deaf' (in one ear only). In the Algonquian dialects, when more than one bodily organ of the same class (eyes, ears, legs, arms, etc.) is affected by any peculiarity, accident, ailment, or infirmity, the verbal adjective denoting the state or condition of such organs is put in a dual form, for which Abbé Cuoq has proposed the name of "duplicative," and which consists in a simple reduplication of the initial letter and the vowel of the root of the word. Sometimes, however, in order that, in certain cases, *quid pro quos* may be avoided and greater perspicuity be attained, the dual takes the form but not the signification of the frequentative, and sometimes, though rarely, that of the distributive.

The particle denoting the ear in animate verbal adjectives is, in Cree and Tap., *-te*, = Ojibwe *-she*, = Abnaki, Natick, and Narragansett *-se*, = Minsi *-che*. EXAMPLES: Cree *kakēpittēu*, 'he (or she) is deaf' (stone-deaf), = Ojibwe *gagī'bisht*,³ = Abnaki *kakē'pēsē*, = Natick *kakū'p'seū*, = Minsi *gegē'p'cheū*; all < root *kīp*, *gīb*, *kēp*, *kūp*, 'to shut up,' 'close' or 'obstruct.'

¹ Found in a Virginia name for rainbow, *qwannacut* (Strachey), for *kwannākūt*, 'it is of a beautiful aspect.'

² See Appendix E.

³ The Nipissings, through association with the Crees, have thrown aside the Ojibwe suffix *-she* and adopted the Cree, minus the terminal verbal suffix *u*, which, in Ojibwe, has been lost.

cutssenepo, cuchenepo, woman (nickname); by assibilation of $t < kùt'è\ nēpō$, a loan-word $< \text{Rap. } kēr'è\ nēpō$ (contracted to $kēr'è\ nēpō$), for $kēr'è\ nēpēu$, water-carrier, lit., 'she carries water'; $< \text{root } kērēn$, = Lenape $gēlēn$, = Natick $kēnūn$, 'to carry,' and the intrans. vb. suffix $-pēu$, denoting (according to the root) action in, upon, with, or by water. For change of vb. suffix $-eu$ to $-o$, compare (as written by the English in Virginia) *wingapo* for *wingapēu*, friend, lit., 'well-disposed man,' and *marapo* for *marapēu*, enemy, lit., 'bad man.' Some other by-names of the same character for woman are: Caniba *māna' dāgwē'su*, 'gatherer of fir-branches'; Prairie Cree *kiskitā'sis*, 'short breeches,' or 'pantalets'; and Quiripi *kērēkwēbūs*, 'tied about the head,' probably from some peculiar style of arranging the hair.

cuttoundg ($kūtu'ju$),¹ 'to bark' (Strachey); lit. 'he makes a noise;' a doublet of Rap. *kārūsu*, 'he speaks,' found in the iterative form *kākārūsu*, 'he speaks at some length'; a word that has descended to us, in the spelling "cockarouse," as the title of a Virginian *wirōance's* counsellor.

kesshekissun ($k'è\ shēk'isūn$), 'to laugh' (Strachey); through assibilation of $t > ts > sh^2 < k'è\ tēk'isūn$, which has the termination of the 1st and 2d pers. sing. (Cree $-sīn$, Lenape $-sī$, Ojibwe $-s$), the 3d pers. being $k'è\ tēk'isū$, 'he (or she) laughs,' = Lenape $g'è\ lūk'isū < \text{root } kētēk$, $g'è\ lūk$, 'to laugh,' but, primarily, 'to tickle,' or 'be tickled,' as in Wood Cree *kūthūk*, Prairie Cree *kūyāk*, Ojibwe *gināg*, Nipissing *kināk*, and Menomini (by assib. of the guttural characteristic k)³ *kinātsh*. The change of sense from cause (tickling) to effect (laughter) is quite natural.

mattoume (*mātūm*, apocop. form of *mātūmēn*), the seed of a kind of grass which "they use for a dayntie bread buttered with deares suett" (Strachey);⁴ = Rap. *mārūmēn*,* not on record as an independent word,

¹ See Appendix F.

² For $sh = ts$, assib. of t , compare the Virginian word *kēshēmāk*, 'poor,' 'weak' (Strachey), for $k'è\ tēmāk'ki < \text{root } kētēmāk$, 'to be poor,' 'wretched,' 'miserable,' = Abnaki *kētēmāk*, = Lenape *gētēmāk*, = Natick *kātēmāk*, = Cree and Ojibwe *kētēmāk*.

³ Such assibilation of the guttural k occurs occasionally in other Algonquian dialects, and is common in Montagnais and Naskapi (Cree), in which we find *tihir* and *tihil* for *kir* and *kil*, 'thou,' *tikino* for *kino*, 'long,' *nitchik* for *nīkik*, 'otter,' etc., etc. We find it also in Narragansett, in the word *sachim* (*sātshim*), for *sākim*, and in Pequot *sūnjum* (*sū' dūm*) for *sū' gūm*, = Abnaki *sa' g'ma'*, = Lenape *sākimdu*. The same phonetic phenomenon, as is well known, is found likewise in English, in such words as *thatch* (*thatsh*) for *thak*, *chin* (*tihin*) for *kin* (Anglo-Saxon *cin*), etc.

⁴ The grain was probably wild rice, the seed of *Zizania aquatica*, which grows along the marshy borders of some of the Virginia rivers, and was doubtless the Virginia "reed" mentioned in Hakluyt as bearing "a seed almost like unto our rice or wheat, and being boiled is good meat."

but found in combination in *ápărúménán*,¹ defined by Strachey as 'parched wheat,' i. e., Indian corn, which, in early times, was called 'wheat' in Virginia; = Abnaki *mālómén*, a grain of wheat, = Lenape *mālúm* (for *mālúmén*), a grain of wheat, = Old Nipissing *mālómén*, a grain of wild rice, = Ojibwe *mānómín*, *mūnómín*, a grain of wild rice: < root *mālú*, *māru*, *mālō*, *mānō*, *mūnō*, *mēnō*, corrupt forms of *mērū*, *mīlū*, *mēnō*, *mīthō*, *miyo*, 'good,' 'fine,' 'excellent,' + *-mén*, *-mín*, 'seed,' 'grain'; > *Menomini*, 'wild-rice people.'

matatsno (*metētānō*),² the tongue, < *m*, indef. prefix, + *tētānō*, = Wood Cree '*téthānii*, = Prairie Cree '*tēyānli*, = Ojibwe '*dēuānli*, = Menomini '*lā'nuniu*. In some dialects the word has a shorter form: Miami '*lā'ni*, = Shawnee '*lāni*, = Lenape '*rā'nu*, '*lā'nu*, '*lāno*, = Caniba '*rā'ru*, = Mohegan '*nā'no*, = Natick '*nān*, = Nanticoke '*lānu*, = Micmac '*lā'nu*, = Sauk '*nānēwē*.

mussaangegwak (*mūsa' djiḡēwāk*),³ 'maneaters' (Strachey); lit. 'they eat much' (inanimate food), = Cree *mīsāṭjikēwak*.

nahapue (*nāhāpiu*), 'to dwell' (Strachey); lit. 'he (or she) is well (or comfortably) seated (or placed),' = Cree *nāhāpiu*, = Nipissing

¹ From *apeu*, 'he (or she) cooks' (in any manner), from which, by separating the root, *ap*, and verbal suffix, *eu*, and inserting the word *mārūmín* (with regular loss of *m* in composition), we have *ápārūmínēu*, 'he (or she) cooks corn' > *ápārūmēnán*, 'cooked (parched) corn.' It would appear from this word and the Tap. *mātūmēn* (which is simply borrowed with change of *r* to *t*), that *mārūmēn* was anciently a name for Indian corn in Virginia, and afterward transferred to wild rice, and another term, (*pā'kūtā'u*, or *pā'gātōu*) selected for corn. Their meaning would make the above-mentioned cognate names apposite for any kind of grain useful to the Indians, and so, perhaps, their specific application was not always definite. Carver (*Travels*, 1788) gives *mālómín* as the old Nipissing term for Indian corn, although the name (usually spelled *mālūmín* or *mālómín*) was usually, in that dialect, that of wild rice.

² The second *t* here corresponds to the Cree *th*, *y*, *r*, *l*, and *n* series of linguo-dentals.

³ This Virginia word finds a place here because it presents a phonetic peculiarity common to Cree and Ojibwe, but not found in the dialects of the Abnaki, Lenape, and Massachusetts groups, and that is the assibilation ("softening" — Howse) of the initial letter *t* or *d* of the suffix of the inanimate indefinite form of certain active verbs. Trumbull, in a paper on "The True Method of Studying the North American Languages," regards the *f* (Ojibwe) or *j* or *sh* (Cree) following the letter *d* or *t* as a "characteristic of energetic action." Such, however, is by no means the case, since this assibilation takes place mostly in verbs in which the particle that modifies their meaning in the animate and inanimate transitive forms, expresses, in the majority of cases, what Howse calls a "mitigated" degree of energy, or no forcible action whatever, such as thinking, loving, tasting, seeing, hearing, etc. The reason why the names of certain tools end in *-gān*, and those of others terminate in *-djiḡān* or *-tiḡgān* in Ojibwe and Cree is extremely simple, but would require too much space for its explanation here.

nāāpi, = Ojibwe *nāābi*. The adverbial prefix *nāh*, *nā*, 'well,' 'properly,' 'skilfully,' is found only in the Cree and Ojibwe groups.

nimatewh (*nimā'teū*), a man, = Rap. *nima'rou* (for *nimā'reū*), = Mohegan *nimā'neū*; a loan-word from the Rap. dialect, with change of *r* to *t*.

Nottoway (*Nā'towéu*), an Iroquois Indian, = Cree *Nā'towéu*, = Nipissing *Nā'towé*, = Ojibwe *Nā'dowé*.

The Cree word is formed from the auxiliary root *nāt* (which, as a prefix, gives the meaning of 'to go in search of' whatever is specified in the verb) and the verb *mōwéu*,¹ 'he eats flesh-food.' The word would thus mean 'he goes to seek flesh to eat,' an assertion that might naturally be made of a person regarded as a cannibal; and that the Iroquois were anthropophagi was an opinion generally held by the Algonquians. *Nā'towé* or *Nā'dowé* would thus be a loan-word in the Ojibwe dialects, in which the verb *mōwéu* does not exist, but is replaced by *āmōwā*, a word from the same root (*mo*, *mu*) with a prosthetic vowel.

opotenaioik (*ōpātā'niā'k*), pl. of *ōpātāni*, 'white-tail,' the bald eagle (*Haliaeetus leucocephalus*), = Lenape *wāpālā'ne*, (Unami dialect) *ōpālān*. See *ottaneis*.

otakeisheheis (*otā'kshihī*), bowel, gut, intestine, lit. 'his (or her) bowel'; = Prairie Cree *'tā'kshī*, = Wood Cree *'tā'kshī*, = Ojibwe *'nā'gij*, = Ottawa *'nā'gish*, = Nipissing *'nā'gish*, = Old Nipissing *'lā'kish*, = Lenape *'ā'k'sī*, *'lā'k'sī*, *'lā'k'shī*, = Natick *'nā'kūs*, = Narragansett *'nā'k's*.

otaus (for *otous* = *otūs*), a woman's breast (*mamma*); lit. 'her breast'; the simple form of a radical, *tos*, *tus*, or *tosh*, found reduplicated in Cree *'totōs*, or *'totūs*, and Ojibwe *'totōsh*.²

ottaneis (*otāni*), the tail of a bird; lit. 'its tail'; = Cree *'tāni*, = Caniba *'rā'm*, = Lenape *'rā'ne*, *'lā'ne*, = Ojibwe *-nā'ni* (suffix), = Menomini *-nāni* (suffix), = Natick and Narragansett *-nā'nu* (suffix).³

ottawm (*otā'm*, apocop. < *otā'mān*),⁴ defined by Strachey as 'earth,' but really a name for colored clay such as is used by the Indians as a

¹ Algonquian roots with the initial *m*, *n*, or *w*, discard such letter when, in composition, they are preceded by another root.

² Perhaps a dual form denoting two of a kind. A similar reduplication is found in the name for the eyebrow: Ojibwe *mamā*, = Abnaki *ma'ma'a*, = Lenape *mamāmon*, = Natick *mamān*.

³ One of the Virginia names for a turkey-cock given by Strachey is *axpanno*, an apocopated form of *ōpā'pā'nānū*, 'he raises the tail.' The word belongs to a Nap. dialect.

⁴ This word belongs to the *tā*, *y*, *r*, *l*, and *n* series of Cree linguis-dentals.

body-pigment: = Rap. *erá'mān*, = Nap. *oná'mān*,¹ = Ojibwe *oná'mān*, = Shawnee *olámān*, = Caniba *urá'mān*, = Menomini *onámān*, = Lenape *wurámān*, *wulámān*, = Narragansett *wunām*, = Prairie Cree *wiyá'mān*.

The root of these words is *thām*, *tām*, *yām*, *rām*, *lām*, and *nām*; the suffix *-ān* is a formative, which is always discarded when the terms are used attributively; and the prefixed vowel is simply expletive. This radical apparently corresponds in meaning to the Aryan root *pig*, 'to color,' found in the Latin word *pigmentum*, and the formative *-ān* to the *-mentum* of that term. Since red is the favorite color of the Indians, the name is applied by them specifically to paint of that hue (usually ferruginous clay naturally red, or the same material of a yellow color made red by roasting). When it becomes necessary to designate pigments of other colors (the Algonquian scale of which, at least, is very limited), the prosthetic vowel is dropped and the proper adjective prefixed, as, for example: Abnaki, *wá'hilá'mān*, 'white paint,' Ojibwe *ósaná'mān*, 'yellow paint,' etc. The above words, then, may without doubt be regarded as equivalent to the Latin term *pigmentum*, and the English term *paint*.

outacan (*utá'kān*),² a dish (primitively, a dish made of bark); = Wood Cree *uthá'gān*, = Prairie Cree *oyá'gān*, = Montagnais *urá'gān*, = Ojibwe *oná'gān*, = Old Nipissing *ulá'gān*, = Caniba *urá'gān*, = Penobscot *ulá'kān*, = Lenape *urákān*, *ulákān*, = Natick *wuná'gān*, = Narragansett *wuná'gān*, = Mohegan *wáná'kān*.

These names for one of the most primitive of aboriginal household utensils are of very peculiar formation, and may, perhaps, be regarded as radical words. The prefixed vowel is simply expletive, and the suffix *-ān* denotes a 'utensil.' This leaves as a basis for the formation of the word an active verb consisting of a consonant and one vowel, *e*, or per-

¹ Found in *Onawmantent*, a name understood by Captain Smith and others to be that of a place on the Potomac, and now preserved in the form of Nominy as the designation of a bay and village. The name is evidently personal, and the word stands for *Oná'mānti't*, 'he who paints' (i. e., himself). The term was perhaps applied by the Potomac river Indians to the warriors of the locality, individually, from the extraordinary and fantastic manner in which they decorated themselves with war-paint. On the 16th of June, 1608, while Smith and a party were exploring the Potomac, two Indians guided them into what is now called Nominy bay, "where," says the chronicler of the event, "all the woods were laid with Ambuscadoes to the number of 3 or 400 Salvages; but so strangely painted, grimed, and disguised, . . . as we rather supposed them so many devils."

² This word belongs to the *th*, *y*, *rl*, and *n* series that differentiates Cree into dialects.

haps two vowels, *eu*. This would make the root of the word simply a consonant!¹

paqwantewun (*pākwa'tehún*), 'leather that covereth their hips and secretts' (Strachey).² This word is cognate with Cree *pākwa'tehún*, a girdle. The root *pākwa*, 'to wind about' or 'around,' is confined to the dialects of the Cree group. The particle *-a't* (Cree *-at*) denotes repetition, and, when used as a prefix, is the exact equivalent of Latin *re-*. The nominal suffix *-hún* (Ojibwe *-ón*, *-hón*, = Natick *-houn*, = Abnaki *-hún*) is from the intransitive (sometimes reflective) verb suffix *-húw* (Ojibwe *-b*, *-hó*, = Natick *-hou*, = Abnaki *-hú*), denoting the action or manner of wearing some article of apparel or bodily adornment (ear-rings, bracelets, finger-rings, etc.), or of carrying some object that aids or affords relief to the body or some part of it (as a cane, tooth-pick, etc.). The word describes an article of attire which, owing to the part of the body upon which it was worn, had to be frequently changed in order to assure cleanliness.

The Virginia name *pākwa'tshiptsun*, for a girdle or sash, is from the same root, + *-a'tsh*, 'again,' + *-pitsun*, 'tie,' or 'band' < anim. adj. suffix *-pisu*, 'tied.'

puttawus (*pūtēwūs*), a feather mantle;³ from a root *pūt*, which is possibly a weak form of the Cree root *pust*, 'to put on,' 'invest' (said of apparel), a radical which has no cognate in any other Algonquian group of

¹ The rule (not given in grammars) for forming the names of 'utensils' is this: If, to an intransitive verb, we add the suffix *-āku*, *-āgen*, *-āke*, or *-āge* (according to dialect), we shall form another intransitive verb which asserts that the subject *makes use of* something for the purpose indicated by the root. By changing the verbal termination *-a* or *-eu* into *-ān*, we shall have the name of an object *used for* something — a *utensil*. For example: Virginia *ōāmteu*, 'he aspires,' 'draws with the mouth,' hence 'drinks,' > *ōāmā'keu*, 'he uses for drinking,' > *ōāmā'kān*, 'used for drinking,' a 'drinking utensil,' or, as Strachey defines it, 'a can or any such like thing to drink in'; a word cognate with Natick *witāmō'gān* and Abnaki *ūdāma'gān*, a pipe. As is well known, Europeans, in the seventeenth century, spoke of "drinking" tobacco, instead of smoking it, and so did the Indians, and, in some of the Algonquian dialects, "to drink" and "to smoke" are expressed by the same verb. The Virginian word *tumahawēk*, which our dictionaries compare with *tā'māhikān* ('axe'), a coradicate, but not cognate word, is formed by the same rule that is given above: *tā'mēhā'm*, 'he cuts' (something inanimate), > *tā'mēhā'keā*, 'he uses for cutting,' > *tā'mēhā'kān* (apocop. to *tā'mēhā'k*), 'used for cutting,' a 'cutting utensil.'

² Strachey describes these "secret-aprons," as they have been called, as composed of "long blades of grass or leaves of trees or such like under broad baudricks of leather, which covers them behind and before."

³ Strachey uses this word in an account of a visit which he paid to the squaw of the deposed ruler of Tapehanek.

dialects: > *pá'teu*, 'he (or she) puts on,' > an. adj. *pá'tewú'su*, 'put on'; 'a put-on,' a 'vesture.' Adjectives are often used substantively in Algonquian.

taw (*tāw*), 'in the middle' (root); = Cree *tāw*, = Ojibwe *nāw*, = Abnaki *nāw*, = Narragansett *nāw*, = Lenape *rāw*, *lāw*, = Shawnee *lāw*. DERIVATIVES: Tap. **nuttawutindg** (*nētāwūtīn'dj*), 'my middle finger,' = Cree *ni tāwūtshītsh*, = Ojibwe *nin nāwīn'ndj*, = Lenape *nērāwūri'ntsh*, *nētāwūtīntsh*.

tindge (*'tindj*), hand, finger, = Ojibwe *'nindj*, = Potawatomi, *'nintsh*, = Lenape *'rintsh*, *'fintsh*, (Western) *'lāndj*, = Menomini *'nēntsh*, = Naticke *'lāntz* = Rap. *'rintsh*,¹ = Natick *'nitsh*, = Narragansett *'nitsh*, = Caniba *'rēts*, = Penobscot *'fītsh*, = Milicite *'lēdj*, = Cree *'tshītsh*, *'tshītj* (through assimilation, due to assimilation, from an original *'tītsh*, or *'tītj*, with which compare the nasalized Tap. *'tindj*, or *'tī'dj*). DERIVATIVES: **meitinge** (*mitindj*), 'hand'; **nummeisutteing** (*nēmīstūtī'ndj*),² my forefinger, lit. 'my betraying (making known) finger'; **nuttawuting** (*nētāwūtīndj*), my second finger, lit. 'my middle finger'; **ohtindge** (*ohtindj*), crab's claw, lit. 'its hand'; **oteingas** (*ohtindjēs*), glove,³ lit. 'his (or her) little hand'; **uketeqwaiuttindg** (*okē'tēkwūtīndj*), his thumb, lit. 'his big head-finger.'

top, tap (*tāp*), 'alternately,' 'again and again' (root); = Cree *tāp*, = Ojibwe *nāb*, = Nipissing *nāp*, = Caniba *nāp*, = Natick *nāp*, = Lenape *rāp*, *lāp*, = Rap. *rāp*, = Niantic > *yaap*. DERIVATIVES: **Topahanock** (*Tāpēhā'nēk*), 'the stream that ebbs and flows'; a word in which the formative *-hānēk* is borrowed from another dialect. **uttapaantam** (*tapāntām*, with prosthetic vowel), deer (*Cervus virginianus*), = Rap. *rapāntām*, defined as 'venison.' *Tapāntām* means 'he chews once again,' and distinguishes the deer (the only ruminant with which the Virginia Indians were acquainted) as the 'cud-chewer.'⁴ **tapaantaminais**, a

¹ Found in *neherinskeps*, 'finger-ring,' a misspelling of *nā'kērī'ntshēpsun*, lit. 'hold-finger tie (or band).'

² The root of this word, written simply *mis* (with a long vowel) in the original seems to be the Cree radical *miss*, 'to betray,' 'to make known.' There is no other Algonquian root of similar spelling that would make any sense in connection with the name of the index-finger, which, in some dialects, is called the 'pointing finger.'

³ This same metaphor is found in other dialects, as in the word for mitten, which in Caniba is *mērē'tōt*, and in Milicite *mū'ldjēs*, both meaning 'little hand.' The Ojibwe name for glove or mitten is *mīndj'kētōwūn*, 'artificial hand.'

⁴ The Algonquians do not, as a general thing, seem to have observed the cud-chewing habit of our native ruminants, and so the words descriptive of the operation are usually of missionary formation. Père Lacombe, for the Cree, has *mā'mākwā'tshikēpā'y'tu*, 'he keeps crushing with the teeth.' The word constructed by Eliot was *enchittaman* (*a'ntshītā'mēu*), which, without the suffix *-eu* (which destroys the signification) would mean 'he chews again,' 'he re-chews.'

string of cylindrical copper beads ("bugles").¹ The word is from the root *tap*, 'in alternation,' 'in succession' (on a string), and, apparently, *-ā'n'to* (for *-ā'nito*), 'strange,' 'mysterious,'² *-min*, 'bead,' and the diminutive suffix *-is*.

uttocannoc (*otōkānā'k*, for *otōtākā'nā'k*), pl. of *otōtākā'n*, a wing, = Prairie Cree *otā'tākā'wā'n*; but the following Algonquian words for a bird's wing are coradicate with Cree '*tikkōgān*, the armpit or axilla: ³ Ojibwe '*ningwīgān* (< '*nī'ngwī*, armpit), = Miami '*lāngwā'nā* (< '*lāngūngī*, armpit), = Caniba '*rīgūwāna* (< '*rī'gūwī*, armpit), = Shawnee '*l'ē'kwa*, = Lenape '*rā'nkwān*, '*lū'nkwān*, (Western) '*lā'ngwān*, = Menomini '*nāchka'kwān* (< '*nā'chki* armpit).

weisqwaput, nu (*nēwiskwepitāu*,⁴ 'I wind (or wrap) him (or her) up'; = Cree *nī wiskwepitāu*, = Lenape *nēwiskwepitāu*, = Natick *nēwiskwepitāu*: < root *wiskw*, 'to wind up,' 'wrap up,' + the animate transitive termination (1st and 2d per.), Cree and Tap. *-pi-tau*, = Lenape *-pi-lau*, *-pi-rau*, = Natick *-pi-nau*, denoting, according to the root (1), the action of 'pulling,' and (2) that of 'tying.'⁵

wintuc, wintuccum (*wintūk*, *wintūkūw*), a ghoul,⁶ = Cree *wit-tikōw*, = Ojibwe *windigō*; in the mythology of the Crees and Ojibwes, a gigantic monster in the form of a man, who feeds upon human flesh.

¹ This "Chayne with long lynxes of copper which they . . . accompt a jolly ornament" is mentioned by Strachey in an account of a visit that he paid to the squaw of the deposed ruler of Tapehanek.

² Copper was naturally a strange material to the Virginia Indians, who prized it very highly, and who doubtless obtained their supply of it indirectly, by barter, from the Lake Superior region. The Virginia name for the metal, *miltā'sin*, meaning 'on a stone,' shows that the first specimens that were exhibited to them were adherent to their rocky matrix. Glass was another mysterious or supernatural substance, and hence the Ojibwe name for a glass bead, *mā'utit iminē's*, 'mysterious little bead.'

³ They hence correspond to Greek *πτερυγ*, and Latin *ala*, a 'wing,' with reference to the wing-joint.

⁴ This verb was generally used by the Algonquians with reference to the preparation of a corpse for burial, the preliminary winding it up in mats or skins.

⁵ The particle *-pi*, before the suffix of active transitive verbs of a certain conjugation 'scheme' denotes primarily the action of 'pulling'—an exertion of the *arm*; whence, perhaps, the name of that member, *pit*, 'the puller.' The Algonquian notion of 'tying' was that of 'pulling together,' as in English, in which, as is well known, the verbs 'to tug' and 'to tie' are from the same base.

⁶ This word is printed 'fool' in the *Dictionary*, through the misreading, by a copyist, of a word written 'gool' for 'ghoul.' Through like misreadings, we find, as English definitions, 'an otter' for 'another,' 'aunts' for 'ants,' an 'owl' for a 'cove,' 'a rose' for 'he rose,' and a 'crome' for a 'crane.'

CULTIVATION OF "MEDICINE TOBACCO" BY THE CROWS—A PRELIMINARY PAPER

By S. C. SIMMS

The ceremony attending the planting of the "medicine" tobacco plant is one of the oldest observed by the Crow Indians. With slight variation the performance of the ceremony is still observed as in the days when buffalo were plentiful, when, about the beginning of winter, the fattest buffalo cows that could be found were killed and the meat cured so as to keep until the following spring. Just after the killing it was announced that the meat would be eaten at the planting of the tobacco plant. To-day beef is used in lieu of buffalo meat.

As soon as the chokecherry trees begin to blossom in the latter part of May, preparations are begun for a feast. After the feast the following is sung, in a chant-like manner, four times, accompanied by the shaking of a rattle:

"I am going to plant tobacco,
There will be plenty,
Come and see the tobacco."

At the conclusion of the fourth repetition some wild onion, earth from mole hills, and dried cattle manure (formerly buffalo or elk chips were used) are put into bowls and thoroughly mixed; to this is added a little of the tobacco seed mixed with water, then after another mixing beef offal is added. The largest intestine of the beef has meanwhile been selected and cut into as many pieces as there are members of the party. Each piece of the intestine is then filled with the mixture and the ends tied with sinew; they are then distributed, each piece fastened to the curved end of a chokecherry stick about three feet long. Each person having one of these sticks is regarded as the offspring of the oldest man in the party, who is alluded to as the "father" and who always conducts the ceremony.

After the distribution of this curious sausage, the personal "medicine charm" of each man is given by him to his wife, or to his nearest female relative present, who suspends it from the middle of a long string, the ends of which cross the shoulders, allowing the medicine to hang down the back. The ends of the string are then grasped in the left hand, which is held across the chest to the right side. In the right hand of each woman is carried a fan consisting of the wing of an eagle. Each woman is dressed in her most attractive costume and wears in her hair an eagle feather.

Directions are given for the forming of a single line abreast, one-half being women and the other half men, and in this form they march to the tobacco planting grounds. This line, which consists of both married and single men and women, is headed by a woman, usually the wife of the old man alluded to as the "father," but if she be not living the nearest female relative of the old man is chosen. The leader always carries a bundle of small branches of the chokecherry tree, to which are tied small stuffed birds.

This march is always at a slow pace in the direction of a mountain to the south (as a crane flies in the fall), and is accompanied with singing, drum-beating, and rattle-shaking. At a distance of about four hundred yards from the beginning of the march the leader stops suddenly and sits on the ground, in which he is followed by the others. As soon as all are seated the old man fills a pipe with tobacco, and after lighting it points it stemward to the sun and then to the earth. This he repeats slowly and deliberately four times, with the invocation at each movement, "May the tobacco grow very tall." He then passes the pipe to the next man in line, and so on down the line, but omitting the women. Sometimes a man may be afraid to smoke the pipe for fear that, if the tobacco should not grow, some great harm would befall him; but if he is not afraid to smoke, and desires to do so, he grasps the pipe-stem firmly with both hands and takes as many inhalations as he desires; and as he smokes, the remainder of the men exclaim, *Ah-ho!* which signifies "Thank you!" This act of smoking is regarded as a ceremonial equivalent to the sacrifice of the life of the smoker that the tobacco plant may grow.

After all the men have smoked the pipe, the "father" sings

a song which is taken up by the others, who also accompany their leader with their drums and rattles. During this song the women dance, which they continue after the men have ceased singing and playing. As the women dance they sing:

"I walk toward the mountain;
I am the last one."

This song is repeated four times, and at its conclusion the march is resumed in the same order as before, a stop being made about four hundred yards from the first stop, where everything is repeated exactly as when the participants halted on their outward march.

This marching, halting, smoking, praying, singing, and dancing are repeated twice more, or four times in all, the last stop taking place about a hundred yards from the tobacco planting grounds. During this last stop the women transfer the chokecherry sticks and the medicine from their backs to young men, usually their relatives, whereupon the latter form in line abreast and the "father" sings the following song four times:

"I am going to make tobacco,
There will be plenty;
Come and see the tobacco."

At the conclusion of the fourth song the young men who have been standing in line engage in a foot-race to the planting ground, on reaching which each one hangs his medicine and chokecherry sticks on branches of trees which had previously been placed upright around the planting ground. The young man first reaching the goal is prayed for that he may have a successful future and especially no ill-luck during the ensuing year. No prayer, however, is offered in behalf of the losers of the race, who are ridiculed instead. The one who first succeeds in hanging up the medicine and the stick prays for that which he desires most.

At the conclusion of the race the entire party advances and begins the construction of a hedge of green branches around the planting ground, which has already been partially and uncereemoniously prepared for the planting. As soon as the hedge is completed, the women work the soil as fine as possible by hoeing and

raking; the men and women then stand in pairs, usually man and wife together. The tobacco, which is tied up in the intestine, is next taken off the curved chokecherry stick and held in the left hand, while the stick is grasped by the right hand. The "father" now sings the following four times:

"I am going to make tobacco,
There will be plenty;
Come and see the tobacco."

When the song has been repeated the fourth time, those holding the tobacco and sticks move forward in a row upon the planting ground, and each with the end of his stick makes in the ground a hole about the size of a man's index finger and about four inches deep. The holes are made in rows. The filled piece of intestine is laid across the left arm, and with the right hand a small quantity of the mixture of tobacco and fertilizer which it contains is placed in each of the holes, which are then filled with earth.

When the planting has been finished a large sweat-lodge of bent boughs is erected, sufficiently large to accommodate ten or twelve men. This number enter the lodge and repeat, four times, the following song:

"Say, man, we are going to make a sweat-house."

The men remain in the lodge for about twenty minutes, when they rush to the river and take a plunge. After thus cleansing themselves they take a number of small willow branches and cover them with grease and charcoal; their ends are then stuck in the earth, in a corner of the planting ground, in such manner as to form the framework of a miniature sweat-lodge, in the center of which are put live coals of fire. From the mountains has previously been obtained a root called "bear-root," which is chipped and placed upon the fire; but before this is done the root is held by the "father" in his right hand, which he extends successively toward the east, the south, the west, and the north, facing the east all the time, so that when the hand is extended to the west it is necessarily passed over and back of his head, and when extended to the north it is also over the

head. From this last position the "father" lowers the root with a spiral movement (as a crane alights) toward the fire. This is done four times, each time the hand becoming nearer the fire, until, on its fourth descent, the chipped root is placed upon the fire.

As the incense arises sunward a pipe is filled and lighted by the "father," who sends the first whiff toward the sun, at the same time pointing the stem thereto and praying that the people may live long. The next whiff is blown toward the east, the "father" at the same time pointing the stem of the pipe downward and praying that the people may have no sickness. If the smoke from the burning bear-root rises straight, prayerful petitions are made that the tobacco plant may grow as straight as the smoke, and that the participants and the whole tribe may have no misfortune.

The ceremonies of the day close with a great feast outside the planting ground.

Every seventh day after the planting the older men go to see how the plants are thriving, and as soon as the sprouts appear they return to the camp, singing songs of thanksgiving.

Although the tobacco tract may become overgrown with weeds, no one ever enters the enclosure until the wild plums are ripe; then the medicine tobacco is gathered—roots, stalks, and leaves. As the plant is considered to be poisonous, those who harvest it rub their hands beforehand with a root gathered in the mountains. No ceremony is observed when the medicine tobacco is gathered.

The plant is stored away, and when dry the seeds are put in a buckskin pouch and kept for another planting. The roots, stalks, and leaves are thrown in the river.

BOOK REVIEWS

Die Vorgeschichte des Menschen. Von G. SCHWALBE. *Mit einer Figurentafel.* Braunschweig: Friedrich Vieweg und Sohn, 1904. 8°, 52 pp.

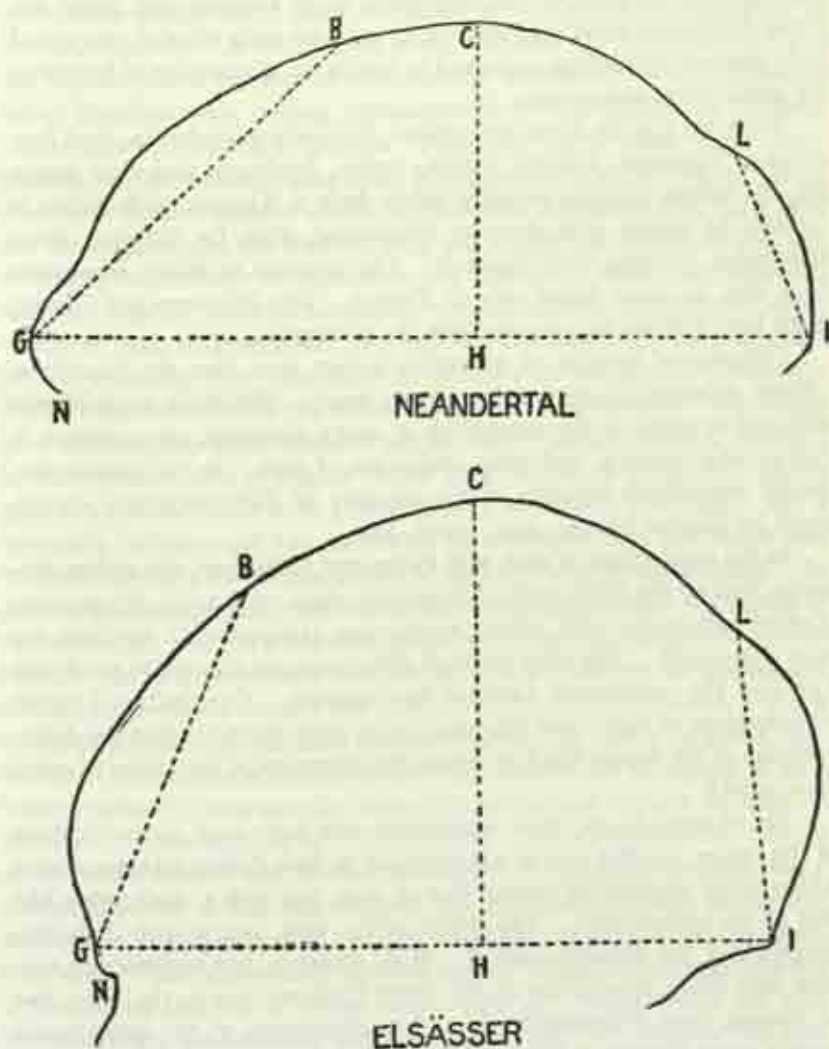
Professor Schwalbe's recent papers on the prehistoric races of Europe, as well as on *Pithecanthropus erectus*, have been received with general favor. Few living writers are so well prepared to treat the subject from the anatomical standpoint.

Schwalbe recognizes that there are at least two types of Paleolithic man, and proceeds to devote his attention to the oldest and most primitive one, viz., that of which the remains from Neandertal and Spy are representative. Various names have been proposed for this early race, as Neandertal, Spy, and Canstatt, the latter being the choice of de Quatrefages and Hamy. King, an Irish writer, considered diluvial man as a species apart, to which he applied the name *Homo Neandertalensis*. Sir John Evans has suggested *Homo incipiens* as opposed to *sapiens*. Schwalbe prefers the appellation *Homo primigenius* to all others, thus recognizing with King that specific differences separate this early type from all succeeding human types, as well as from the apes. These differences are made strikingly evident by comparison of the cranial caps in Macacus, Chimpanzee, Pithecanthropus, Neandertal, and a modern Alsatian. The reviewer reproduces (figs. 4, 5) the last two figures used by Schwalbe.

The profile curve from the nasion (N) to the inion (I) brings out the relative flatness of the Neandertal skull. From c, the highest point of the skull, line CH is drawn perpendicular to line GI, which connects the glabella with the inion. The ratio of CH to GI is much greater in the modern races than in the Neandertal, being 40.4 in the latter and 52 in the lowest types of recent man. Another striking difference is the retreating forehead of *Homo primigenius*. This may be determined by measuring the angle which the straight line drawn from bregma (B) to glabella makes with the base-line GI. In the Neandertal skull the angle BGI is only 44°, while in *Homo sapiens* it never falls below 55°. The lambda angle LIG measures from 78° to 85° in recent man, while it is only 66° in the Neandertal specimen.

An increase in the size of the bregma- and lambda-angles would of course mean a marked increase in the length of the medial, cranial curve GBCLI. In respect to the relative length of this curve the Neandertal skull

resembles the ape skull more closely than it does that of recent man. In the latter, the median curve is greater than any curve not in a median line, and connecting the glabella with the inion. In the apes and the



FIGS. 4, 5.—Comparison of the Neandertal cranial cap with that of a modern Alsatian.

Neandertal race, the median curve is shorter than the curve passing over the upper margin of the temporal bone (*Schläfenbeinrand*). These two curves on the Neandertal skull are of about equal length. The discovery

of two almost complete diluvial skeletons in a cavern at Spy, Belgium, has made it possible to compare the face- and jaw-bones, as well as the extremities of this race, with those of living races. But the specific differences are not so great in the long-bones as in cranium and lower jaw. These differences alone are sufficient to separate early diluvial man specifically from all succeeding races and to justify, in the opinion of Schwalbe, the name *Homo primigenius*.

From the species *Homo primigenius*, Schwalbe excludes the skull fragments of Egisheim, Tilbury, Denise, Brunn, Predmost, and some others. But the human remains recently taken from a Krapina rock-shelter in Croatia, he classes with those of Neandertal, Spy, La Naulette, Arcy, Malarnaud, Schipka, and Taubach. The remains of *Homo primigenius* have thus far been found only in Europe. The Calaveras and Lansing skulls have nothing in common with the *primigenius* type.

Osteological remains of an earlier human race than the Neandertal (*Homo primigenius*) have not yet been found. But there are evidences sufficient to prove to the satisfaction of many observers, the presence in Europe of a Tertiary, tool-using progenitor of man. In this connection, special importance attaches to the remains of *Pithecanthropus erectus*, found by Eugène Dubois, near Trinil, Java.

In his comparison of man with living and fossil apes, the author concludes that all the links in the phylogenetic chain connecting *Dryopithecus fontani* (Miocene) with *Homo primigenius* (Quaternary) have not yet been discovered. The chief physical differences are due to the erect posture and the consequent cerebral development. Cunningham's recent investigations of right- and left-handedness show distinctly that the differentiation of the human hand antedates the formation of the center of articulate speech.

The changes in the lower extremities must have kept pace with those of the upper; so that one is not surprised to find *Pithecanthropus erectus* with a femur resembling closely that of man, but with a skull rather like that of the anthropoids. The biped series, then, begins with *Pithecanthropus* and the Pliocene period. It is, however, not necessary to suppose that *Homo primigenius* of the lower Quaternary is in the direct line of descent from *Pithecanthropus*. A contemporary of the latter would answer every purpose as progenitor of man.

Schwalbe's chief contribution to the literature on this subject is in calling attention to the line of cleavage separating the early Paleolithic race from *Homo sapiens* which first appeared in later Paleolithic times and to which belong all subsequent races, both prehistoric and historic.

GEORGE GRANT MACCURDY.

Islands Kultur ved Aarhundredskiftet 1900. Af VALTÝR GUÐMUNDSSON.
Copenhagen: 1902. 8°, viii, 160 pp.

To the student of anthropology undoubtedly the most interesting part of this volume on "The Civilization of Iceland at the beginning of the 20th Century" is the chapter which discusses the physical type and the mental characteristics of the modern Icelander. The Icelanders, being Scandinavians, belong ethnologically to the Nordic or Xanthochroid race of northern Europe. Physically he is most often long-skulled, has fair hair and blue eyes, but is only of medium height, being, therefore, in this respect unlike Continental Scandinavians, especially the Norwegians and the Swedes, who are among the tallest of peoples, measuring according to Keane 1.713 meters. There is, however, another type of modern Icelander, a black-haired, round-faced type, which is thus, in prominent physical characteristics, the very opposite of the prevailing type. Mentally he is also very different. Guðmundsson's characterization of the prevailing type is in brief this: Physically he is only slightly above medium height, and is inclined to be slender; he has a shorter and a weaker frame than his Norse ancestor. He is generally blond, has blue or gray eyes, and a narrow, long face. He is extremely independent, has no respect for authority, does not find it easy to subject himself to the leadership of another—he is oppositional. In politics he is a democrat, who advocates to the last extreme the rights of the individual. He is a friend of progress and has an unbounded love of liberty. In religion he is a rationalist; he is a stranger to pietism and intolerance,—there never was a pietistic movement in Iceland. He is a man of reason, and demands absolute freedom for one's personal convictions. He knows no class distinctions, and is apt to regard it as a mere accident if he is socially below the one he may happen to have to do with. He is sanguine, he is changeable. He is not practical. He is an optimistic idealist and is therefore apt to overrate his ability; but if disappointed he is not discouraged, but reconciles himself to circumstances and begins anew. So far the sanguine element is the predominant one. Then there is the opposite type. Those who belong here are generally melancholy of temperament and are characterized by very strong feelings, are constant, oppose change, look with disfavor on new movements, and are conservative. They are pessimistic, easily discouraged, suspicious, jealous of those who are better placed than they. They live for the moment, cannot plan for the future, rarely assert themselves against others, but follow the majority. Politically their interests are local; they regard the state as the means for individual betterment, the

country as a whole they care little for. In contradiction to the general characteristics of the prevailing type, lack of thrift is said to be a common Icelandic trait.

The explanation for these two opposite types Dr Guðmundsson finds partly in environment, partly in heredity. The Icclander has always lived in unhappy conditions; he has been fostered in a severe nature. These environmental influences must have been strong; they have undoubtedly helped powerfully to stamp his character in a way far different from that of his Norse brother, much better circumstanced. Racially the Icclander is a composite character, and the two types in the modern population will find their chief explanation in the different racial elements of which the original colonists in the ninth and tenth centuries were composed. It is therefore a most interesting case of the perseverance of type in a small number of the population surrounded by a much larger class of radically different characteristics. It will be remembered that Iceland was peopled, between 870-930, chiefly by colonists from western and south-western Norway. Norwegian Vikings had made western voyages already long before this. The Shetlands, the Orkneys, northern Scotland, the Western Isles, Man, large parts of Ireland, and northern England had been visited by them. Extensive settlements had been made, especially in Ireland and the Western Isles. The Norse Kingdom of Olaf the Fair in Dublin dates back to 851. Between these various settlements there was considerable internal migration of Norse colonists, e. g., from Ireland to northwestern England; from the Western Isles to Scotland; from Ireland to Scotland, the Faroes, and elsewhere; and from all these to Iceland, which was settled last. While Iceland was colonized largely by Norsemen from Norway, it is well known that Norse colonies in the west contributed in no small measure to the early population. The *Book of Settlement* and the family sagas contain numerous Celtic names, although these can by no means always be taken as evidence of Celtic descent. The Norsemen from the Celtic West took with them their thralls and bondmen, and these were frequently given their freedom and provided with land by their masters. These different racial elements have developed an Icelandic character differing in many respects from that of the purer Teuton of the Scandinavian countries. The prevailing type has been modified; the elements that predominate in this type, however, are the Norse-Germanic. They are in race chiefly the descendants of Vikings who would not submit to Harald Fairhair's rule, but left Norway and found a home for themselves in Iceland where they could be their own masters. Their most prominent trait is extreme independence. The sanguine ele-

ment is predominant. The second type is in a larger degree the descendant of the thrall. In contrast to the self-assertiveness of the former stand the submissiveness and the lack of confidence in self of the latter. But the thrall was not of one single race. For the greater part, perhaps, he was the Celt, made slave by the Viking invaders. But many colonists from Norway seem, as Dr Guðmundsson points out, to have brought with them thralls of a non-Aryan race — descendants of a pre-Scandinavian people in Norway. The Iclander's composite character finds its explanation largely in his racial origin. Environmental influences — social, political, and economic — have, however, also played an important part.

GEORGE T. FLOM.

THE UNIVERSITY OF IOWA.

Explorations of the Gartner Mound and Village Site. By WILLIAM C. MILLS (Curator, Ohio State Archaeological and Historical Society). Reprint from the *Ohio Archaeological and Historical Quarterly*, Volume XIII, Number 2. Columbus: 1904. 4°, 65 pp., illustrated.

The Gartner mound is six miles north of Chillicothe, Ohio, on the eastern side of Scioto river, seventy feet above low-water mark; it is seven feet six inches high and seventy-five feet in diameter.

Among the most interesting features described in connection with this mound is the novel series of pits and graves dug below the original surface of the ground and originally covered with three smaller mounds, which in turn were subsequently consolidated into a single mound by the heaping up of earth over all three.

Numerous human skeletons were unearthed, many having objects buried with them, others apparently having none. Several of the objects, both ornamental and domestic, are of the ordinary sorts, while others are unique; they consist of bone, stone, pottery, and shell. Refuse heaps of ashes and of bivalves were also encountered. Much information is given in relation to the daily life of the people who constructed this mound and lived on the adjacent village site. The bones of the animals identified are those of the ordinary wild beasts of the recent period; the author also found indications of the presence of the domestic dog.

Bone awls, scrapers, and fish-hooks in every stage of manufacture were discovered, not only in the mound but on the village site.

The author claims to have found undoubted evidences of cremation in the ash-pits, which contained half-charred human bones. With the burials were found perforated crescents made from sea-shells, as well as the bored teeth of the dog, raccoon, wolf, bear, and elk. A unique

awl of bone, with a head carved upon it, is described, as is also a flat-base mound pipe of sandstone. A complete earthenware bowl decorated with a scroll pattern was also unearthed with one of the skeletons. The stone implements found in the mound and on the adjacent village site are of the usual type, and were evidently made by the same people in each instance. Arrowpoints of bone, with cavities bored in them for the socketing of the shaft, are of novel occurrence; for although bone arrowpoints are often mentioned by early writers, this type has heretofore been unknown.

A deposit of mussels, called by the author a "bake," is interestingly described, as is the manner of cooking these bivalves.

The author claims that the pits in Paint Creek valley, of which there are many, were originally intended for the storage of grain, beans, and nuts; they are believed to have been dug in the spring and to have been lined with straw or bark for the reception of the fall crop. In the refuse in many of these pits charred corn and corn-cobs were found. The same method of caching food was observed by Lewis and Clark during their journey up the Missouri.

The monograph is a valuable contribution to American archeology, and the author is entitled to great credit for the manner in which his material is presented.¹

JOSEPH D. MCGUIRE.

¹ A selection from the remarkable collections made by Professor Mills in the Gartner mound and in other mounds and village sites in Ohio during the last two or three years, forms a noteworthy feature of the exhibit made by the Department of Anthropology and Ethnology of the Louisiana Purchase Exposition at St. Louis.—*Editor*.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE.—Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending direct to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages.—EDITOR.]

GENERAL

Anthony (R.) Contribution à l'étude de la morphogénie du crâne. (Bull. Soc. d'Anth. de Paris, 1903, V^e s., IV, 579-580.) Unlike man, the *carnivora* (dog) with strongly developed masticatory apparatus show a crotaphyte muscle which is an obstacle to brain evolution.

Azoulay (L.) Musées et collections phonographiques en France. (Ibid., 536.) Brief note recording the fact that the fine-arts section of the Celtic Congress possesses more than 900 original melodies on phonographic cylinders.

— L'épreuve linguistique comme moyen d'identification des individus soumis aux recherches scientifiques. (Ibid., 565-568.) Author argues for a "linguistic test," or scientific shibboleth, to guard against mistakes in the record of linguistic data given by individuals.—e. g. a man claiming to be from Accra was proved to be a Fanti.

Barnhill (J. U.) The development of obstetric surgery. (Columb. Med. J., Columbus, O., 1903, repr. 1-16.) Treats of obstetrics among ancient Egyptians, Jews, Greeks, Hindus, Romans; and modern European peoples during the last three centuries. Instruments, operations, etc., are historically considered.

Bartels (P.) Ueber Vergleichbarkeit kranio-metrischer Reihen. (Z. f. Ethnol., Leipzig, 1903, XXXV, 935-951.) Technical discussion of the possibility of measuring and numerically expressing the "anthropological utility" of cranio-metric series, based chiefly on Ranke's and Koganei's material. The "index of utility" is the percentage of the middle number to the range of variation.

Bucke (W. F.) Cyno-psychoses. (Pedag. Sem., Worcester, 1903, X, 459-513.) Treats of children's thoughts, reactions, and feelings toward pet-dogs, data from *questionnaires*. Contains also ethnographic material from various sources. Bibliography of 113 titles. Author thinks dog was first "an economic assistant in life's struggles."

Chamberlain (A. F.) Primitive woman as poet. (J. Amer. Folk-Lore, Boston, 1903, XVI, 205-221.) Treats of poetic activities of woman among primitive peoples of all parts of the globe, also among the various nations of Europe in their primitive aspects. The American Indians and the Negroes receive special attention.

— Legal folk-lore of children. (Ibid., 280.) Résumés first part of A. de Cock's *Rechts-handelingen bij de Kinderen*, in *Volkskunde*, 1902-1903, XV, 193-199.

Colella (R.) Linguaggio e cervello. (Ann. d. Clin. d. Mal. ment. e nerv., Palermo, 1903, 1900-1902 [1903], II, 127-168.) General discussion of facts concerning the evolution of language and the human brain. The primal psychological fact is *sensation*, then *association*. The cerebral cortex is by no means uniform in function. Language offers us clear proofs of man's becoming and perfection.

Czekanowski (J.) Zur Höhenmessung des Schädels. (A. f. Anth., Brnchw., 1904, N. F. I, 254-258.) Technical discussion, with tables of measurement, of various "heights"—21 heights from basion, opisthion, ear-heights, etc., according to numerous authorities. The author measured 50 Disentis skulls to determine the relative value of these heights, and concludes that the best

suited for the study of craniological type are the bregma-basion and the vertical ear-height.

Dwight (T.) A separate subcapitulum in both hands. (*Anat. Anz.*, Jena, 1904, XXIV, 253-255, 4 fig.) Brief account of subcapitulum, corresponding to "Pitzner's prophetic description."

Fehlinger (H.) Zunahme der Krebskrankungen. (*Naturw. Wohnschr.*, Jena, 1903, XVIII, 546-547.) Discusses cancer-statistics of U. S. Twelfth Census and those of Hamburg as considered by Dr Fuld at pages 404-405. An increase of cancer-mortality seems to mean a decrease in tuberculosis-mortality. In the U. S. urban mortality is not greater than rural, vice versa in Hamburg. After the 45th year, the white race suffers more than the others, before it less.

— Die Sterblichkeit der europäischen und der Neger-Rasse. (*Ibid.*, 1904, XIX, 280-281.) Discusses U. S. Census statistics; author attributes greater negro mortality to the smaller vitality of the race.

Fischer (E.) Zur vergleichenden Osteologie der menschlichen Vorderarmknochen. (*Corr.-Bl. d. deutschen Ges. f. Anthr.*, München, 1903, XXXIV, 165-170, 2 figs., tables.) Comparative study of the bones of the forearm in Europeans, primitive races, anthropoids. The curve of the radius, Dr Fischer shows is, as Klaatsch declared, "an ancient primate-inheritance," — the Neanderthal radius falls within the human range of variation. The Neanderthal ulna, however, preserves the olecranon-cup, which has almost entirely disappeared in the present races of man.

Görke (O.) Beitrag zur funktionellen Gestaltung des Schädels bei den Anthropomorphen und Menschen durch Untersuchung mit Röntgenstrahlen. (*A. f. Anthr.*, Brunschwg., 1903, N. F. I, 91-108, 2 pl., 2 figs.) Gives results of investigations with X-rays of anthropoid and human skulls in the Selenka collection in München as to relation of face and cranium, functional changes in skull, effect of teeth on surrounding bony structure, effect of lower jaw pressure, etc. Author concludes that both internally and externally the skull is influenced by function (especially mastication), resulting in difference between man and the anthropoids.

de la Grasserie (R.) De la sexualité chez les divinités. (*R. de l'Hist. d. Relig.*, Paris, 1903, XLVIII, 48-67.) In the matter of sexuality of deities evolution is from non-sexuality (in a certain sense in man also) to anthropomorphism, preceded and prepared for by animism, and sexuality. Under the influence of anthropomorphic imitation various religions have made much of sexuality — the gods imitate man even in his genic excesses. Christianity has converted the primitive triad into a trinity; instead of continuing to imitate the body, it has imitated the mind. In the case of the Virgin, maternity was preserved with the elimination of sexuality. Ultimately asexuality was reached.

Hahn (E.) Entstehung des Getreidebaues. (*Z. f. Ethnol.*, Leipzig, 1903, XXXV, 1903, 1007-1019.) Author traces origin of agriculture to ancient Babylon — "agriculture and irrigation have always gone hand in hand." Hahn does not refer to McGee's writings on this topic.

Headlam (A. C.) Early Christianity and archeology. (*Rec. of Past, Wash.*, 1903, II, 372-376.) Discusses the debt of New Testament interpretation to archeology.

Hill-Tout (C.) Totemism, a consideration of its origin and import. (*Trans. R. Soc. Can.*, Ottawa, 1903-1904, II, 5, IX, 61-99.) After giving a brief statement of "what is regarded by leading American students [Powell, Fletcher, Cushing, Boas, *et al.*] as the doctrine of totemism," the author discusses recent views of Tylor, Lang, Frazer, Haddon, *et al.*, and sets forth his own opinion that "the personal totem undoubtedly does give rise to the family and group totem." He opposes Lang's "nick-name theory." Differences between "totems" and "fetiches" lie mainly in the way in which they are severally acquired.

Holl (Prof.) Der Schädel Hamerlings. (*A. f. Anthr.*, Brunschwg., 1902-1903, XXVII, 259-275, 4 figs., tables.) Detailed description of the skull of the poet Hamerling, with references to those of Schiller, Kant, Bach. An extraordinary development of the bregmatic region is noted.

Krause (E.) Die Verwendung von kohlenstoffsaurem Ammoniak und Chlorammonium bei der Konservierung von Eisenaltartüchern. (*Z. f. Ethnol.*, Ber-

- lin, 1903, XXXV, 791-793.) Author believes he has at last discovered an electrolytic bath highly preservative of iron objects against chemical injury.
- Laufer (R.)** L'addition du sel aux aliments est-elle nécessaire? (Rev. Scientif., Paris, 1904, V^e, s. 1, 455-460, 489-493.) Contains some data on use of salt by various peoples. Author concludes that use of salt with foods is not absolutely necessary, as they contain largely what is needed in themselves.
- Lickley (J. D.)** On the relations of the seventh and eighth ribs to the sternum in man. (Anat. Anz., Jena, 1904, XXIV, 326-332.) Based on examination of 51 adult sterna in the dissecting room of University College, Dundee. The eighth rib in man is a degenerated sternal rib, and the seventh is becoming such.
- Loria (G.)** Encore les femmes mathématiciennes. (Rev. Scientif., Paris, 1904, V^e s., 1, 338-340.) Reply to Mlle. Joteyko. See *American Anthropologist*, 1903, N. S., V, 164.
- Macnamara (N. C.)** Kraniologischer Beweis für die Stellung des Menschen in der Natur. (A. f. Anthr., Brnschw., 1902-1903, XXVII, 349-360, 4 figs.) Discusses changes in skull conformation and capacity, from the anthropoid apes, past the Pithecanthropus of Java, the Neanderthal man, to the Galley Hill and Tilbury types and the living races. Progress results from inborn growth capacity, race-mixture, and long-continued influence of environment. The skull, not the skeleton, has developed in recent man.
- Mason (O. T.)** The past is in the present. (Rec. of Past, Wash., 1903, II, 332-335.) Treats of the ethnologist, the historian, the archeologist, the paleographer, the philologist, the sociologist, the folklorist, the craftsman, and the religionist as guides in the study of the "awful conservatism of mankind,"—the part of human activity is seen in the present in four forms: decaying, vestigial, surviving, and vitalizing.
- Michel (R.)** Eine neue Methode zur Untersuchung langer Knochen und ihre Anwendung auf das Femur. (A. f. Anthr., Brnschw., 1903, N. F., 1, 109-122, 6 pl., 7 figs.) Describes a new method of determining and explaining mechanically the form of the long-bones (the femur in detail) by means of the observation and measuring of a series of cross-cuts. Femurs of man (adults, children), the race of Neanderthal and Spy, orang, gorilla, hylobates, Indri, etc., are treated of and measurements given. Sections of the femora of Neanderthal and Spy show figures like those of modern man. Those of children in the lower parts resemble those of the gorilla and orang.
- Newell (W. W.)** Sources of Shakespeare's "Tempest." (J. Amer. Folk-Lore, Boston, 1903, XV, 234-257.) A valuable comparative and critical study of the "Tempest" in relation to such possible folk-lore sources of the "bird-wife" type. The contemporary German drama, *Die Schöne Sidea*, by Jacob Ayrer, is also considered. Mr Newell concludes that "with the English poet, the *märchen*, received through literary mediation and pared to the vanishing point, served merely as a peg on which to hang golden fruit."
- In Memoriam—Henry Carrington Bolton. (Ibid., 275.) Brief record of life and scientific activities, with list of chief works.
- Petsch (R.)** Volksdichtung und volkstümliches Denken. (Hess. Bl. f. Volksk., Leipzig, 1903, II, 192-211.) Discusses the nature and relationship of folk-song and folk-thought. Imagination, content, form, combination, analogy, "monarchism," pessimism, love, extreme tendencies, emotion, feeling, sensualism, etc., are considered. For the author: "Folk-song is only that poetry which the philosophy of the common man is able to express in his own language and by such means as exert a special influence upon him." The question of folk-song is one with that of folk-thought.
- Pinto (C.)** O antigo imperialismo português e as leis modernas de governo colonial. (Bol. d. Soc. d. Geogr. de Lisboa, 1903, XX, 209-297.) General discussion of the Portuguese imperial policy. Author seeks to show that the imperialistic ideas of d'Albuquerque are the political type after which have been molded the modern principles of good colonial administration.
- Popowsky (J.)** Contribution à la morphologie de l'artère saphène chez l'homme. (Bull. Soc. d'Anthr. de Paris, 1903, V^e, s. IV, 596-607, 6 figs.) Notes case of saphenous artery in man a

- Tomsk in 1902,—the first occurrence was recorded by Zagorsky in 1829. Phylogenetic data are discussed.
- Preuss** (K. T.) *Religionen der Naturvölker, 1902-1903.* (Arch. f. Religw., Leipzig, 1904, vii, 232-263.) Useful critical résumés of books and articles printed in 1902-1903 on the religions of primitive peoples. — General, North America, Mexico and Central America, South America. Works of Hewitt, Matthews, Schurtz, Culin, Bogoras, Boas, Dorsey, Dixon, Fletcher, Mooney, Fewkes, León, Kroeber, Lambholtz, Seler, Maler, Gann, Bässler, etc., are noticed.
- Ranke** (J.) *Ueber Hirnmessung und Hirnhorizontale.* (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, xxxiv, 161-163.) Treats of brain-axis (human brains must be measured differently from those of animals), questions to be investigated, technique of measurement, hardening of brain, casts of skull, etc. At the suggestion of Dr Ranke a committee on the anthropological study of the brain was appointed.
- Robin** (P.) *Projet de questions à adresser aux sujets photographiques.* (Bull. Soc. d'Anthr. de Paris, 1903, v^e s., iv, 546.) Brief list of questions for data concerning persons photographed.
- Sanielevici** (Dr) *Le travail de la mastication est la cause de la brachycéphalie.* (Ibid., 593-595.) Against Nyström, the author considers dolichocephaly the norm and brachycephaly (in the Mongol) the variation or abnormality, produced by the process of mastication exaggerated in a normal race of the Asiatic steppes. Dr Sanielevici assumes, without right, that all Mongols are broad-heads.
- Sclavunos** (G.) *Ueber die Ventrikularsäcke des Kehlkopfes bei erwachsenen und neugeborenen Menschen sowie bei einigen Affen.* (Anat. Anz., Jena, 1904, xxiv, 511-523, 12 figs.) Résumés the author's detailed study published in the *Epitris* of the University of Athens for 1903. Dr Sclavunos found 3 cases of the ventricular sack in 500 corpses of adults. Their presence in the older anthropoids he considers partly due to the need for temperature-protection.
- v. Sebestyén** (G.) *Ursprung der Boustrophedonschrift.* (Z. f. Ethnol., Berlin, 1903, xxv, 755-771, 12 figs.) Author holds the score-stick to be the oldest writing material, cutting into soft wood covering before scratching into stone or metal. The Mediterranean alphabet was originally "notch-writing" (examples of this, particularly from the East Siberian Ostiaks). The ancient boustrophedon is "merely a notch-writing indirectly preserved to the present time." The notch-writing was later copied on stone and other material.
- Seggel** (Dr) *Ueber das Verhältnis von Schädel und Gehirnentwicklung zum Längenwachsthum des Körpers.* (A. f. Anthr., Brunschwg., 1903, N. F., i, 1-25, 2 figs., curves, tables.) Discusses growth in height, pupil-distance (base-line), relation of stature-growth to pupil-distance, of pupil-distance to skull and brain. Dr Seggel concludes that the measurement of the base-line affords a certain criterion for the development of the frontal lobes of the cerebrum and so for the development of the intellectual faculties. The absence of a base-line adequately corresponding to the growth in stature, or exceeding this (the danger period is from the thirteenth to the seventeenth year), indicates that intellectual pressure must be avoided.
- Smith** (G. E.) *The morphology of the occipital region of the cerebral hemisphere in man and the apes.* (Anat. Anz., Jena, 1904, xxiv, 436-451, 9 figs.) Based on some 400 human and 400 simian hemispheres. The non-homology in man and ape and of the "calcarine" sulci is shown. The results of Dr Smith's investigations will appear in detail in vol. II of *Records of the Egyptian School of Medicine*.
- Note on the so-called "transitory fissures" of the human brain, with special reference to Bischoff's "*Fissura perpendicularis externa*." (Ibid., 216-220, 2 figs.) From examination of fetal brain, author concludes that "the so-called 'transitory fissures' are merely indentations which are produced post-mortem."
- Stratz** (C. H.) *Der Werth der Lendengegend für anthropologische und obstetrische Messungen.* (A. f. Anthr., Brunschwg., 1902-1903, xxvii, 117-128, 4 pl., 15 figs.) Compares the sexes and discusses normal variations in particular, — based on special study of 20 women and men. The *Kreuzgrübchen* is more marked in women, and the level of the region deeper.

Stratz den Haag (C. H.) Das Problem der Rasseneinteilung der Menschheit. (Ibid., 1903, N. F., I, 189-200, 1 fig., map.) Discusses the division of mankind into races, with reference to theories of Fritsch, Klaatsch, *et al.* Stratz holds that the earliest form of man was closely related to the aboriginal Australians; from this type developed the white, the yellow being the youngest of the three great races. The Negrito is a combination of the black and the yellow. The marks of the so-called "protomorphic" races are treated with some detail.

Toldt (C.) Ueber die äussere Körperform zweier verschieden grosser Embryonen von *Macacus cyno.* (Ibid., 1903, xxvi, 277-287, 2 figs.) Details of description and measurement, comparison with those of Deniker and Duckworth. Macaque *fortis* nearer to human than to gorilla, exhibits same striking differences as between human and gorilla; macaque facially more like human.

von Uffalvy (C.) Ziele und Aufgaben meiner Forschungen auf dem Gebiete der historischen Anthropologie. (Ibid., 26-29.) Résumés his iconographic-anthropological investigations in relation to the "Aryan question" and the works of the "Gobineau school." Reibmayr, H. Chamberlain, Zaborowski, Anthon, Wilser, Penka, *et al.* The author sees "a deep gulf" between the Hindus and Iranians,—today they are racially different. The primitive Aryan of Uffalvy is tall, blond, blue-eyed, light-skinned, leptoprosopic, and leptorrhine.

Virchow (H.) Die Verwendung von Abgüssen bei der Herstellung von Skelettpräparaten. (Z. f. Ethnol., Berlin, 1903, xxxv, 793-796.) From twenty years' experience as an anatomist, the author argues for the use of casts in the setting up of skeletons, *z. g.*, of the foot.

Weidenreich (F.) Die Bildung des Kinnes und seine angebliche Beziehung zur Sprache. Anat. Anz., Jena, 1904, xxiv, 545-555, 5 figs.) Author holds that the chin in man is simply a result of the reduction of the teeth and of the alveolar region. Argues against Walkhoff.

Welcker (H.) und Brandt (A.) Gewichtswerte der Körperorgane bei dem Menschen und den Thieren. (Ibid., 1-89, 42 tables.) This monograph, with bibliography of 90 titles, treats of weight

of skin, fat, brain, spinal marrow, eye, heart, arteries, lungs, thymus, thyroid, spleen, renal capsules, tongue, salivary glands, pancreas, bowels, liver, mesentery, kidneys, sexual glands, genitals, blood, etc., in normal adult man, monkeys and numerous other animals, birds, reptiles, amphibia, fish, etc. The conclusion is reached that a large animal is never the simple magnification of a small one. All vegetative organs show their maximum figure in small animals, minimum in those of average size and in the largest.

Whittaker (T. P.) Alcoholic beverages and longevity. (Contemp. R., Lond., 1904, 413-429.) Discusses statistics, 1840-1901. Difference in favor of total abstainers have increased during last twenty years.

EUROPE

Arnold (J. L.) Das "Girizenmoos" in Dagmersellen, Kt. Luzern. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 295-298.) Describes a carnival ceremony performed some 40 years ago at Dagmersellen in the canton of Luzerne. A sort of mock trial of "old maids," carried on by the youth of the village.

Asmus (R.) Die Schädelform der altwendischen Bevölkerung Mecklenburgs. (A. f. Anthrop., Brunschwg., 1902, xxvii, 1-36, 2 pl., 4 tables.) Detailed study of 50 old Wend skulls from various parts of Mecklenburg (29 percent dolichocephalic, 18.7 percent brachycephalic; av. cubic cap., male 1432.5, female 1261 c.c.). Race-mixture is indicated,—original dolichocephalic Slavonic type with brachycephalic Anaryan (?) type,—removing the Mecklenburg branch from the pure type represented by the old Polish population of West Prussia.

Aus den Arbeiten der Deutschen Orientalgesellschaft. (Globus, Brunschwg., 1903, lxxxiv, 241-242.) Résumés accounts of excavations in Fara and Abu Hatal, southeast of Babylon; and Abusir, Egypt.

Bartels (M.) Reicher Kindersegen. (Z. f. Ethnol., Leipzig, 1903, xxxv, 1034.) Notes case of a woman of Leipe in the Spreewald, who between Jan. 30, 1902, and Nov. 30, 1903, gave birth to seven children (twins, twins, triplets), all boys, who died soon after being born.

- Baudoin (M.)** Le bijou en forme d'organes humains: le cœur vendéen. (Bull. Soc. d'Anthr. de Paris, 1903, v^e s., iv, 607-612.) Treats of the "Vendean heart,"—ancient and modern forms, in metal, cloth (in the wars), etc.,—which the author thinks is derived from the circular ring, and may be ultimately of Spanish origin. This note résumés Baudoin and Lacouloumère's *Le cœur vendéen* (Paris, 1903).
- Blind (E.)** Elsäassische Steinzeitbevölkerung. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, xxxiv, 190-192.) Résumés data as to population of Alsace in stone age. The earliest race was dolichocephalic; no neolithic brachycephals have yet been discovered here. With metals the present dominant brachycephalic population appeared. Today more than 75 per cent. is broad-headed.
- Bloch (A.)** Origine turque des Bulgares. (Bull. Soc. d'Anthr. de Paris, 1903, v^e s., iv, 537-546.) Historical discussion (partly on basis of Arabian writers). Author thinks that the Volga Bulgarians who invaded Moesia were absorbed by the indigenous Slavs. The upper lip and nose of Bulgarian women are said to belong to the old physical type.
- Böckel (G.)** Volksrätsel aus dem Vogelsberg. (Hess. Bl. f. Volksk., Leipzig, 1903, ii, 222-224.) Texts of 59 folk-riddles from Vogelsberg. An appendix (pp. 225-231) contains explanatory and comparative notes by Dr Adolf Strack.
- Bracht (E.)** Bericht über eine Reise nach den Fundstellen der "Eolithen" in West-Flandern vom 29. Mai bis 9. Juni 1903. (Z. f. Ethnol., Berlin, 1903, xxxv, 823-830.) Account of visit to the region of West Flanders where Rutot discovered his "eoliths," which the author regards as primitive implements.
- Buase (H.)** Ueber weissen Sand in vorgeschichtlichen Gräbern. (Ibid., 930.) Notes occurrence of white sand in prehistoric graves at Wilmersdorf and Rüdersdorf.
- Burmeister (Dr)** Frauenleben in Island. (Ibid., 951-957, 5 figs.) Treats of baptism, child-life, confirmation, wooing and marriage, house-life, death.
- Capitan (L.), Breuil (L'Abbé), et Peyrony.** Figures carved during the paleolithic epoch on the walls of the grotto at Bernifal, Dordogne. (Rec. of Past, Wash., 1903, ii, 361-365, 5 figs.) Translated from the *Revue de l'Ecole d'Anthropologie*. See *American Anthropologist*, 1904, N. S., vi, 167.
- Capitan (L.) et Peyrony (M.)** L'abri sous-roche du moulin de Laussel, Dordogne. (Bull. Soc. d'Anthr. de Paris, 1903, v^e s., iv, 558-559.) Description of rock-shelter and remains (flints, etc.) of a pure Solutrean type. Animal bones rather few (horse, reindeer).
- Choboseau (A.)** L'émigration italienne. (Rev. Scientif. Paris, 1904, n^o s., i, 552-558.) Except Ireland, Italy loses a greater proportion of her population by emigration than any other European country. One-fourth of the permanent emigration comes from Campania and half of the temporary emigration from Venetia. The duality of Italy is well exemplified in her emigration.
- Cook (A. B.)** Les galets peints du Mas-d'Azil. (L'Anthropologie, Paris, 1903, xiv, 655-660, 4 figs.) Compares the painted pebbles of Mas-d'Azil with *churinga* ("totem") of certain Australian tribes, often indistinguishable from the "bull-roarer." The conventional red daubs are what would be expected in an age of artistic decadence, to which, according to Cook, these objects in prehistoric France belong.
- Daleau (F.)** Colliers modernes pour faciliter l'émission des dents des enfants. (Soc. Archéol. de Bordeaux, 1900-1901, xxiii, 129-131.) Describes briefly an infant's teething necklace (of pierced incisors of "a heifer that has never cropped the grass") from the Bourgeais country; another of ivy-roots; a little sack of snail-bones, to be put under the pillow; "cod bones" from Barcelona, etc.
- Une visite au Musée Pèrès à Libourne (131-134.) Brief accounts of objects of paleolithic, neolithic, bronze age, etc., chiefly from the country about Libourne. Among other specimens is a curious Eskimo harpoon and float.
- Cuillères anciennes et modernes, (Ibid., 200-201.) Briefly describes some old French brass and copper spoons, together with wooden spoons of the modern peasantry and Algerian wooden spoons. Reference is made to Piette's *Histoire de la cuillère* (1876).
- Etruscan (An)** chariot. (Rec. of Past, Wash., 1903, ii, 367-372, 6 figs.) Describes the chariot, now in the Amer-

ican Museum of Natural History, found in a tomb on the Norcian road, 41 miles N. W. from Rome, and dating from ca. 600 B. C.

Favreau (Hr.) Eine diluviale Feuerstätte in der Einhornhöhle bei Scharzfeld. (Z. f. Ethnol., Leipzig, 1903, xxxv, 957-965, 3 figs.) Describes the finds in one of the largest and most interesting caves of the Harz. Here diluvial man roasted the bones of the cave-bear, etc. The Einhornhöhle was a "station" of cave-bear hunters.

Finkenhofer (E.) Sprüche und Lieder aus dem Entlebuch. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 269-294.) Gives the dialect texts of many rimes and songs from the secluded region of the Entlebuch: nicknames, and *blason populaire*, counting-out rimes, lullabies, number-rimes, children's game-songs, songs of home and neighborhood, nature-rimes, occupation-songs, satirical rimes, dance and love songs, rimes on women, marriage, etc.

Focke (J.) Die hölzernen Milchrechnungen des Tavetschthals, Graubünden. (Ibid., 36-42, 3 figs.) Describes the house and implement marks and the wooden milk-scores of the peasants of the valley of the Tavetsch. The house-marks are inherited by the youngest son. Although by 1902 the recent introduction of paper records had suppressed the old scores, the names of the owners of cows were still written by the house-mark and not with letters.

Forrer (R.) Prähistorisches auf keltischen Münzen. (Z. f. Ethnol., Berlin, 1903, xxxv, 709-715, 14 figs.) Discusses the occurrence on Celtic coins of Gallic torques, prehistoric axes, the barbarization of the Dionysos head, etc.

Furrer (P.) Wie man in Ursern gegen die Kleidermode kämpfte. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 56-58.) Brief account of the dress-reform campaign of 1732 and subsequent years, instigated by the Capuchin preacher Bonaventura.

Gfeller (S.) Recepte von Dr. Jacob Jenner aus Kerns. (Ibid., 46-53.) Gives numerous recipes (those out of his collection of 214 containing something superstitious) from the MS. of Dr. Jacob Jenner, 1736-1786.

Giuffrida-Ruggeri (V.) I dati dell'antropologia e il criterio cronologico a propo-

sito dei Siculi e degli Etruschi-Pelasgi. (Rev. di Stor. Ant., Padova, 1904, vii, repr. pp. 6.) Critique of recent literature on the Siculi and Pelasgians, particularly De Cara's *Gli Etruschi-Pelasgi* (Roma, 1902). The author holds that the facts of anthropology cannot say whether the Siculi before entering Sicily were Anaryan, Aryapized, or Aryan, though it is probable that the Aryan vanguard (or better the peoples Aryapized in speech), such as the Ligurians, e. g., were somatically, and in customs very similar to the Anaryans. The Hamitic invasion of the Mediterranean admitted by De Cara must have been considerably posterior to the Eurafian invasion of Sergi, which followed the Neanderthal-Spy race very closely. The craniological affinities of the Mediterranean peoples are decidedly anterior to the "Hittite-Pelasgian" expansion.

Hahn (E.) Knochenfunde von der belgischen Küste. (Z. f. Ethnol., Leipzig, 1903, xxxv, 965-966.) Brief account of the finding of a mass of bones and pottery fragments (Roman) exposed by a storm on the Belgian coast at Wenden, probably the remains of sacrifices.

Hoffmann-Krayer (E.) Schatzgräberei in der Umgebung Basels, 1726 und 1727. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 1-22.) Gives, from contemporary documents (legal processes, etc.) data concerning "treasure-digging" in the neighborhood of Basel in 1726-1727.

— Bonaparte und der Schwyzzerjoggeli. (Ibid., 58.) Give dialect text of variant of No. 915 of Miss Zürcher's collection of children's songs.

Huguet (J.) Bégaiement et simulation. (Bull. Soc. d'Anthr. de Paris, 1903, v^e s., iv, 569.) Compares the distribution of stammering in France with that of simulation and mutilation — all are more common in southern France.

Hunsinger (F.) Vor fünfzig Jahren. Erinnerungen an Hungen. (Hess. Bl. f. Volksk., Leipzig, 1903, ii, 211-221.) Treats of the linden-tree by the spring easter-tide, May-time, music and song, and (pp. 215-221) the *kirmess*.

Ithen (Anna) Neujahrswünsche im Muotathal. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 59-60.) Dialect texts of seven New-Year's-wish rimes from the Muota valley.

— Einige Rätsel aus dem Kanton Zug.

- (Ibid., 60.) Dialect texts of sixteen folk-riddles from the canton of Zug.
- Bauernregeln aus dem Kanton Zug. (Ibid., 303.) Dialect texts of eight brief rimes about weather, condition of crops, fruit, etc.
- Jaekel (O.)** Feuerstein-Eolithen von Freyenstein in der Mark. (Z. f. Ethnol., Berlin, 1903, xxxv, 830-838, 6 figs.) Describes six alleged flint eoliths, or "retouched" stones of the sort discussed by Rutot, etc.
- Jentsch (H.)** Kleines Tongefäß von Starzeddel, Kr. Guben, mit Abdruck der konzentrisch geriefen Scheibe einer Metallnadel. (Ibid., 724-726, 2 figs.) Brief description of an earthen vessel whose ornamentation proves contemporaneity with metal needles. The vessel is of Billendorf-Lausitz type.
- Kahle (B.)** Der Passport bei russischen Leichenbegängnissen. (Ibid., 1006.) Historical notes on the White Russian (Smolensk) custom of putting a "passport" into the hands of the dead to ensure his entrance into Paradise.
- Klaatsch (H.)** Bericht über einen anthropologischen Streifzug nach London und auf das Plateau von Süd-England. (Ibid., 875-920, 33 figs.) Treats of Tasmanian skulls (with measurements) and scapulae in London and Paris, the remains of the "Galley Hill Man" (author considers him to be at least as old as Neanderthal) as compared with the "man of Brinn."
- Funde auf dem Terrain von Klein-Machnow bei Gelegenheit des neuen Kanalbaues. (Ibid., 732-733.) Brief account of find of a piece of staghorn, with carvings upon it.
- Koehl (Hr.)** Das römische Worms. (Corr.-Bl. d. deutschen Ges. f. Anthr. München, 1903, xxxiv, 85-90.) Brief account of Worms in Roman times,—the city was preceded by the Borbetomagus, a chief place of the Vangiones. Except Trèves, no Roman city has so many streets as had Worms.
- Kollmann (J.)** Nyare svenska anthropologiska arbeten och deras betydelse för ras- och german-frågan. (Ymer, Stockholm, 1903, xxiii, 359-385.) Résumés and critiques of Retzius's *Crania suecica antiqua* (Stockholm, 1900) and *Das Menschenhirn*, and Retzius and Furst's *Anthropologica suecica* (Stockholm, 1902) by the distinguished Basel anatomist.
- Krause (E.)** Excursion der Gesellschaft nach Freisack in der Mark. (Z. f. Ethnol., Berlin, 1903, xxxv, 726-727.) Brief notes on the ring-wall, "Schwedenschanze," etc., finds of flints, etc.
- Küchler (A.)** Ein macaronisches Senngedicht von Untervalden. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 42-46.) Text, with explanatory notes, of a Latin-German macaronic poem (probably by J. A. Omlin, 1739-1801) describing the alp-journey and the life of the herdsman.
- Laloy (A.)** Ethnographisches aus Südwest-Frankreich. I. Die Pyrenäen. (A. f. Anthr., Brunschwg., 1903, N. F., II, 43-55, 15 figs.) Treats of the peasantry of the upper valley of the Gave du Pau between Luz and Gavarnie, their agricultural and domestic implements, appliances for domestic animals, houses, wool-spinning, dress, etc.
- Landois (H.)** Baumsargmenschen von Freckenhorst. (Ibid., 1902, xxvii, 643-646.) Brief description with chief measurements of skeletons of the "tree coffin" man of Freckenhorst, in Westphalia. This "tree coffin" man shows an increase in cubic capacity of skull over the man of the preceding stone age. Remains of the "tree-coffin (hollowed out trunk) man" have now been found in at least six places in Westphalia.
- Laville (A.)** Au sujet d'un passage de la note de M. Rutot. Les cailloux de M. Thiéullen. (Bull. Soc. d'Anthr. de Paris, 1903, v^e s., iv, 572.) M. Laville does not accept the sub-Chellean objects, and calls the Cergy deposit Chellean-Moustérien.
- Lissauer (A.)** Anthropologischer Reisebericht über Sizilien. (Z. f. Ethnol., Leipzig, 1903, xxxv, 1019-1034.) Résumés data concerning the archeology of Sicily, investigations of Orsi, Peterson, Virchow, et al. Influence of Mohammedan rule is noted, also the large number of fair-complexioned native Sicilians.
- Lüdemann (K.)** Das Gräberfeld von Kricheldorf, Kr. Salzwedel, Prov. Sachsen. (A. f. Anthr., Brunschwg., 1904, N. F., I, 236-253, 3 figs.) Gives results of examination by author of 150 graves out of a total of 750 in two "cemeteries," belonging probably to two different villages existing contemporaneously about

400 B. C.—100 A. D., during the La Tène period. The iron and in part the bronze implements are of native workmanship. The absence of weapons indicates a sedentary population. Five types of pottery are distinguished, and the ornamentation is rather crude. The glass-heads are possibly exotic.

Macdonald (Sheila). Old-world survivals in Ross-Shire. (Folk-Lore, Lond., 1903, xiv, 368-384.) Cites beliefs and practices concerning fairies, suicide, epilepsy, seventh son of seventh son, *corp creepie* (witch doll), funerals, omens, evil eye, Michaelmas cakes, dress, etc. The author notes "how very similar are the Afghans in many of their characteristics to the Celtic race."

Manning (P.). Stray notes on Oxfordshire folk-lore. (Ibid., 410-414.) Brief folk-tales relating to Lorenzo Dow, wagers, etc.

Manouvrier (L.). Deuxième examen, à 15 ans, d'un microcephale observé à 7 ans. (Bull. Soc. d'Anth. de Paris, 1903, 1^{re} s., iv, 593.) Brief description, with cephalic measurements of a microcephalous boy, observed when 7 years old and again (1903) when 15. No sensible diminution of the microcephaly has occurred, but the nervous centers have undergone some "physiological education." His idiocy is less complete, but still characteristic.

Mehlis (C.). Ueber Ausgrabungen von Grabbügelgruppen der Vorderpfalz. (Corr.-Bl. d. deutschen Ges. f. Anth., München, 1903, xxxiv, 188-189.) Resumes data concerning excavations of groups of tumuli in the Rhine valley and on the edge of the Harz and the remains therein discovered. Some of the tumuli (with inhumation) belong to the bronze period; others (burial and cremation; monoliths) to the Hallstatt period; others (cremation, urns) to the La Tène epoch; and one to the Roman period.

— Exotische Steinbeile der neolithischen Zeit im Mittelrheinland. (A. f. Anthrop., Brnschw., 1902, xxvii, 599-611, 8 figs.) Treats of the stone idol of Drusenheim in Lower Alsace, two jadeite axes from the Rhenish Palatine and another from Hohlkönigsburg. Egyptian origin is suggested for the Drusenheim idol and Asiatic provenance for the axes.

— Das Grabbügelfeld an der Heidenmaner bei Dürkheim an der Hardt.

(Ibid., 1903, N. F., i, 51-55, 4 figs.) Gives results of investigation of five tumuli and the objects therein found,—iron, bronze, pottery, funeral urns, stone for crushing cereals, etc. No trace of Roman influence and little of direct Italian. These graves belong to the La Tène period and the culture represented has an aspect of poverty and retrogression.

— Die Grabhügel im Ordenswalde und Hasselbacher Walde bei Neustadt a. d. H. (Ibid., 56-59, 6 figs.) Brief account of examination of three mounds and contents, pottery, objects of iron, etc. The last six graves as of the late La Tène period. The pottery shows decadent Hallstatt type. A number of small arrow-heads and flint knives were found.

Pellandini (V.). Spigolature di folklore ticinese. (Schweiz. Arch. f. Volksk., Zürich, 1903, vii, 23-28.) Gives dialect text and literary Italian rendering of two lullabies, 13 cantilene and filastrocche, three children's singing games; also a large number of nick-names of places in the Ticino, and twelve proverbs.

— Storielli ticinesi. (Ibid., 300-302.) Italian texts of two folk-tales from Ticino.

Penck (A.). Die alpinen Eiszeitebildungen und der prähistorische Mensch. (A. f. Anth., Brnschw., 1903, N. F., i, 78-90.) Discusses the various alpine formations in their relation to the chronology of prehistoric human remains (a table of parallel geologic and culture data is given). Views of Brückner, Richter, G. de Mortillet, Much, Nilesch, Rutot, etc., are considered.

Piétremont (M.). Chars de guerre gaulois. (Bull. Soc. d'Anth. de Paris, 1903, 1^{re} s., iv, 570-571.) Argues against Nicaise that the use of war-chariots by the Gauls continued after the time of Caesar.

Piette (E.). Notions complémentaires sur l'Asylien. (L'Anthropologie, Paris, 1903, xiv, 641-653, 3 tab., 13 figs.) Treats of the "numbers" and "alphabetic characters" of grotto of Mas d'Azil, painted on pebbles, etc. The Azil epoch was a period of transition, coming after Pleistocene times. The Azil numerals, Piette thinks, are the source of the Egyptian numbers, while the Azil symbols were adopted in the Phœnician and ancient Greek alphabets, etc. The remains of Mas d'Azil indicate mixed culture, or "foreign invasion."

- Recently discovered inscribed caves at Teyrat und Altamira. (Rec. of Past, Wash., 1903, II, 365-367.) Based on the accounts of Capitan, Breuil, Peyrony, Cartailhac, Reinach. See *American Anthropologist*, 1904, N. S., VI, 167.
- Reuter (F.) Beiträge zur Anthropologie Hinterpommerns. Eine Schuluntersuchung in Rollnow. (A. f. Anthr., Brnschw., 1903, XXVII, 289-337, curves, tables.) Results of investigation (19 measurements, 14 other data) of 373 school-children (boys 189) between 6 and 14 years of age. Comparison with other results in Europe and America. Boys are somewhat more dolichocephalic; extreme forms of face more common in girls, transitional less. Girls slightly lighter in eyes and hair, more blonde and brunette, and less mixed types. Girls inherit fewer qualities of fathers' head.
- Rossat (A.) Chants patois jurassiens. (Schweiz. Arch. f. Volksk., Zürich, 1903, VII, 241-269.) Concluding section. Gives dialect text, with literary French versions, of Nos. 172-206 of satirical folk-songs from the Jura.
- Schär (A.) Balthasar Han's und Hans Heinrich Grob's "Schützmausreden." (Ibid., 26-36.) Discusses the relation of Grob's *Schützmausreden* (Zürich, 1603) to the earlier work of Hans, *Ausreden Aller Schützen*, published about 1560.
- Schmidt (H.) Bemerkungen zu der Abhandlung von Köhl über die Baukeramik der Steinzeitlichen Gräberfelder und Wohnplätze in der Umgebung von Worms. (Z. f. Ethnol., Berlin, 1903, XXXV, 747-752.) Critique of article of Köhl. Author thinks Köhl's three groups will stand, but their chronological relations are not yet made out.
- Schnippel (Hr.) Ringhalskragen aus Bronze. (Ibid., 746.) Notes a find of beautiful bronze collars of the best Hallstatt period at Dittersdorf.
- Schoetensack (O.) Ueber die Gleichzeitigkeit der menschlichen Niederlassung aus der Rezentzeit im Löss bei Munzingen unweit Freiburg i. B. und der paläolithischen Schicht von Thaugen und Schweizersbild bei Schaffhausen. (A. f. Anthr., Brnschw., 1903, N. F., I, 69-77, 9 figs.) From consideration of the geological conditions, the stone implements, artificially worked bones, *fibula paleolithica*, etc., the author seeks to show that the Munzinger paleolithic "station" is contemporaneous with those of Thaugen and Schweizersbild.
- Shahan (T. J.) Social history of Ireland. (Cath. Univ. Bull., Wash., 1904, X, 69-80.) Critical review of P. W. Joyce's *A Social History of Ancient Ireland* (London, 1903), a very valuable book.
- v. Ujfalvy (C.) Anthropologische Betrachtungen über die Porträtnünzen der Diadochen und Epigonen. (Ibid., 1902, XXVII, 613-622, 16 figs.) Treats of the features, as portrayed on coins of the Macedonian kings of the family of Antigonus Monophthalmos, the Syrian Seleucidae, the Egyptian Lagidae. Characteristic through generations are the forehead of the Antigoniidae, the nose of the Seleucidae, the chin of the Lagidae,—with the toning down of the other Macedonian characteristics, these appear even more marked.
- Vassits (M. M.) Die neolithische Station Jablanica bei Medjulaže in Serbien. (A. f. Anthr., Brnschw., 1902, XXVII, 517-582, 133 figs.) Treats in detail of sculpture, ceramics, etc. The most interesting and important objects found are the clay idols (female). The relations of Jablanica to Butmir are closer than to Mycenae. The author connects the culture of Jablanica with the Phrygians, a Thracian stock. See *American Anthropologist*, 1902, N. S. IV, 330.
- Werner (J.) Die Zoche, eine primitive Pflugform. (Z. f. Ethnol., Berlin, 1903, XXXV, 716-720, 8 figs.) Describes the "zoche," a plow of a primitive type formerly in general use in East Prussia. With the oxen a whip, but no lines, is used. The plow of the Triaman of Bencoolen, Sumatra, closely resembles the "zoche."
- Wünsch (R.) Griechischer und germanischer Geisterglaube. (Hess. Bl. f. Volksk., Leipzig, 1903, II, 177-192.) Comparative study of Greek and Teutonic spirit-lore,—animism, soul-cult, realm of the dead, return of ghosts and mores, restless spirits, conjuration of the dead, etc. Dr. Wünsch explains resemblances noted, not by borrowing, but by independent evolution.
- Zaborowski (M.) Présence d'un chameau dans une grotte néolithique des environs de Salerne, sud d'Italie. (Bull. Soc. d'Anthr. de Paris, 1903, V^e s., IV, 557-558.) Author agrees with Regalia that

the camel of the Zachito cave, near Salerno, came over-sea from Asia, — its introduction was accidental. This cavern is very rich in animal remains.

— Crâne néanderthaloïde d'une caverne néolithique des environs d'Ojcow. (Ibid., 564.) Description, with measurements, of the skull of Ojcow, a sporadic specimen of the Neanderthal type.

Zürcher (G.) Hausschriften aus dem Berner Oberland. (Schweiz. Arch. f. Volksk., Zürich, 1903, VII, 53-58.) Texts of twenty house-inscriptions from various parts of the Bernese Oberland.

AFRICA

Bertrand (G.) The chariot of Thotmes IV. (Rec. of Past, Wash., 1903, II, 344-346.) Translated from the Paris *Science Illustrée*. Describes the chariot found in the tomb of an Egyptian king of the eighteenth dynasty.

Bloch (A.) Une excursion à Tanger. Ce que nous croyons de l'origine des Maures. (Bull. Soc. d'Anthr. de Paris, 1903, V^e s., IV, 573-579.) Account of visit to Tangier in 1903. M. Bloch thinks the Moors of Morocco are "Berbers of a special race, produced naturally by the transformation of the negro type." The Moors of Spain were Arabs who brought with them Berbers and other North Africans.

Cartwright (Mrs M.) Basutoland. Its legends and customs. (Folk-Lore, Lond., 1903, XIV, 415-418.) Treats of the author's Basuto names, "schools," *molimo*, child's name, proverbs.

Cleve (G. L.) Die Lippenlaute der Bantu und die Negerlippen, mit besonderer Berücksichtigung der Lippenverstümmelungen. (Z. f. Ethnol., Berlin, 1903, XXXV, 681-702, map.) Interesting study of lip-mutilation in connection with sound-production among the negroes of Africa in particular, with some notice of American Indian tribes. The author believes that the form of the negro lip makes necessary a *v* instead of a *b*. Disappearance of labial sounds are due to lip-mutilation. At pages 698-700 is a Mavia-Konde vocabulary.

Déchelette (J.) L'archéologie préhistorique et les fouilles de Carthage. (L'Anthropologie, Paris, 1903, XIV, 661-675, 17 figs.) Treats of terra-cotta bas-reliefs, semicircular bronze (ritual?) axe, swan-headed decorated bronze "hatch-

ets" (thought by some to be "razors"), etc. According to M. Déchelette the oldest Carthaginian tombs are not anterior to the eighth century B. C. Greek and Egyptian influences are noted.

Drysdale (A. T.) Notes on Basutoland. (J. Afric. Soc., Lond., 1903, 208-212.) Treats of country, condition of natives, climate, etc. The Basutos are very intelligent and "capable of hard work." They practise agriculture more than other Kafir tribes. The worst natives are the converted ones, who are both dishonest and dirty.

Fridolin (J.) Afrikanische Schädel. (A. f. Anthr., Brnschw., 1902-1903, XXVII, 339-347.) Results of measurements of 29 skulls from various parts of Africa, including two Bongos. The range of cephalic index is 67.0-75.4, average 71.6.

Hippolyte-Boussac (P.) L'hippopotame dans l'Égypte ancienne. (Rev. Scientif., Paris, 1904, V^e s., I, 425-427.) Brief account, based on Herodotus, the Egyptian monuments, etc., of the hippopotamus among the people of the Nile. It was personified in Apet, the queen of heaven, and also as Set-Typhon. In monumental art the hippopotamus had no great rôle.

Huguot (J.) Les villes mortes du Mzab. (Bull. Soc. d'Anthr. de Paris, 1903, V^e s., IV, 583-590.) Brief notes on the dead towns and fortified enclosures of Ksar-el-Amhar, Mbertackh, Thiler d'Ith, Bordj Lalla-Rhira, Krina Châr, Ksar Hammoucha, Ksar Oulad Nger, Tmizert, Ksar Lououal, Ksar Sidi Saâd, their history, etc. The pre-Abadhiite history of the Mzab is still little known.

Lehmann-Nitsche (R.) Erklärung der Bregmanarbeiten an alten Schädeln von Tenerife. (Z. f. Ethnol., Berlin, 1903, XXXV, 722-724.) Attributes the bregma-scars on old Canary islands skulls to surgical operations as described by old chroniclers.

Méilla (J.) Le bœuf dans la vie Malgache. (Rev. Scientif., Paris, 1904, V^e s., I, 111-116.) Treats of cattle-lore among the Malagasy, — food, immolation at puberty-ceremonies, sickness-sacrifices, religion, mythology, proverbs. As early as the seventeenth century Madagascar was the El Dorado of cattle and even now represents the age and culture of the cow, or rather zebu.

Merker (Hr.) Religion und Tradition der Masai. (Z. f. Ethnol., Berlin, 1903, xxxv, 733-744.) Treats of "the chosen people," spirit-lore, creation and deluge legends, the last in detail. Correspondence with biblical traditions is noted and a community of race, culture and religion with the primitive Israelites assumed. Author looks on Masai as ancestors of Israelites who did not borrow biblical myths from Babel but had them as their primitive heritage.

Michel (G. B.) The Berbers. (J. Afric. Soc. Lond., 1903, 161-194, 2 pl., map.) Treats of names,—author derives *Afer* from Berber *ifri* "a cave," holding that the earliest inhabitants were troglodytes,—commercial aptitudes, geographical distribution, physical types (Gætulian, Iberian, fair Libyan, Celto-Ligurian), language (Berber is "an inflexional language of the Caucasian type"), megalithic monuments (due to Celtic race), ancient modes of sepulture, "Punic" tombs, cave-dwellings, use of veils by Twarik men, unchastity of Twarik women, organized aristocracy of the Twarik, village republics, dwellings, commercial instincts (strong in all Berbers), industries (pastoral, few crafts), history and relations with other peoples. Author seeks to make out an ethnological connection between *Berber* and *Bornu* and rejects the theory of an entirely Hamite origin of the Berbers.

Mockler-Ferryman (A. F.) Christianity in Uganda. (Ibid., 276-291.) Résumés history of missionary efforts (Christian and Mohammedan), native wars and disputes, Protestant-Catholic complications, etc. Lately both the latter religions have prospered, and "Uganda is to all intents and purposes at the present time a Christian kingdom."

Native crowns. (Ibid., 312-315.) Gives items concerning the crowns of West African chiefs from the statements made by the Oni of Ife during his visit to the Governor of Lagos. The Oni's crown was 200 years old.

Nüesch (A.) Antrag betr. Untersuchung der Zwerge in den deutschen Colonial gebieten Afrikas. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, xxxiv, 189-190.) Argues for governmental support of the investigation of dwarf-races in the German African colonies: Bushmen, Bojaeli, Watindiga, Wanoge, Akkas, Batus, Virunga, Kiwu, Watwa.

Schweinfurth (G.) Steinzeitliche Forschungen in Oberägypten. (Z. f. Ethnol., Berlin, 1903, xxxv, 798-822, 2 pl.) Treats of the colithic and paleolithic (the later epoch of this age is 25,000 B. C.) periods in Upper Egypt and the remains characterizing them, with comparisons with corresponding European chronologic stages and references to the labors of other investigators. Brief list of technical terms in German and French.

Stanton (E. A. E.) The peoples of the Anglo-Egyptian Soudan. (J. Afric. Soc., Lond., 1903, 121-131, 5 pl., map.) Treats of negro tribes (Shilluk, Dinka, Nuer, Nuba, Niam Niam, Nuak, Bongo; the Shilluk and Nuba are praised for honesty and morality), Arab tribes nomadic and sedentary (Baggara, Kenana, Lahawin, Hassanieh, Kababish, Shukerieh, Battalin, Jaalian, Resheida, Hadendowa, etc.). Author thinks negro formerly extended to Wady Halfa. There are now two zones, Negro and Arab.

Staudinger (P.) Vier Mühlsteine, ein Topf und zwei Perlenketten von den Guanchen stammend. (Z. f. Ethnol., Berlin, 1903, xxxv, 728-729.) Brief description of four mill-stones (of hand-mills), a "ganigo" pot, and two strings of burnt clay beads from the caves of Barranco, Martiane, and Puerto de la Cruz; the rock-inscriptions are also referred to.

— Abbildungen aus den Annalen des Kongo-Museums. (Ibid., 730-731.) Calls attention to the articles by Lieut. Massui on music, dance, song, and musical instruments, and by X. Stainier on "the Congo stone age" in the *Annales Musée du Congo*.

— Einige ethnologische Vorlagen. (Ibid., 796-798.) Brief notes on beads from the Congo region, possibly of old Egyptian or early European origin.

Stoppord (J. G. B.) English governor and African chiefs. (J. Afric. Soc., Lond., 1903, 308-311.) Notes on the procedure of the native council of 26 chiefs, during the meeting with the Governor of Lagos.

Upward (A.) The province of Kabba, Northern Nigeria. (Ibid., 235-260.) Treats of country and climate, population, industries, trade, native governments, law, religion, the white man. The population consists of Bunns (with

few Hausa and Yoruba), Kukurukus, Egbiras, etc. The town of Lokoja is "the meeting-place between the Sudan and the coast, the semi-civilized Mohammedan and the savage pagan, the Nile valley being the natural boundary between Islam and cannibalism." The typical government has a head king and a deputy. Upon the natives all forms of religion "sit lightly." The white man is not really popular in Kabba. Not systems but administrators are needed.

Welsh (L.) Contrasts in African legislation. (*Ibid.*, 195-207.) Discusses the Transvaal liquor law of 1901, which prohibits intoxicating "brews or mixtures" of all sorts to "any colored person," in comparison with the unrestricted trade on the West Coast. In Africa there is no moral force existing as a counterpoise to liquor.

Wright (E. B.) Native races in South Africa. (*Ibid.*, 261-275.) Résumés data concerning Zulus, Bantu, etc., in the *Blue Book*, published by the Cape Government in 1883. South African natives are "neither vicious, nor debased, nor hopelessly lazy," and, treated intelligently, "will undoubtedly prove a valuable asset in the labor-market." Witchcraft is the most serious handicap.

ASIA

Birkner (F.) Beiträge zur Rassenanatomie der Gesichtswelttheile. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 163-165.) Gives results of facial measurements of 6 Chinese bodies in comparison with those of 24 suicides, 9 criminals, and 21 normals. In the Chinese the soft parts of the face "are at the points more important for the racial figure thicker than those of Europeans."

Cumming (A. S.) The story of Indra Bangsawan. (Folk-Lore, Lond., 1903, XIV, 385-407.) Gives literal translation of first few paragraphs, abstract of remainder and translation of rough poetic repetition at close of the tale of *Indra Bangsawan*, a Malay story, acted to day in the native theater at Singapore. Indra Bangsawan is the youngest of twin sons of a wise monarch.

Delitzsch (F.) Eaagila, the Babylonian Pantheon. (Rec. of Past, Wash., 1903, II, 323-331, 11 figs.) Historical account, from the earliest period down to

the Christian era, of the chief temple of Babylon and its ruins, recently excavated.

Dussaud (R.) Les régions désertiques de la Syrie moyenne et le cheval arabe. (Bull. Soc. d'Anthr. de Paris, 1903, V^e s., IV, 560-563.) Author calls attention to the ancient *graffiti* on the basaltic rocks of Safa in the El Harra desert, S. S. of Damascus, as showing the antiquity of the Arab breed of horse and the possession of such animals by the Arabs before their incursion into Africa.

d'Enjoy (P.) Du droit successoral en An-Nam. Institution d'hérédité.-Biens du culte familial. Fêtes rituelles. (Rev. Scientif., Paris, 1904, V^e s., I, 493-496.) Treats of Annamese property laws and rights of succession, the ritual family festivals, burial rites, etc. Equality of partition yields temporarily to religion only and the unity of the family is perpetuated.

Fischer (A.) Ueber die Selungs im Mergui-Archipel, sowie über die südlichen Shanstaaten. (Z. f. Ethnol., Berlin, 1903, XXXV, 966-992, 16 figs.) Based on recent visit. Treats of physical character (Malayoid), houses, boats (a fireplace in each, as they are really the dwellings), diving, family-life, marriage, etc., of the Selungs. Meaning of Shan, ethnographic notes on the Taungthu, Taungyo, Intha of Lake Inle, Padaungs, red Karens of Loikaw, etc. The rowing of the Intha is rather acrobatic. The Shans have a higher esthetic sense than the Burmese. The Karen house is on piles. The Selungs, Dr Fischer thinks, are not *civilisationsfähig*.

Foy (W.) Beitrag zur Kenntnis der Chaldäer. (*Ibid.*, 752-755.) Criticizes adversely Oppert's rapprochement of Chalkis, Chalkide and Greek *χαλκίς* ("blacksmith"), and the ideas of Goldstein on the same topic.

Ghose el Howie (Mr.) Antiquities in Mt. Lebanon, Syria. (Rec. of Past, Wash., 1903, II, 337-340, 2 figs.) Treats of rock-hewn tombs and other remains, including Roman pottery, coins, etc., at M'Ruj, Merjaba, Suborta, and other places.

Goldstein (F.) Berichtigung. (Z. f. Ethn., Berlin, 1903, XXXV, 921.) Author seeks to correct the citation of his views on the word *Chaldi* and its derivatives by Dr Foy. See *American Anthropologist*, 1903, N. S., V, 716.

Krause (E.) Die Verbrennung einer japanischen Leiche in China. (Ibid., 926-928.) Reproduces from a newspaper the account of the cremation near Tsingtau of the body of a Japanese. The charred bones are said to be sent to Japan.

Toldt (C.) Die Japanerschädel des Münchener Instituts. (A. f. Anthr., Brnschw., 1902-1903, XXVII, 143-183, 2 figs., tables.) Descriptions and measurements of 10 Japanese skulls (8 male) and a skeleton, with references to data of Bâls and Koganei. Author doubts whether, as some hold, the Ainu skull is greater than the Japanese.

Zaborowski (M.) Les congrégations en Chine. (Bull. Soc. d'Anthr. de Paris, 1903, V^e s., IV, 548-550.) Résumés a recent article in the *Mercure de France* with this title by Alexandra Myrial. The monk and nun idea is really exotic in China, where the family is the basis of social life and activities, and is of Buddhist provenance.

INDONESIA, AUSTRALASIA, POLYNESIA

Bauer (F.) Ueber Schädel von den Philippinen. (A. f. Anthropol., Brnschw., 1902-1903, XXVII, 107-116, 9 figs.) Discusses form, measurements of four skulls, three from Luzon and one from Mindanao (Cagayan, near Misamis.) The first Luzon skull came from a cave in Albay, and is deformed. Dr Bauer calls attention (as did Virchow) to the resemblance of the type (as shown by indices) of Philippine skulls with those of Peruvians. It is possible that some of the skulls called Philippine originally belonged to Peruvian slaves introduced by the Spaniards.

Born (Dr) Einige ethnologische Notizen aus Jap. (Z. f. Ethnol., Leipzig, 1903, XXXV, 929-930.) Brief notes on the lowering of canoe-masts with shamanistic ceremonies, the natives of Feys island, relations between Mapis and Jap. Dr Born says of a young Feys islander, "the first impression made upon me was almost that of a young Teuton of primitive times."

Ueber Eingeborenen-Medizin und Verwandtes. (Ibid., 790-791, 1 fig.) Brief notes on killing by poison (*jap*) and a corpse exhumed by the author.

Collingridge (G.) Exploration française à l'île de Santo. (Bol. S. da Geogr. de Lisboa, 1903, 389-392, map.) Notes on the French expedition of 1901 and the natives met. The conduct of the latter was "almost the same" as when encountered by the Portuguese Queiroz three centuries ago, when he visited and founded the "New Jerusalem," in the New Hebrides.

Dodge (E. A.) Our Mohammedan subjects. (Pol. Sci. Q., Boston, 1904, 20-31.) Treats chiefly of recent events among the Moros of the southern Philippines.

Peggs (Ada J.) Notes on the aborigines of Roebuck bay, Western Australia. (Folk-lore, Lond., 1903, XIV, 324-367, 6 pl.) Extracts from letters, 1898-1901, descriptive of native Australian life, customs, institutions, implements, art, etc. Appended are the English versions of 5 brief animal tales. Boomerang-making, body painting and marking, marriage, message-sticks, tribal marks, funeral ceremonies, fire-sticks, food (aversion to pork), bull-roarers, cannibalism (extinct?), fights for women, masks, sick-healing, infanticide, songs, "magic," dances, etc.

Rascher (P.) Die Sulka. Ein Beitrag zur Ethnographie von Neu-Pommern. (A. f. Anthr., Brnschw., 1904, N. F. I, 209-235.) Treats of habitat and tribal divisions, marriage (women choose husbands), birth and childhood, puberty and attainment of manhood (circumcision, blackening of teeth, etc.), death and burial, beliefs about souls and spirits (fear of evil-minded spirits), magic and charming (love-charms, vengeance-ceremonies, protective rites for persons, rites with animals, plants and inanimate objects, weather-making), superstitious ideas, masks, tales and legends (abstracts of 6 original and cosmogonic tales), etc. The existence of subterranean dwarfs is believed in. Tale-telling is tabooed in day-time.

Waldeyer (A.) Ueber Schädel-Variation. (Corr.-Bl. d. deutschen Ges. f. Anthr., München, 1903, XXXIV, 192-193.) Brief note on the *processus retro-mastoides* in Papuan skulls from the island of Tamara (Berlinshafen), which may be due to the use of modern pillows.

Westwood (Hr.) Ueber zwei auffallend grosse und starke Kinder. (Z. f.

Ethnol., Berlin, 1903, xxxv, 925-926, 1 fig.) Brief note by father on a New Zealand boy of 6 years and girl of 10, who weigh respectively 78.2 and 104.88 kn., and are 134.6 and 149.8 cm. tall. The other five children are of normal size, the parents rather weakly.

AMERICA

Barry (P.) The ballad of "Lord Randal" in New England. (J. Amer. Folk-Lore, Boston, 1903, xv, 258-264.) Records, with music in most cases, six New England versions of this famous ballad.

Bartels (M.) Die sogenannten Mongolen-Fleck der Eskimo-Kinder. (Z. f. Ethnol., Berlin, 1903, xxxv, 931-935.) Calls attention to Saabye's account (1770-1778 A. D.) of "blue spots" on Eskimo children from western Greenland and Eschricht's citation of it in 1849. Dr Bartels, on the authority of missionary Stecker, adds the Eskimo of the Kuskokwim region in Alaska to the people among whom "Mongol spots" occur.

Beauchamp (W. M.) Reply to "Who made the Bone Combs?" (Ann. Arch. Rep., 1903, Toronto, 1904, 85-86.) Argues that bone combs, except in Jefferson co., N. Y., are not earlier than the year 1600, and that the Indian had his idea of making the comb from European examples.

Birch (F.) The "Standing Rock." (Ibid., 98-101.) Disagrees with Father Jones' location of the "Standing Rock" of the *Jesuit Relations*, and claims to have discovered it at the place known as "Indian Caves," some 5 1/4 miles north.

Borba (T. M.) Observações sobre os indígenas do Estado do Paraná. (Rev. do Museu Paul., S. Paulo, 1903, vi, 53-62, 1 fig.) Ethnographic notes on the Caingang and Arés (Botocudos), with a brief vocabulary of the latter. The deluge-myths of these Indians are given on pp. 51-62, that of the Botocudos invites Algonquian *rapprochement*.

Boyle (D.) Who made the effigy stone pipes? (Ann. Arch. Rep., 1903, Toronto, 1904, 27-35.) Critique of Mr Joseph D. McGuire's views on the European origin of "Indian" effigy pipes, as expressed in his *Pipes and Smoking Customs of the American Aborigines*. See MCGUIRE. Mr Boyle thinks the inventive capacity of the Indian sufficient

to account for many pipes thought to be European.

— The working of native copper. (Ibid., 36-43.) Discusses views of Moore and McGuire and concludes that "there would seem to be no doubt that copper manipulation was practised by the Indians long before the discovery, and that the invention, or application of the socket, as well as the use of a tying-hole, in connection with arrow and spear-heads, is wholly due to aboriginal ingenuity or adaptiveness."

— Working methods. (Ibid., 48-85, 51 figs.) Treats of unfinished and finished stone pipes, clay pipes, stone axes, slate knives, slate pendant, stone gouges, pebble gorget, how the Indian mended stone, stone files or steel files, some mechanical methods, bone and horn, who made the bone combs? Argues that the Indian method of work exhibited in many of these implements and instruments of itself precludes imitation of European models with European tools. Evidence as to the use of a steel file is deceptive. Against Beauchamp, Boyle credits the Indians with making bone combs. European contact and metallic tools were not necessary to produce them.

— A shell neck-lace. A few copper tools. A brass smoking pipe. Bored skulls. A burial place in Onondaga township. A good piece of work in stone. (Ibid., 87-95, 11 figs.) Describes a necklace from York county, representing three periods of time and workmanship (probably in part evidencing European influence); a copper fishhook from Isle Royale (the only one in the museum); a brass pipe from Onondaga probably made by a white man; two Indian skulls from Lambton county, one with six, the other with three post-mortem perforations. The burial place contained 16 graves, the remains found in which indicate a period about 1700-1750. The stone object cited is a finely made pestle from Comox, B. C.

— British Columbia mummies. (Ibid., 96-97, 2 figs.) Brief account of two Clayoquot mummies recently acquired by the Museum.

— Village sites in North Orillia. (Ibid., 103-104.) Brief notes on the sites on Roger's farm and on the Hall lot near Orillia, — perhaps one of the original Cahiaques.

—The killing of Moostoos, the Wehtigoo. (*Ibid.*, 126-138.) Gives extracts from the court copy of the evidence in the trial of Payoo and Napayoosee, Cree Indians of Smoky river, 75 miles from Little Slave lake, for having in 1899 killed Moostoos, a member of their tribe, who declared himself a *wehtigoo* (*wendigo*) or "one possessed."

Brown (C. E.) The native copper implements of Wisconsin. (*Wisc. Archeol.*, Milwaukee, 1904, III, 49-86, 12 pl.) Treats of source, mining, fabrication, distribution, classes and function. Axes, hatchets, chisels, spuds, gouges, adzes, epiles, spatulas, knives, spear and arrow points, harpoon points, jakes and punches, awls and drills, spikes, needles, fish-hooks, peculiar implements are described. The number of Wisconsin copper implements is very large; the Lawson catalogue lists 13,000 and the collecting of 30 years has not exhausted the supply. Glacial or "float" copper was used as well as the Lake Superior metal. No evidence of a "lost art" is present. As compared with village sites and fields, Wisconsin mounds and graves furnish few specimens. A good paper.

Casanowicz (I. M.) Oriental and classical archeology in the United States National Museum. (*Rec. of Past*, Wash., 1903, II., 355-361, 7 figs.) Brief account of the collection, their arrangement, value, etc.

Chamberlain (A. F.) The contributions of the American Indian to civilization. (*Proc. Amer. Antiq. Soc.*, Worcester, 1903, N. S., XVI, 91-126.) Treats of geographical names, words and phrases furnished to English, influence on literature, trails, frontier, fur trade, devices in hunting, fishing, etc., agricultural processes (guano, fish manure), ornament and esthetics, influence on art, fibers, textiles, clothing, recreations (lacrosse), tobacco, potato, manioc, tomato, pumpkin, beans, fruits, folk-foods, maple-sugar, gum, wild-rice, maize and its derivatives, maté, cocoa and chocolate, pulque and other liquors, medicines (herbs, quinine, coca, curari), "mescal button," intermingling of whites and Indians, ideal of Hiawatha.

Förstemann (E.) Zur Madrider Maya-handschrift. (*Z. f. Ethnol.*, Berlin, 1903, XXXV, 771-790, 7 figs.) Discusses in detail certain figures of days in

Tro-Cortesianus 65-72. Author argues that the 32 day-groups of 6 hieroglyphs each, which occur in addition to the 8 columns of 32 hieroglyphs, belong to the eighth and last column of these.

Gibbons (J.) Iroquois in the Northwest Territories. (*Ann. Arch. Rep.*, 1903, Toronto, 1904, 125-126.) Brief note on "Michel's Band," near Edmonton Alberta, now "Indians" only in name.

Hamilton (J. C.) The Algonquin Manabozho and Hiawatha. (*J. Amer. Folk-Lore*, Boston, 1903, XV, 229-233.) Treats of the idea of Manabozho as found in the early writers and among the Algonkian Indians of the north shore of Lake Superior where his feats are commemorated in geographical names, etc. Longfellow's misnomer of Hiawatha is pointed out.

Harris (W. R.) The Caribs of Guiana and the West Indies. (*Ann. Arch. Rep.*, 1903, Toronto, 1904, 139-145.) Brief historical account with ethnographic notes, etc., habits, customs, chiefly from old authorities. Their councils of war are said to have been "held in a secret dialect or jargon, in which the women were never initiated"—besides there were different dialects for men and women, so an "educated" Carib needed really to speak three languages.

Hunter (A. F.) Indian village sites in North and South Orillia townships. (*Ibid.*, 105-125, map.) After general account of sites, burials, trails (Muskoka, Coldwater, Huron, Atherley), the author catalogues, with brief statements of situation, contents, etc., twelve sites in North and twenty-one in South Orillia, besides the fishing-station at the Narrows (belonging to the Hurons). The Orillias contain the line of contact between the Hurons and the Algonkins of the *Jemil Relations*, and the author says, "what I am inclined to call the Algonkin sites have distinct characters, and might almost be said to preponderate over the Huron sites in the Orillia townships." The Algonkian sites show abundance of stone and pottery disks, individual burials, highly decorated pipes and pottery, greater abundance of bone needles, awls, etc., of flints, etc., also brass arrow-heads made from fragments of old kettles. The Mount Slaven site close to Orillia is described in considerable detail,—it is not Cahiagué, as some have thought.

- von Ihering (H.)** Os Guayankas e Caingangs de S. Paulo. (Rev. do Museu Paul., S. Paulo, 1902-1903, vi, 23-44.) Historical-ethnographic account with résumé of literature. Author affiliates these Indians with the Gês. The S. Paulo Guayankas are probably identical with the Caingangs. The Guayankas of the Upper Paraná differ in language and other respects from those of S. Paulo.
- Keane (A. H.)** Cultura de los nativos Americanos. Su evolución independiente. (An. d. Mus. Nac. d. Méx., 1903-1904, 2^a ep., i, 35-40, 41-44.) Translated from the *International Quarterly*, 1902, v, 338-357. See *American Anthropologist*, 1902, n. s., iv, 561.
- Laidlaw (G. E.)** Indian village sites in North Victoria. (Ann. Arch. Rep., 1903, Toronto, 1904, 101-102.) Brief notes on new sites No. 36-39 and the relics found, particularly a very large stone bear pipe from Tiny township, Simcoe co., obtained from a man in Fenelon, Victoria.
- Lehmann-Nitsche (R.)** Gleichzeitigkeit der südpatagonischen Höhlenbewohner mit dem *Grypotherium* und andern ausgestorbenen Thieren der argentinischen Höhlenfauna. (A. f. Anthropol., Brnschw., 1902, xxvii, 582-597, 4 figs.) Concludes that the evidence shows that the man of the southern Patagonian caves, slew, skinned, cut up and ate raw the great edentate (*Grypotherium*), which may have been a kind of domestic animal. The remains of an extinct species (*Onchippidium*) of horse are such as to indicate its use as food by cave-man. The *Grypotherium* was probably exterminated by man in historical times. See *Amer. Anthropologist*, n. s., vol. vi, pp. 185-188.
- McGuire (J. D.)** Reply to "Who made the Effigy Pipes?" (Ann. Arch. Rep., 1903, Toronto, 1904, 43-46.) Reply to critique of Mr Boyle and reassertion of opinion as to European influence in the matter of tobacco-pipes.
- Notes on copper workers. (Ibid., 46-47.) Defends against Mr Boyle his opinion concerning white influence in the production of thin embossed sheets of copper.
- Martin (W. B.)** Religious ideas of American Indians. (Cath. Univ. Bull., Wash., 1904, x, 35-68, 225-243.) Based chiefly on Jesuit records, with references to some of the chief recent literature (bibliography). After historical and general introduction, author treats of conceptions of deity and spirit-lore, prayer and sacrifice ("no evidence of an organized priesthood," only medicine men, shamans or jugglers), burial customs, mythological personages, etc. Mr Martin declares that "no ancestor-worship in any sense can be said to have existed among our tribes."
- Martinez (B. F.)** Os indios Guayankas. (Rev. do Museu Paul., S. Paulo, 1902-1903, vi, 45-52.) Historical-ethnographic notes, with brief vocabularies. The solitary fishing expeditions of these Indians are remarkable. Inhumation is substituting the older urn-burial.
- Notes on Panama and Colombia.** (Nat. Geogr. Mag., Washington, 1903, xiv, 458-466.) Page 466 contains pictures of Talamancan Indians and their houses.
- Peary (R. E.)** Field work of the Peary Arctic Club, 1898-1902. (Bull. Geogr. Soc. Phila., 1904, iv, 1-48, 7 pl.) Contains *passim* a few notes on Eskimo.
- Pittier de Fábrega (H.)** Die Tirub; Terribes oder Terrabas, ein im Aussterben begriffener Stamm in Costa Rica. (Z. f. Ethnol., Berlin, 1903, xxxv, 702-708.) Brief historical notes and abstracts of a few tales. The Terrabas numbered in 1824 some 1,000 souls, in 1898 only 57, with a great preponderance of males. Miscegenation with negroes and whites has taken place.
- Preuss (K. T.)** Phallische Fruchtbarkeits-Dämonen als Träger der altmexikanischen Dramas. Ein Beitrag zur Urgeschichte des mimischen Welt-dramas. (A. f. Anthropol., Brnschw., 1903, n. f., i, 129-188, 24 figs.) In this interesting and valuable monograph Dr Preuss discusses the old Mexican demons of harvest and spring, phallic ceremonies of the demons, the mimic drama in Mexico, beginnings of the *mimus* among the Iroquois and Pueblo Indians, the Græco-Italian *mimus* and the dramatic world-literature, the newly discovered *mimus* of the Oxyrhynchus papyri. The relation of *coitus* and birth to the mimic acts in the ceremonies of various peoples connected with spring, harvest, growth, fertilization, etc., are considered, the phallic basis of many demonstrated, and the rôle of *coitus* in the activity of many deities pointed out. Very curious is the

development of the phallic demon as actor, including the clowns of Shakespeare, descendants of the ancient mimic fools. The Karagoz of the Turkish shadow-play is phallic. The primitive mimic drama begins in magic and ends in the great world drama.

Prince (J. D.) and Speck (F. G.) Dying American speech-echoes from Connecticut. (Proc. Amer. Philos. Soc., Phila., 1903, 346-356.) Notes on the language of the Skaghticoke Indians of Connecticut. Three connected sentences and a glossary of 23 words are given, with comments and explanations. The Skaghticoke has the rare *r*-sound. It is a modern form of ancient Pequot-Mohegan speech, and the "Indians" have little aboriginal blood.

Ramirez (I. F.) Códices mexicanos de Fr. Bernardino de Sahagun. (An. d. Mus. Nac. de Méx., 1903-1904, 2^a ep., 1, 1-34.) Describes the Códices Castellano, Mexicano, the author and the fate of his works, various editions, etc.

Russell (F.) A Pima constitution. (J. Amer. Folk-Lore, Boston, 1903, xv, 222-228.) Describes (with text) the origin and development of a "constitution," an interesting product of white-Indian contact, by the Pimas of the Gila-Salt River valley in southwestern Arizona.

Spitzka (E. A.) The execution and post-mortem examinations of the three Van Wormer brothers at Dannemora, N. Y., Oct. 1, 1903. (Daily Medical, N. Y., Feb. 8, 1904, 4-6, 5 figs.) Gives anthropometric and cerebrometric data. No evidence of a "criminal type" of brain and no grave defects or malformations were observed. The youngest had the heaviest, the eldest the lightest brain. The form of brain was similar in all three. Variations normal. Brain-weights 1,600, 1,358, 1,340 gr., fresh; statures, 1,752, 1,780, 1,728 mm. Brain of youngest had well-marked postorbital

limbus. See *American Anthropologist*, N. S., VI, p. 307.

Post-mortem examination of the late George Francis Train. (Ibid., Feb. 15, 1904, 2, 6 figs.) Gives measurements of cranium, head and face (no notable asymmetry), brain-weight (10 hours after removal) 1525.5 gr. = ca. 1600 gr. in middle-age. Cephalic index 81.3. Brain shows no lesion, deformity, atypic or anomaly, and exhibits "a superior degree of complexity in its surface morphology." Postorbital limbus well-developed on both sides.

Tooker (W. W.) Indian place-names on Long Island. (Brooklyn Daily Eagle Almanac, 1904, 409-410.) This revised and corrected list contains the significations of some 230 place-names of Algonquian origin, many of which now appear in more or less corrupt form. A number of the words recorded are personal names which have become place-names.

Townshend (R. B.) The snake dancers of Mishongnovi. (Nineteenth Cent., Lond., 1904, 429-443.) Religio-scientific inter-location.

Urbina (M.) Notas acerca de los "Tzauhtli" ó Orquídeas mexicanas. (An. d. Mus. Nac. d. Méx., 1903-1904, 2^a ep. 1, 54-84.) Contains much information concerning Aztec names of orchids and their uses. A valuable contribution to ethnobotany.

Vogt (P. F.) Material zur Ethnographie und Sprache der Guayaki-Indianer. (Z. f. Ethnol., Berlin, 1903, xxxv, 849-874, 1 fig.) Brief notes on physical characters, ethnic names, implements, weapons, language, etc. Comparisons with Guarani and Tupi are made. Father Vogt credits the Guayaki of today with cannibalism (they eat the brains of their enemies, the Kaingua, a dainty). The present Guayaki habitat is on the Moudy'.

ANTHROPOLOGIC MISCELLANEA

Identification of Some Græco-Egyptian Portraits.—The Græco-Egyptian paintings known as the Hellenic Portraits have engaged the interest of archeologists, artists, and art-historians since their discovery in 1887 and 1888. As is well known, they are bust-portraits, executed in encaustic or distemper, sometimes in a combination of the two, on thin panels of sycamore or cypress. They were intended to be portraits of deceased persons, and placed over the face of the mummy, being glued to the linen bandages which enwrapped the body. These paintings are ascribed to the Græco-Roman epoch of Egypt. From a religious-cultural point of view the portraits are an outgrowth from the ancient Egyptian custom of placing an effigy of the deceased at the head of the mummy or coffin in order to attract the *ka*, or spiritual double, to the body and thus preserve the individuality of the deceased. In early times this was not a portrait painted on the mummy case, but a molded mask decorating the head and end of it, while the lid of the case was shaped in imitation of the swathed corpse. Since the ninth century, B. C., the custom of encasing the mummy in a cartonage became general. On this cartonage shell the face of the deceased—a molded mask, gilt or colored—was usually placed. When Hellenism took root on the banks of the Nile and painters began to produce striking likenesses, a painting representing a real portrait of the deceased was substituted for the plastic head, with its mostly conventional features, as a habitation of the *ka*. The Hellenic Egyptians, and to a greater extent the Semites who are represented on these portraits, probably knew little of and cared less about the religious motive which had first required the attachment of an image to the mummy; but the custom appealed to their sentiment as a means and token of remembrance. The use of portraits on mummies is assumed to have continued until the edicts of Theodosius (392 A. D.) prohibited the worship of the genius to which the custom owed its origin.

Most of these portraits were found in the necropolises of Rubaiyat (the ancient Kerke) and Hawara, both places situated in the Fayum, the district which also yielded the largest supply of papyri. It was also in the Fayum, the ancient *nome*, or canton, of Arsinoitis, where, under the Ptolemies, the Greek element predominated. The portraits, however, are, as it were, international in their physiognomy. Besides Hellenized

Egyptians of Greek origin, they represent Græco-Egyptian half-breeds, others with an admixture of Ethiopian blood, and a rather large proportion of the Semitic race — Jews and Phœnicians. In all probability we have here a representation of the mixed population of cities. The paintings thus not only throw light on the pictorial technics of the Grecian artists, but also form a valuable contribution to anthropologic research, into what may be called the physiognomy of nations.

It has been noticed that most of the persons represented on the portraits appear to have belonged to a higher class. Many of the men wear aristocratic vestments, with laurel wreaths or gold fillets on the head and a ribbon across the breast, as indicating some office or station of dignity, so also the elaborate ornaments and jewelry worn by several of the women give evidence of superior rank.

Mr Theodor Graf, of Vienna, the owner of the largest and finest collection of these antique paintings from Rubaiyat (Kerke), believes that he has identified some of his portraits with those on coins, cameos, etc., which would show them to represent royal personages. According to this comparison, No. 4 of Graf's collection would represent Ptolemy Philadelphus, No. 5 Ptolemy Soter, No. 12 Queen Cleopatra, No. 15 Queen Berenice, No. 22 Ptolemy Philometor, No. 26 Ptolemy Euergetes, No. 28 King Perseus of Macedonia (compared with a bust in the Louvre), No. 43 Queen Cleopatra Tryphanea, No. 81 Queen Arsinoë. The finding of royal mummies and portraits in the remote Kerke (Rubaiyat) would be accounted for by some war or popular disturbance in Alexandria which might have prompted the removal of the royal bodies from their mausoleum to the secluded port in Middle Egypt, in order to protect them against plunder and desecration. In a letter accompanying the heliographs of the portraits in question, along with reproductions of the coins, Mr Graf cites, in support of his theory, several high authorities, among them the renowned paleographer Professor Julius Euting of Strassburg, and the painter, Professor Otto Donner von Richter of Frankfort.

We may be permitted to quote the closing remark of the late Professor Virchow in his paper on the subject (*Porträt-Münzen und Graf's hellenistische Porträt-Galerie*), read before the Anthropological Society of Berlin on May 18, 1901: "It was, in any case, a happy thought to adduce the coins for a comparison with the panel-pictures. The latter, executed in colors, afford without question a most clear illustration. They will preserve a lasting value not only for the history of the Ptolemies, but also for the ethnological knowledge of a period of Egypt so important for the development of culture. It would be of the greatest

importance for history if a whole series of the members belonging to a definite and, at the same time, so important a dynasty, could be presented to us in the color of the time and life." L. M. CASANOWICZ.

West Indian Researches. — Dr J. Walter Fewkes, of the Bureau of American Ethnology, has returned to Washington after four months' successful field-work in the West Indies. During the trip he visited Cuba, Jamaica, Porto Rico, Trinidad, and the Lesser Antilles, obtaining, from several localities, collections of prehistoric objects numbering several hundred specimens and including many varieties, some of which have not before been represented in the National Museum.

In the province of Santiago, Cuba, Dr Fewkes procured a small collection illustrating the stone-age culture of that part of the island. On account of the extreme rarity of prehistoric objects from Cuba, for the absence of which our museums have been noted, these objects are regarded as valuable additions. They belong, however, to an intrusive rather than to an autochthonous culture. It was found that at the time of the discovery the western and central parts of Cuba were inhabited by a very primitive people, with few arts, speaking a language different from that of the eastern provinces of the island, and whose culture was derived from neighboring islands. This primal Antillean population, also represented, at the time of the discovery, in the mountains of Haiti, was a cave-dwelling people who may be regarded as the oldest inhabitants of the islands; their kinship is unknown, for the few objects left by them are confused with those of later Indian occupants.

Dr Fewkes visited the larger of the Lesser Antilles, following the possible pathway of prehistoric culture migration from South America to Porto Rico, and special attention was given to the evidences of this culture on the several islands from Trinidad to St Thomas. A fair collection of prehistoric objects was obtained on Trinidad island, which formed the gateway of this culture migration, thus giving special significance to its antiquities. The survivors of the Trinidad Indians were studied by Dr Fewkes; these now reside at the old town of Arima, and while it was found that they had lost their native language, they yet retain some of their aboriginal arts.

Archeological collections were obtained also in Grenada, Barbados, and St Vincent, which lay in the way of prehistoric migration between Trinidad and Porto Rico. The collection from the island last named, which included that of Sr Eduardo Neuman, of Ponce, is particularly rich in unique stone objects from the southern and western ends. In ad-

dition to numerous duplicates, it contains six stone "collars" or rings, fifteen mammiform idols (several of which are among the finest yet discovered), stone masks, bird stones, amulets, and effigy vases. An old shrine in a cave at Cayuco, near Utuado, Porto Rico, yielded a small globular vase containing two strings of finely polished stone beads (one of the strings being six feet in length), as well as several sacrificial objects. A preliminary examination was made of some of the more important shell-heaps on the southern shore of Porto Rico, especially of the one at Cayito, near Santa Ysabel, and of others on the Rio Coamo. Several large shell-heaps were discovered more than five miles from the shore near the Coamo hot springs, the contents of which indicate that they were reared by a people using polished stone implements and finely painted pottery ornamented with relief decorations. Fragments of human bones associated with burnt wood and ashes were also found embedded in the shell-heaps.

Particular attention was given to pictography on the various islands, and to a comparison of forms and designs on aboriginal pottery. The prehistoric inhabitants of the Lesser Antilles, from Trinidad to Porto Rico, were found to be expert potters whose productions exhibit high artistic development. Dr Fewkes believes that he has gathered sufficient evidence to prove the existence in the West Indies of a cave-dwelling people who antedated a more advanced population. Survivors of this cave people lived in Cuba and Santo Domingo toward the close of the fifteenth century, but few evidences of them are now to be found, as their arts were simple and limited in scope. Side by side with the cave-dweller culture was a later and higher culture, dominant on the eastern end of Cuba, the germ of which came from South America and reached its greatest development, which was characteristic and unique, in Porto Rico and Santo Domingo.

Light is thrown by the material collected on the relation of the Caribs to the earlier inhabitants of the islands, both savage and cultivated. A description of these collections and their bearings on race migration and culture development will be published later by the Bureau of American Ethnology.

Some Brain-weights in the Negro Race.¹—Soon after the close of the Civil War the writer was one of three attachés of the United States Army Medical Museum to make a series of one hundred post-mortem examinations on the freedmen at Freedmen's Hospital, Washington. The brain-weights were taken in ounces and fractions of an ounce. In eleven

¹ Read before the Anthropological Society of Washington, May 3, 1904.

cases the weight was not taken, or at least was not recorded. These persons were not all pure negroes, but the record does not show definitely the proportion of admixture of white blood, and at this distance of time the memory fails on this point. It may be stated, for comparison, that the average brain-weight in white subjects, according to most anatomists, is about $49\frac{1}{2}$ oz. for men and $44\frac{1}{2}$ oz. for women—about 5 oz. difference between the sexes, due largely, of course, to difference in stature and body-weight. The brain-weight increases rapidly up to the seventh year, more slowly to between 16 and 20, still more slowly to between 30 and 40, at which time it reaches its maximum and afterward begins to decrease, losing about one ounce for each decade. Of course, in comparing the brains of whites with those of freedmen, it must be remembered that the freedmen had but recently been released from slavery, and slavery meant both the absence of education and of the opportunity for mental advancement except along narrow lines.

In 39 of the 89 cases (44 per cent.) in which the weight was taken, the weight was 45 oz. or more; in 10 cases (11 per cent.) 50 oz. or more, which is more than that of the average white brain. Twenty of the 89 individuals were less than 20 years of age. In two children 13 years of age the weight was 46 oz.; in one of 15 years it was $44\frac{1}{2}$ oz.; in two of 17 years it was $48\frac{1}{4}$ and 50 oz., respectively; in one of 18 years, $46\frac{1}{2}$ oz.; in three of 19 years it was $44\frac{1}{2}$, 45, and 48 oz., respectively. In three cases the weight was 50 oz., in one case $50\frac{1}{2}$, in two cases 51, in two cases 53, in one case 54, and in one case 56 oz. As stated above, these weights are above the weight of the average white brain.

In 17 cases the age of the individual was not noted, but was stated in the case of 43 men and 9 women, who were more than 20 years. In these latter the average brain-weight for men was 45 oz., for the women 39.7 oz., or a little more than 5 oz. difference.

Of five men 60 years old or more, the brain-weight was as follows: One man of 60 years, 40 oz.; one man of 71 years, $45\frac{1}{2}$ oz.; one man of 72 years, 42 oz.; one man of 89 years, $39\frac{1}{2}$ oz.; one man of 105 years, 41 oz. The last mentioned was named Washington, perhaps one of the old Mount Vernon slaves; his brain-weight was probably equal to that of the average white at this extreme age, although there are naturally few opportunities of obtaining brain-weights of centenarians. The ages given cannot, of course, be vouched for, especially as it is well known that at the time referred to the Negro was inclined to exaggerate his age after reaching 60 years.

Other things being equal, the brain-weight and the mental capacity,

in my opinion, bear a definite relation to each other; and the facts above presented would seem to show a high degree of mental capacity in the negro.

D. S. LAMB.

The Wyoming Historical and Geological Society, of Wilkes-Barré, Pa., has lately doubled its ethnological collections by the gift of the valuable collection of Indian relics from the watershed of the Susquehanna, gathered through some years of work by Mr Christopher Wren, of Plymouth, Pennsylvania. The collection is exclusively Pennsylvanian and contains 7,000 specimens, many of the finest quality. One case, containing a small part of the relics, shows the crude brown flint, black flint, and red jasper, from quarries adjacent to Wyoming valley, with every stage of manufacture of the blades and arrowpoints from this material. The Society has also lately acquired by purchase the very rich collection of Mr A. F. Berlin, of Allentown, Pa., who has spent thirty years in its formation. Of the 3,000 objects in this collection, 1,200 are from the interior of Pennsylvania and the remainder from adjacent states. They consist of hoes and axes from half a pound to fourteen pounds in weight, agricultural blades fourteen inches long, discoidal or chungke stones of the finest finish, ceremonial and bird stones of polished banded slate, blades and knives of exquisite shape, and polished pieces of every variety of material and workmanship. This is the finest private collection the writer has ever seen. During the last year the Society has also created the "Zebulon Butler Collection," which now numbers a thousand local specimens, and two other small but excellent collections have increased the additions to the cabinets to more than 12,000 objects. The Wyoming Historical and Geological Society has what has been pronounced by Mr Stewart Culin the finest collection of Algonquian pottery in the United States, numbering fifteen whole vessels from the Wyoming Valley section.

HORACE EDWIN HAYDEN, *Corr. Sec'y.*

The Brain-weight of Dr Taguchi.—Dr Kazuyoski Taguchi, Professor of Anatomy in the Medical College of the Imperial University of Tokio, is perhaps the first of his race to bequeath his own body to his colleagues for the purpose of dissection. His work on the brain-weight of the Japanese is the most extensive yet published, and it is noteworthy that his own brain is the heaviest on record among the Japanese, namely, 1920 grams, or 67.7 ounces avoirdupois. In the list of eminent men (now 107 in number) it occupies second place, the brain of the Russian poet and novelist Tourgeneff (2012 grams) being the only one superior to it in this

respect.¹ The report of the post-mortem examination by Dr Yamagiwa, president of the University, mentions Taguchi's age as 66 years, and the body-weight as 108 pounds. Cirrhosis of the kidney with complications caused death.

EDWARD ANTHONY SPITZKA.

Stephen Powers, author of "Tribes of California," published in 1877 as volume III of *Contributions to North American Ethnology*, and of numerous articles on the Indians of California which appeared in the *Overland Monthly*, died at Jacksonville, Florida, April 2. Mr Powers was born at Waterford, Ohio, in 1840, and was graduated from the University of Michigan in 1861. At the time of his death he was editor of the *Florida Farmer and Fruit Grower* and agricultural editor of the Jacksonville (Florida) *Times-Union*.

DR C. V. HARTMAN, curator of archeology and ethnology in the Carnegie Museum of Pittsburg, has removed the collection of Costa Rican antiquities made by Padre José Maria Velasco from the archeological department of the Free Museum of Science and Art in Philadelphia to the Carnegie Museum at Pittsburg. This collection, together with another scarcely less important collection made by Padre Velasco, supplemented by the Troyo, the Ferraz, and other collections recently acquired by the museum, give this institution the largest assemblage of Costa Rican antiquities in existence outside of Costa Rica. In fact, the Carnegie Museum possesses more specimens of Costa Rican antiquities than are found in all the museums of the world put together.—*Science*.

INTERNATIONAL CONGRESS OF AMERICANISTS.—At the Fourteenth Session of the International Congress of Americanists to be held at Stuttgart, in August, Mr W. H. Holmes will represent the Smithsonian Institution, Dr Franz Boas and Prof. Marshall H. Saville the American Museum of Natural History, and Dr G. A. Dorsey and Dr C. W. Currier the Field Columbian Museum and the Catholic University of America, respectively. These gentlemen and the Duc de Loubat have also been appointed delegates on the part of the United States Government.

DR JUAN F. FERRAZ, the Director of the Museo Nacional of Costa Rica at the time of its consolidation with the Instituto Físico-Geográfico Nacional at San José, died in February last. Dr Ferraz will be remembered for his interest in Central American archeology and ethnology. His last visit to this country was for the purpose of attending the session of the International Congress of Americanists at New York in 1902.

¹ See *American Anthropologist*, vol. 7, No. 4, pp. 595-596, table; also "The Brain-weight of the Japanese," *Science*, Sept. 18, 1903, pp. 371-373.

THE SEVENTY-FIRST SESSION of the Congrès Archéologique de France will be held at Puy (Haute Loire), France, June 21-28. M. Eugène Lefèvre-Pontalis, of Paris, president of the Société Française d'Archéologie, is president of the congress, and M. A. Jacotin, of Puy, is general secretary. The subscription is 10 francs.

DR WALTER HOUGH, of the U. S. National Museum, is conducting archeologic researches in the little-known section of southwestern New Mexico, and MR STEWART CULIN, of the Brooklyn Institute of Science and Arts, is engaged in making ethnologic collections in the same territory.

AT THE RECENT council meeting of the American Anthropological Association, held at the American Museum of Natural History, New York, Dr George Grant MacCurdy was elected secretary of the association, *vice* Dr A. L. Kroeber resigned.

DR ALEŠ HRDLÍČKA, of the United States National Museum, has been elected a corresponding member of the Czecho-Slavonic Ethnological Society of Prague.

THE PUBLIC PRESS announces the death, at Cox rancheria, near Ukiah, California, May 25, of Charles Penio, the oldest chief of the Ukiah tribe. Penio was reputed to have been 107 years of age.

DR HENRY F. PITTIER has resigned the directorship of the Instituto Físico-Geográfico Nacional, of Costa Rica, and will spend the next few months in the United States.

PROF. EDWARD S. MORSE, of Salem, Mass., and Dr W. J. Holland, of Pittsburg, Pa., have been elected corresponding members of the Swedish Society of Anthropology and Geography.

MR ADOLPH F. BANDELIER has been engaged by Columbia University for next year as lecturer on "The Value of Spanish-American Literature for American Ethnology and Archeology."

DR W. C. FARABEE, instructor in anthropology at Harvard University, is to conduct a party of students on an anthropological trip through the southwest during the summer.

BEGINNING WITH the current year the *Archiv für Religionswissenschaft* has been edited by Dr Albrecht Dieterich of Heidelberg and Dr. Thomas Achelis, and published by B. G. Teubner of Leipzig, Germany.

CHARLES A. DILG, for many years interested in the prehistory of the vicinity of Chicago, died in that city April 29, aged 59 years.

THE INTERNATIONAL CONGRESS OF ARCHEOLOGY will be held at Athens in April, 1905.

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SOME PRINCIPLES OF ALGONQUIAN WORD-FORMATION¹

By WILLIAM JONES

INTRODUCTION

This paper deals with an exposition of some of the principles of word formation in a dialect of the central group of Algonquian Indians. By central group is meant the Algonquian tribes that live or have lived about the Great Lakes, particularly in the adjoining regions west and south and now embraced by the territory of the states of Michigan, Minnesota, Wisconsin, Illinois, Indiana, and Ohio. The group contains many dialects, some of which are the Ojibwa, Ottawa, Potawatomi, Menomini, Kickapoo, Sauk, and Fox.

The dialects present great similarity in the absolute forms of many words, but marked differences are noticed in the spoken language. Some of the differences are so wide as to make many of the dialects mutually unintelligible. This lack of mutual comprehension is due in some measure to variations of intonation and idiom and in a certain degree to slight differences of phonetics and grammatical forms. The extent of diversity among the dialects varies. For instance, Ojibwa, Ottawa, and Potawatomi are so closely related that a member of any one of the three experiences only a slight difficulty in acquiring a fluent use of the other's dialect. The transition from Ojibwa, Ottawa, and Potawatomi to Menomini is wider, and it is farther still to Kickapoo and to Sauk and Fox.

¹ Submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in the Faculty of Philosophy, Columbia University, New York. Published under the auspices of the New York Academy of Sciences.

Some of the dialects, like the Ojibwa, Ottawa, and Potawatomi, are disintegrating. The breaking up is not uniform throughout a dialect; it is faster in the regions where civilized influences predominate or play a controlling force, while the purer forms are maintained in the places where ideas of the old-time life and associations have a chance to live and survive. The dialect of the Mexican band of Kickapoos is holding its own with great vigor, but not quite the same can be said for Menomini or Sauk. Sauk and Fox are the same speech with feeble differences of intonation and idiom. Kickapoo is closely akin to both, but is a little way removed from them by slight differences of vocabulary, intonation, and idiom. The dialect taken up here is the Fox, which is spoken with as much purity as Kickapoo.

The number of the Foxes is nearly four hundred and they live on Iowa river at a place in Tama county, Iowa. They call themselves Meskwá'kí'ág¹, *Red-earth People*, and are known to the Ojibwas and others of the north as Utagámig, *People of the Other Shore*. Among their totems is an influential one called the Fox. It is told in tradition that members of this totem were the first in the tribe to meet the French; that the strangers asked who they were, and the reply was Wá'gó'ág¹, *People of the Fox Clan*; so thereafter the French knew the whole tribe as Les Renards, and later the English called them Foxes, a name which has clung to them ever since.

Random attempts have been made at various times to collect a vocabulary of the dialect, but nothing has ever been done to elucidate its structural peculiarities. In the work on the dialect, not only in the particular phase taken up here, but in all its other aspects abundant help has been given by Professor Franz Boas, of Columbia University. The inquiry was conducted under his direction and the results attained have largely come about by following lines suggested and advised by him.

THE SOUNDS

Before entering on the main theme of the paper, it seems best to give an account of the principal sounds used in the dialect and to show something of what takes place in the process of sound change. The analysis of sounds is as follows:

Consonants

^a A phonetic symbol standing for a softened glottal stop. The nature of the sound is caught in a feeble whispered cough. The sign is elevated and occurs before initial vowels: *wa'tc^a lacrosse stick.*

['] An apostrophe denoting a whispered continuant before the articulation of *k*, *t*, and *p*. It occurs also before *h*. It will be referred to again under these four symbols.

h An aspirate sound almost like *h* in *hall, hail, hull*. It is soft breath with feeble friction passing the vocal cords and continuing on through the narrowed glottis: *na'hi, hey! listen!*

^{'h} An aspirate of the same origin as *h* but without an inner arrest. The tongue is drawn back and raised high, making the air passage narrow; it has a sudden release at the moment almost of seeming closure: *ma'hwa'w^a, wolf.*

hw A bilabial, aspirate glide, starting at first like *h* and ending with the air passage wider and the ridge of the tongue slightly lowered: *pana'hwaw^a, he missed hitting him.*

k Like the inner *k*-sound in *caw, crawl*. The stoppage makes and bursts without delay on the forward part of the soft palate: *šahó, hst!*

g A *k*-sound articulated in the same position as *k*. But the closure is dull and sustained, with a pause between the stop and break, leaving an acoustic effect of almost a medial sonant: *š'gw^a, no.*

^{'k} An outer *k*-sound like the one in *keen, keep, key*. The articulation is farther front than for *k* or *g*. The apostrophe is for a hiss of breath that escapes before complete closure: *š'kwaw^a, woman.*

s Like the voiceless *sh* in *she, shame, mash*. The sibilant is made with friction between the tongue and upper alveolar. The opening is narrow and the tip of the tongue is near the lower teeth: *š'šk^a, only.*

š A hissing surd articulated with the tip of the tongue against the lower teeth. The air passage is narrow and without stop: *wa'mš^a, bull-head.*

č Like *ch* in *chill, cheap, church*. The articulation is with the ridge of the tongue behind the upper alveolar while the blade is near the lower alveolar: *tcč'sčč^a or tcčstčč^a, heavens and earth!*

t A pure dental surd articulated with the point of the tongue against the upper teeth and with sudden stress: *teščpišaw^a, he whirls round.*

d A dental articulated in the same place as *t*, but delayed and with less stress. It leaves the impression of almost a voiced stop: *médšw^a, ten.*

^{'t} A dental surd differing from *t* only in the fact that an audible hiss is expelled just previous to a full stop: *mč'tš^a, how.*

l A lateral liquid sometimes heard in careless speech. It often replaces the nasal *n* after *u*, *u*, and the dull *q*. The point of the tongue articulates softly with the upper alveolar, the friction being so slight that the sound has much the nature of a vowel. It is like *l* in *variable*: *wa'bigu'ū^a for wa'biguū^a, mouse.*

n Not quite like the *n* in English, the difference being in the mode of articulation, which is with the point of the tongue at the base of the upper teeth: *ni'n^a, I.*

m A bilabial nasal consonant like *m* in English: *miu^a, this.*

p A surd like the sharp *p* in English; it is made with complete closure and the stop usually breaks with a slight puff of breath: *pyā'w^a, he comes.*

b A bilabial stop with almost the value of a sonant; it differs from *p* in being dull and having less stress. The lips close and are momentarily sustained as if for a sonant, but break the stop with a breath: *wā'ban^a, morning light.*

ʔ Like *p* but with the difference of having first to expel a puff of breath before coming to complete closure: *ʔ*ʔyātē, *when he came*.

ɣ Like the voiced spirant *y* in *you, yes*. It is uttered without stress: wēʔtēprāni, *whence I came*.

w Bilabial liquid like the English *w* in *war, water*: wātōʔgēndā, *at their dwelling place*.

A tabular view of the consonants can thus be shown:

	SUBD.	SPIRANT.	NASAL.	LABIAL.
Glottal	ʔ	—	—	—
Post-palatal	k, g	—	—	—
Palatal	ʔ	—	—	—
Alveolar	—	c	—	—
		s	—	l
Dental	t, t', d	ts, tc	n	—
Labial	p, p', b	—	m	—
		h, w, y	—	—

Vowels

ā As the vowel sound in words like *loom, yule, you*, and *clue*. It is long and slightly rounded; the ridge of the tongue is high and back, and the lips and teeth have a thin opening: ā'wiyā, *somebody*.

u Like the *u* sound in *full* and *book*. The vowel is short, open, and faintly rounded. It is the short of ā: pyē'usāw, *he comes walking*.

o As *o* in words like *no, slope, rose*. The vowel is long and slightly less rounded than ā; the ridge of the tongue is not so high and not so far back as for ā: ā'māw, *henry*.

ə Like *o* in *fellow* and *hotel*. It is the short sound of *o*: nōtā'geswa, *he is heard*.

a Like the short vowel sound in words like *not, plot, what*. The vowel suffers further shortening in final syllables; it is uttered with the ridge of the tongue drawn back; the lips are passive: nābusāw, *he can walk*.

ē Like the vowel sound in *run, hut*; it is short, dull, unrounded, and made with the ridge of the tongue slightly lifted along the front and back: mēn, *this*.

ā As in the broad vowel sound of words like *all, wall, law, awe*. The ridge of the tongue is low and pulled back almost to the uvula; the lips make a faint attempt to round: wā'bamōt, *mirror*.

ā As in the vowel sound of words like *father, alm*. The tongue lies low, back and passive; the lips open listlessly and only slightly apart: māhan, *these*.

ā Longer than the *a* in *sham, alley*. The *ā* in German *dār* is probably more nearly akin. It is broad and made with the tongue well forward; the opening of the lips is slightly wider than for *ā*; the quantity is in fact so long as to be diphthongal. The first part of the sound is sustained with prolonged emphasis, while the second is blurred and falling. The character of this second sound depends upon the next mold of the voice-passage: mā'nāw, *there is much of it*.

ē Like the *a*-sound in *tale, ale, late*. It is made with the ridge of the tongue near the forward part of the palate; the lips open out enough to separate at the corners, but the rift there is not clear and sharp: nāh, *hark!*

ē Like the vowel sound in *men, led, let*. It is a shorter sound of *ē*: pēm, *oil, grease*.

i With much the character of the diphthong in words like *see, sea, tea, key*. It is the most forward of all the vowels; the opening of the lips is lifeless: *ni'n*, I*.

i Like the *i* in *sit, miss, fit*. It is the short of *i*; it is even shorter as a final vowel: *âicimic*, just as he told me*.

Diphthongs

Not more than two vowels combine to form a diphthong. Stress is stronger on the leading member and movement of the voice is downward from the first to the second vowel:

ai Like the diphthong in *my, I*: *âi'kwîw*, he is tired*.

ai Like the diphthong in *turn*, with the *r* of the word slurred: *âsâi, skin*.

ei Like the diphthong in *day, play*: *nahet, now then!*

âi Like the diphthong in *sail, boy*: *mâ'îulhwâw*, he went at him*.

au Like the diphthong in *shout, bout*: *han, hello!*

ou Like the diphthong in *foe, toe*: *pyânou, come here!*

The analysis brings out certain essential features. In the first place there is a preponderance of forward sounds. There is lack of sharp distinction between *k, t, p*, and their parallels *g, d, b*. The first set leave no doubt as to their being unvoiced sounds; their acoustic effect is a direct result of their organic formation. The same is not true with the second set; they form for voiced articulation, but their acoustic effect is plainly that of surds; when the sonant effect is caught by the ear it is of the feeblest sort. Sometimes *l* is substituted for *n* in careless speech. Vowels are not always distinct, especially when final. There is weak distinction between *w* and *y*, both as vowel and as consonant.

Externally the language gives an impression of indolence. The lips are listless and passive. The widening, protrusion, and rounding of lips are excessively weak. In speech the expiration of breath is uncertain; for instance, words often begin with some show of effort, then decrease in force, and finally die away in a lifeless breath. Such is one of the tendencies that helps to make all final vowels inaudible; consequently modulation of the voice is not always clear and sharp.

The same lack of clearness and indistinctness is carried out in continued discourse, in fact it is even increased; enunciation is blurred and sounds are elusive, yet it is possible to indicate something of the nature of *length, force, and pitch* of sounds.

Quantity

Vowels vary for length, and in the analysis of sounds they have their phonetic symbols indicating quantity. A vowel with the sign $\bar{}$ over it is long, as \bar{o} , \bar{u} , \bar{a} , and \bar{i} , and a vowel without the sign is short. Some vowels are so short that they indicate nothing more than a faint puff of breath. The short, weak quantity is the normal quantity of the final vowel, and for that reason is in superior letter, as \bar{a} , \bar{i} . Rhetorical emphasis can render almost any vowel long,—so long that the vowel sound usually develops into a diphthong, as $\bar{a}gw\bar{e}i$, *why, no, of course!* from $\bar{a}gw\bar{i}$ *no*.

Change of quantity is often due to position. Long vowels are likely to suffer loss of quantity at the beginning of long combinations: $\bar{n}\bar{a}'k\bar{a}$ *again*, becomes in the phrase $\bar{n}\bar{a}'k\bar{a}t\bar{c}\bar{a}m\bar{e}g\bar{u}t\bar{a}t\bar{a}g\bar{i}$ *again it certainly seemed as if*. Long vowels also shorten when placed before a stressed syllable: $\bar{a}'k\bar{i}g\bar{i}$ *on the ground* becomes $\bar{a}'k\bar{i}g\bar{a}'h\bar{i}n\bar{a}b\bar{i}t\bar{c}$ *when he looked down at the ground*.

Diphthongs undergo change of quantity. The accent of a diphthong slides downward from the first vowel, and the loss when it comes is in the breaking off of the second member: $\bar{a}sa'$ *buckskin*, $\bar{n}\bar{e}tas\bar{a}m'$ *my buckskin*.

Consonants show evidence of quantity also. In general the quantity is short but the length of time between the stop and break in g , d , and b is noticeable, so much so that the effect of a double sound is felt. As a matter of fact g stands for a double sound. The first part is an articulation for an inner k and in gliding forward comes to the place for g where the stoppage breaks. Assimilation tends to reduce the double to a single sound. Nasal sonant m and n sound double before accented i : $m\bar{i}'m\bar{i}w\bar{a}$ *pigeon*, $\bar{n}\bar{i}'na$ *I*.

A syllable consists (1) of a single vowel sound, \bar{a} ; (2) of two or more vowels joined together into a diphthong, $\bar{w}\bar{a}i$, *what?*; and (3) of a vowel sound in combination with a single consonant or a cluster of consonants, the vocalic sound always following the consonant: $\bar{n}\bar{i}'t\bar{c}i$, *my kind*. Two or more vowels coming together, no two of which are in union as a diphthong, are broken by an interval between: $\bar{a}h\bar{i}w\bar{a}t\bar{c}i$ *so they said*.

Stress

Force is but another name for stress and indicates energy. It is not possible to lay down definite rules for the determination of stress in every instance, and it is not always clear why some syllables are emphasized at the expense of others. Generally, in words of two syllables, stress accent falls on the first: *ki'n* thou*; for words of three syllables stress falls on the antepenult: *kwí'yen* sufficiently*. Beyond words of three syllables only the semblance of a rule can be suggested. The chief stress comes on the first or second of the initial syllables, and the secondary stress on the penult; the syllables between follow either an even level or more often a perceptible rise and fall alternating feebly up to the penult. In accordance with its rising nature the principal stress can be considered as acute (´), and in the same manner the fall of the secondary stress can be termed as grave (`). The sonorous tone of the voice on the penult is marked, due perhaps to the extreme brevity of the final, inarticulate vowel. The feature of the sonorous penult is apparent in extended combinations like phrases and sentences, especially when movement is swift at the start, and, gradually slowing up on the way, brings up at the syllable next to the last with a sustained respite which ends with a sudden break into the final vowel. The arrival on the penult creates one or two effects according as the syllable is long or short. If the quantity is long, the vowel is sung with falling voice; if short, the vowel is brought out with almost the emphasis of a primary stress accent.

This makes a fairly normal order for stress in a single group standing alone; but it suffers interference in the spoken language where the measure of a syllable for special stress often becomes purely relative. The stress on one syllable brings out a certain particular meaning and on another gains an effect of a different sort. Stressing the stem of *wa'baminu look at me* exaggerates the idea of *look*; stressing the penult *-mi-*, the syllable of the object pronoun, centers the attention on that person; and stressing the final member *-nú thou* makes the second personal subject pronoun the object of chief concern.

Special stress often splits a vocalic sound into two vowels of the same or a different kind. This is common in the case of pronouns,

in words of introductive import, in vocatives of spirited address, and in cries calling at a distance: *í'm*¹ for *í'n*¹ *that*; *nahei* for *nahi hark*; *neniwetigéi* for *neniwetig*^a *O, ye men!*; *pyagó*^a for *pyá'k*^a *come ye*.

Pitch

This Algonquian dialect does not fall wholly in the category of a stressed language. Pitch is ever present in a level, rising, or falling tone. The effect of pitch is strong in the long vowels of the penult. Temperament and emotion bring out its psychological feature. For instance, pride creates a rising tone and a feeling of remorse lets it fall. In the sober moments of a sacred story the flow of words glides along in a musical tone; the intonation at times is so level as to become a tiresome monotone; again it is a succession of rises and falls, now ascending, now descending, and with almost the effect of song. In general, the intonation of ordinary speech is on a middle scale. The tone of men is lower than that of women and children.

Pronunciation

Most of the vowels are easy enough to pronounce. Articulation of consonants offers little or no difficulty, unless perhaps it is to hold the point of the tongue on the upper teeth for *n*, *t*, and *d*, and on the lower for *s*, *c*, *tc*, and *ts*. The language is not fond of consonant clusters. In the list that follows are shown about all of the various combinations. Most of them are with *w* and *y* and so are not types of pure clusters of consonants:

Consonant Combinations

kw	<i>ku'yen</i> ^a <i>exactly</i> .	bw	<i>ábwátcigān</i> ¹ <i>roasting-spit</i> .
gw	<i>á'gw</i> ¹ <i>no</i> .	ky	<i>kekyā'nenāmw</i> ^a <i>he holds it</i> .
'kw	<i>í'kwāw</i> ^a <i>woman</i> .	gy	<i>úgyān</i> ¹ <i>his mother</i> .
hw	<i>keci'kahwāw</i> ^a <i>he stabs him</i> .	'ky	<i>á'kyān</i> ¹ <i>lands</i> .
'hw	<i>mā'hwāw</i> ^a <i>wolf</i> .	cy	<i>mé'tegumicyān</i> ¹ <i>oaks</i> .
sw	<i>médāsū</i> ¹ <i>ten</i> .	my	<i>myā'w</i> ¹ <i>road</i> .
cw	<i>mécwā</i> ^a <i>rabbit</i> .	ny	<i>nyā'w</i> ¹ <i>four</i> .
tw	<i>á'tw</i> ¹ <i>ouch!</i>	py	<i>pyā'w</i> ^a <i>he comes</i> .
mw	<i>ámwāw</i> ^a <i>he eats him</i> .	'py	<i>ā'pyāt</i> ¹ <i>when he comes</i> .
nw	<i>nó'tenn</i> ¹ <i>wind</i> .	sk	<i>cā'sk</i> ¹ <i>only</i> .
pw	<i>pwā'w</i> ¹ <i>not</i> .	ck	<i>mácicki'w</i> ¹ <i>grass</i> .
'pw	<i>ú'pwāgān</i> ¹ <i>pipe</i> .	stc	<i>tcistcā</i> ^a <i>my stars!</i>

SOUND CHANGE

ACCRETION

In the course of word-formation phonetic elements are taken on that have the impress of mere accretions. The additions are the result of various causes: some are due to reduplication, some to accent, and others act as glides between vowels and as connectives between unrelated portions of a word group. Instances of the accretion of some of these phonetic elements are next to be shown.

A syllable usually in the initial position is sometimes repeated by another which precedes and maintains the same vowel sound. The repetition is in fact a reduplication:

ʔni wāyātūgemēg⁸ and so in truth it may have been, for ʔni yātūgemēg⁹.

It is not always clear if some accretions are but glides passing from one sound to another or only additions to aid in maintaining stress accent on a particular syllable. The syllable *hu* is a frequent accretion in dependent words and occurs immediately after the temporal article *ā*:

āhugūkahigāwātē¹ when they made a bridge is the conjunctive for *kūkahigāwāg¹ they made a bridge.*

āhukēpiskwātawāhōniwētē¹ which they used as a flap over the entry-way is a subordinate form of *kēpiskwātawāhōnamōg¹ they used it for a flap over the entrance.*

Other additions, like *h*, *w*, *y*, are clearly glides:

āhutē¹ whence he came, the independent form of which is *ūtē¹ he came from some place.*

āhunāpāmītē¹ when she took a husband, a temporal form for *unāpāmītē¹ she took a husband.*

ōwīwān¹ his wife, from *owī-ani.*

owī¹ tāwān¹ his brother-in-law, from *owī-tā-ani.*

ketāsīyūtāw¹ he crawls up hill, from *ketāsī-ūtāwa.*

kīyāwāw¹ he is jealous, from *kī-āwāwa.*

A frequent type of accretion is *w* or *y* with *k* forming a cluster:

tcā¹kwiwināw¹ he is short-horned, from *tcagi-wināwa.*

tcā¹kwapāw¹ it is short, from *tcagi-āpyāwi.*

sās'gā'kyāw* *he scattered it*, which is just the same in meaning as sās'gā'kāw*.

Intervocalic Consonants

The most common accretion is *t*.¹ It falls in between two vowels, each of which is part of a different member in a word-group. Examples:

Between <i>i</i> and <i>e</i> :	ā'kwitepyāg ¹	<i>top of the water.</i>
<i>e</i> and <i>a</i> :	netā'panān ¹	<i>I laugh.</i>
<i>a</i> and <i>o</i> :	ā'watōw*	<i>he carries it away.</i>
<i>o</i> and <i>ā</i> :	pi'tōtāw*	<i>he crawls in.</i>
<i>ā</i> and <i>u</i> :	pyā'tusāw*	<i>he came walking.</i>

When the vowel of the second member is *i*, then *t* usually becomes *tc*:

Between <i>i</i> and <i>i</i> :	pī'tcisāw*	<i>it (bird) flew in.</i>
<i>a</i> and <i>i</i> :	kepātcigān ¹	<i>cork, stopper.</i>
<i>ā</i> and <i>i</i> :	kugwātcisāw*	<i>it (bird) tries to fly.</i>
<i>ā</i> and <i>i</i> :	kiwātcitāhāw*	<i>he is lonely.</i>

Sometimes *n* has the value of an intervocalic consonant. It often occurs immediately after the temporal article *ā*:

ānā'batāg¹ *when he saw it*, the independent form of which is wā'batāmw* *he sees it.*

tcāgānā'towātcig¹ *people of all languages*, a participle with the elements of tcāg¹, *all*, ā having the force of the relative pronoun *who*, and ā'towāwāg¹ *they speak a language.*

Sometimes *n* occurs between vowels much after the fashion of *t*:

Between <i>ā</i> and <i>e</i> :	myā'negāw*	<i>he dances poorly.</i>
<i>ā</i> and <i>e</i> :	upyā'nesiw*	<i>he is slow.</i>

It looks as if *s* plays the same rôle as *t*, *tc*, and *n*, but on a smaller scale. Instances of its use are:

Between <i>e</i> and <i>i</i> :	asā'westw*	<i>he is yellow.</i>
<i>i</i> and <i>ā</i> :	pyā'tcisāw*	<i>he came in flight.</i>
<i>a</i> and <i>ō</i> :	nēmasōw*	<i>he is standing up.</i>
<i>u</i> and <i>ā</i> :	pyā'tusāw*	<i>he came walking.</i>

¹ *t* serves as a connective in an inanimate relation and will be mentioned again.

In these examples *s* has an intimate relation with the notion of animate being. It will be referred to later.

The consonant *m* is sometimes an intervocalic element :

nanāhicimāw*	he carefully lays him away.
pānenāmw*	he dropped it.

Other functions of *m* will be mentioned farther on.

Some consonants interchange one with another. The process is marked among those with forward articulation. *S* and *c* interchange in :

mése'kwāw*	she has long hair.
mécāw ¹	it is large.
Māresibōw ¹	large river, name for the Mississippi.
mēcimin*	large fruit, word for apple.

t and *c* interchange :

mé'tahwāw*	he shot and hit him.
mécwāw*	he shot and hit him.

t and *s* interchange :

né'tamawāw*	he killed him for another.
nésāw*	he killed him.

Assimilation between Independent Groups

Assimilation is a frequent factor in sound change. Instances will first be shown in the case of compounds where the process works between independent words. The final vowel of a word coalesces with the initial vowel of the next, with results like the following :

<i>a</i> becomes <i>ā</i> :	nī'nāclit*	I in turn, for nī'na ācit*.
<i>a</i> becomes <i>ā</i> :	nā'kāpyātci ¹	again he came, for nā'k āpyātci ¹ .
<i>i</i> becomes <i>a</i> :	pyā'wagayō ¹	they came to this place, for pyā'wag ¹ ayō ¹ .
	nā'gawā'klw ¹	it is a sandy place, for nā'gaw ¹ ā'klw ¹ .
<i>i</i> becomes <i>ā</i> :	itēpāhātci ¹	he goes there, for itēp ¹ ā'hātci ¹ .
	nēpā'nātēg ¹	they go to fetch water, for nēp ¹ ā'nātēg ¹ .
<i>i</i> becomes <i>i</i> :	kāciw*?	what does he say? for kāci ¹ iw*?
	ī'nīpiyōw*	so it was told of yore, for ī'nīp ¹ iyōw*.
<i>i</i> becomes <i>a</i> :	nā'waskūt*	in the center of the fire, for nā'w ¹ āskūt*.
	āgwāmātcin ¹	he did not eat it, for ā'gw ¹ āmwātcin ¹ .

i becomes *ā* : *āē'gāpē** and often, for *āē'g'āpe**.

wātcā'gwi nenān the reason why I did not tell thee, for
wā'tc'āgwīnenān'.

i becomes *u* : *negutū'kāteg'* on one of his feet, for *negut'ū'kāteg'*.

tcī'gepyāgātē' away from the edge of the water, for
tcīgepyāg'ūtē'.

The two vowels in contact may assimilate into a diphthong :

a and *a* becomes *ai* : *nēcī'kaiyō'* alone here, for *nēcī'k'āyō'*.

The result of the assimilation of two vowels may produce a sound different from either :

e and *a* become *ā* : *pyā'nutawitāy** if he should come to me here, for *pyā'nutawit'āyō'*.

i and *a* become *ā* : *mātacī'kitcāy** he might overtake me here, for *mātacī'klitc'āyō'*.

Assimilation between Dependent Groups

Assimilation between contiguous words is usually in the nature of the first sound suffering loss either by absorption or substitution. In much the same way does assimilation act between members that make up a word-group. But in an attempt to illustrate the process there is an element of uncertainty which lies in the difficulty to account for the absolute form of each component, for many members of a composition seldom have an independent use outside of the group. They occur in the composition only, and in such way as to adjust themselves for easy euphony; and in doing so often conceal either an initial or a final part. Nevertheless, hypothetical equivalents are offered as attempts at showing what the pure original forms probably were. Hyphens between the parts mark the places where probable changes take their rise :

i and *e* become *e* : *pēmegāw** he dances past, from *pēmī-egāw**.

i and *ā* become *ā* : *mānetōwāgēn'* sacred garment, from *manetōwi-āgēn'*.
cō'skwāgēn' smooth cloth, from *cōskwi-āgēn'*.

i and *a* become *a* : *pemahogōw** he swims past, from *pēmī-ahogōw**.
*tāgwahōtōw** he is trapping, from *tagwi-ahōtōw**.

i and *ā* become *ā* : *maciskiwāpōw'* tea i. e. herb fluid, from *māciskīwi-āpōw'*.

wickūpāpōw' wine i. e. sweet fluid, from *wickupī-āpōw'*.

- i* and *ā* become *ā*: *ānemāskāw*¹ *it fell the other way*, from *anemi-āskāw*¹.
i and *ō* become *ō*: *pēmōtām** *she passes by with a burden on her back*, from *pemi-ōtam**.
i and *u* become *u*: *pēmūsāw** *he walks past*, from *pemi-usāw**.
i and *ū* become *ū*: *pēmūtāw** *he crawls past*, from *pemi-ūtāw**.

Assimilation occurs between sounds not contiguous:

*kicwini'cwihāw** *after he had two*, for *kicini'cwihāw**.

A vowel drops out and a vocalic consonant as a glide takes its place, the change giving rise to a cluster made up of a consonant and a semivowel:

- i* drops out: *ā'wāpwāgesitc*¹ *then she began to wail*, from *āwāpi-wāgesitc*¹.
*ā'kyāwāt*¹ *and he grew jealous*, from *ā'ki-yāwāt*¹.
o drops out: *āwā'wiswāt*¹ *he singed his hair*, for *āwāwiso-'wāt*¹.
u drops out: *ās'iswāt*¹ *she fried them*, from *ās'isu-'wāt*¹.

Dissimilation

Vowels often undergo dissimilation. A very common change is *o* or *u* to *wā*. The process takes place in the formation of participles from words having *o* or *u* as initial vowels:

- ūtciw** *he came thence*; *wā'tcit** *he who came thence*.
*ūtō'kīm*¹ *his land*; *wā'tō'kiml** *he who owns land*.
*ūgwisān*¹ *his or her son*; *wā'gwislta* *one who has a son*.
*ū'kāt*¹ *his foot*; *wā'kāt*¹ *one that has feet*, name for a bake oven.
*ūw'win*¹ *his horn*; *wā'wiwinā*¹ *one with small horn*.

The vowel *u* becomes *wā* when preceded by a consonant:

- kāsīgāw** *she plays at dice*; *kwā'sīgāt** *she who plays at dice*.
*nūwīw** *he goes outside*; *nwā'wīwāpē** *he always goes outside*.

The vowel *u* can also become *wā*:

- uwī'gewāw*¹ *their dwelling place*; *wāwī'gewāg*¹ *at their dwelling place*.

Elision plays an important part in sound change. It occurs at final and initial places and at points inside a word-group. The places where the process happens and the influences bringing it about are shown in the examples to follow.

Words sometimes suffer loss of initial vowel:

- skotāg*¹ *in the fire*, for *āskotāg*¹.

- töckótāmwaġ¹ *at their fire, for utöckótāmwaġ¹.*
 kwiġāġō¹ *nothing, for āġwiġāġō¹.*
 nāġwātċ¹ *then he started away, for ānāġwātċ¹.*

The loss often includes both initial consonant and vowel :

- cwā'cig^a *eight, for a nēcwācig^a.*
 a'kānigtēġw¹ *all day long, for nē'kānigtēġw¹.*

The second member of a consonant cluster frequently drops out :

- ā'pā'wināwātċ¹ *when he did not see him, for ā'pā'wināwātċ¹.*
 pēmūtām^w *he shot at it, for pēmūtām^w.*

The elision of *n* takes place before some formative elements :

- ā'pāġicig¹ *when it (a bird) lit, a subordinate form of pāġicig¹ it (a bird) lit.*
 nanā'hicimā^w *he laid him away carefully, while nanā'hicimā^w is he fixed a place to lie down.*

To slur over a syllable frequently brings about the loss of the syllable. In the instance below, the stressed, preserved syllable moves into the place made vacant and becomes like the vowel that dropped out :

- āċ¹ *take her along, for āwāċ¹.*
 ā'wāpatāhogūtċ¹ *then he started off carrying her on his back, for ā'wāpatāhogūtċ¹.*

The second part of a stem often suffers loss from the effect of having been slurred over :

- kiwāiyātċ¹ *after he had gone, for ki'ciwāiyātċ¹.*
 ki'ke'kā'nemātċ¹ *after he had learned who he was, for ki'ci'ke'kā'nemātċ¹.*
 ā'pā'wāwātċ¹ *when he did not see him, for ā'pā'wināwātċ¹.*
 ā'pā'camātċ¹ *when he did not feed him, for ā'pā'wicāmātċ¹.*

To slur over part of a pronominal ending causes loss of sound there :

- uwi'nemō³ *his sisters-in-law, for uwinēmōhā¹.*

Removal of the grave accent one place forward causes elision of final vowel :

- ne'kānitepē'k¹ *all night long, for ne'kānitepē'kiw¹.*

The pronominal ending of a noun drops out in composition :

- penāmūw* *he imitated the turkey call, from penāwa-mūwa.*
 mā'hwāmūw* *he imitated the cry of the wolf, from mā'hwāwa-mūwa.*
 kiutū'gimā'mipēn* *thou wilt be our chief, in which is the noun ugimāw* chief.*

The pronominal ending of a verb elides before a modal suffix :

- natunā'hwātūg* *he may have sought for him, the primary mood of which is natunā'hwāw* he seeks for him.*
 pyā'gwān' *he must have come, the primary mood of which is pyā'w* he came.*

Suffixes help to bring about other changes in the pronominal endings. A frequent suffix causing change is *-gi*; in some instances it denotes location, in others it is the sign for the animate plural. The suffix conveys other notions, and wherever it occurs some change usually happens to the terminal pronoun. One is the complete loss of the possessive ending *ni* before the suffix with the force of a locative. At the same time the vowel immediately in front of the suffix becomes modified :

- ō'san' *his father*; ō'seg' *at his father's (lodge).*
 ū'kātān' *his foot*; ū'kātēg' *at or on his foot.*

Another change before *-gi* is that of a pronoun into an *o* or *u* with the quantity sometimes short but more often long. The change is usual if the pronoun follows a sibilant or *k*-sound :

- ūwānāgu' *hole*; uwā'nagōg' *at the hole.*
 mā'ka'ku' *box*; mā'ka'kūg' *at or in the box.*
 mē'tegu' *tree*; mē'tegūg' *at the tree.*
 ki'cesw' *sun*; ki'cesōg' *at the sun, suns.*
 nēnusw' *buffalo*; nēnusōg' *buffaloes.*

The suffix *-gi* affects inanimate nouns ending in the diphthong *ai*. The first vocalic member lengthens into *ā* and the second drops out :

- ūpiskwa' *bladder*; ūpiskwāg' *on or at the bladder.*
 utāwaga' *ear*; utāwagāg' *at or in the ear.*

The change of the pronominal ending into an *o* or *u* occurs in a similar manner before *ni*, a suffix sign of the inanimate plural :

- ūwānāgu' *hole*; uwā'nagōn' *holes.*

má'ka'kwá box;

mé'tegwá tree;

má'ka'kôná boxes.

mé'tegôná trees.

A k-sound stands before the terminal *wa* of some animate nouns. To shift an *o* into the place of the *w* is a device for creating a diminutive:

má'kwá bear;

ácaskwá muskrat;

cégágwá skunk;

má'kôá cub.

ácaskôá a little muskrat.

cégáôá should be the proper diminutive, but it happens to be the word for onion, while kitten skunk is cegá'-gôhá, a sort of double diminutive.

The substitution of *o* or *u* for *w* occurs with great frequency:

pá'gwáwá it is shallow;

nícwá'kwāwāgá two women;

méckwá blood;

wí'pegwáwá it is blue;

pá'gônégá the place of shallow water,
the name for St Louis.

nícô'kwāwāwá he has two wives.

méckusíwá he is red.

wí'pégusíwá he is blue.

COMPOSITION

Most that has gone before has been taken up chiefly with the question of sounds. The object has been to show what sounds the language used, how they were formed, and to indicate some of the forces that governed sound change. The purpose next is to examine the units which the sounds render intelligible and point out something of the way they arrange themselves in the formation of words. It would perhaps be more correct to use the term *sentence* instead of *word*, because the combined effect of all the elements in a combination is really that of a sentence or an approach to something more like a sentence. Nevertheless, word, word-group, word-formation, and similar terms will often be used, and their contents will always indicate how far they are sentences and how much they lack of being sentences.

The method of forming word-groups is by composition. In the formation of a group component members follow an orderly sequence; the position of each member is determined by the kind of idea it signifies. Every member is expressive of an abstract idea; the idea may be some activity of space, or condition. These com-

ponent elements fall into two general categories — formatives and stems.

Formatives

Formatives make up two classes, pronominal and morphologic. Some formatives are prefixes, but most are suffixes. Some pronominal formatives indicate gender — the terminal *-a* for an object possessing the combined qualities of life and motion, and the terminal *-i* for an object without those attributes. Thus:

pyā'wa <i>he comes</i> ;	pyā'migātwi <i>it comes</i> .
ineniwa <i>man, he is a man</i> ;	ineniwi <i>bravery, it has the quality of man-</i>
ānemō'a <i>dog</i> ;	ā'ki <i>earth</i> . [hood.

The distinction runs through the whole language and every verb and noun must fall in one or the other class. Forms ending in *-a* are termed animate and those ending in *-i* inanimate. The distinction between the two opposing groups is not rigidly maintained, for often an object regularly inanimate is personified as having life and so takes on an animate form. But permanent forms of lifeless objects having an animate ending cannot always be explained by personification. The breaking down of the contrast is best seen in the names of plants; logically they fall into the inanimate class, but many are used as animate forms, like ādāmin* *corn*, āsāmāw* *tobacco*, mēcimin* *apple*.

Formatives of the morphologic class have a different function. They are sometimes prefixed, but more usually are suffixed. Among the notions they convey in the verb are those of mood and manner, as *-tug** in pyā'tug*, *he probably came*, which conveys the notion of doubt or uncertainty; while *-āpe** in pyā'wāpē*, *he is in the habit of coming*, expresses the frequency or repetition of an act. Formatives are also instrumental not merely in the formation of nouns but in giving to the nouns they form the quality of distinctive designation. Thus *-mina* in ādā-min* *corn* denotes *fruit, grain, berry*; and *-gani* in pā'skesigan' *gun*, literally *exploder*, is expressive of *tool, implement, instrument*.

Stems

Initial Stems, Secondary Stems, and Secondary Stems of the First and Second Order.

Stems may be divided into initial and secondary members. Initial stems always precede the secondary and are capable at times of standing alone with the office of adverbs. Some instances are, *útc¹ whence*, *íc¹ hence*, *tagw¹ together*. Furthermore, an initial stem can enter into composition with only a formative and express an independent statement, though not always with exact sense: *útciw⁴* means that *one has come from some place*.

Two or more initial stems follow in a definite order: *wā'pusāw⁴* *he begins to walk*; *wāpi-* is the initial stem meaning 'to begin' and *-usā-* is a secondary stem expressing 'walk.' *wā'pipyā'tusāw⁴* *he begins to approach on the walk*; *pyā-* between *wāpi-* and *-usā-* is another initial stem meaning 'movement hither.' *wā'pipyātcitēp-usāw⁴* *he begins to approach walking in a circle*; *tetep-* is a new initial stem conveying the notion of movement in a circle.

The consecutive order of initial stems with reference to a secondary stem depends much on the sort of notions they convey. An initial stem takes its place next to a secondary stem because the notion it implies is of such a nature as to combine easily with the notion of a secondary stem to form an added sense of something more definite and restricted. It is as if both initial and secondary stems were modifiers of each other. An initial stem coming before another initial stem in combination with a secondary stem stands toward the group in much the same relation as if the group were a simple secondary stem. The place of an initial stem is at the point where the idea it expresses falls in most appropriately with the mental process of restricting and making more definite the sense of the whole group.

A secondary stem, on the other hand, never occurs alone but is found usually between an initial member and a formative, or else, but much less often, in conjunction with only a formative. In a combination like *tā'wicinw⁴* *he fell and hurt himself*, *tāwi-* is initial and denotes *pain*, while *-cin* is secondary and expresses the notion of coming to a state of rest. In the word *tci'mān¹* *canoe* is a less frequent example of a secondary stem occupying first place. The stem *tci* or *tcim* comes from a secondary element indicating move-

ment in water, and the rest of the word is a suffix denoting abstraction, both together referring to the object used for going through water.

Just as a regular system of arrangement determines the position of initial stems before secondary stems, so the same sort of order places the representatives of one group of secondary stems before those of another group. This peculiar method of arrangement rests largely on the nature of the ideas expressed by the stems. It makes possible a further division of stems into secondary stems of the first order and secondary stems of the second order.

Secondary stems of the second class always stand nearest to the terminal pronominal signs: *-usā-* in *wāpusāw** *he begins to walk* is a secondary stem of the second class. Some secondary stems of the first class, however, can occupy the same place, but only when a secondary stem of the second class is absent: *tcāgānāgetūnw** *he has a small mouth* contains two secondary stems of the first class; one is *-nag-* which expresses the notion of cavity, the other is *-tun-* which refers to the idea of space round about a cavity and is a term applied to the lips and mouth. A further division of secondary stems of the first class might be suggested in which *-nag-* would represent one class and *-tun-* the other; *-nag-* belongs to a more stationary type which always stands next to initial stems when there are other secondary stems in composition, and *-tun-* belongs to a more mobile kind. The latter type is frequent in nominal form: *ūtōn'* *mouth*, literally *his mouth*. In *kīwēskwāpyāw** *he is drunk* is illustrated two types of secondary stems: *kīwe-* is an initial stem meaning indefinite movement anywhere; *-skwā-* is a secondary stem of the first class denoting the neck and back of the head; and *-pyā-* is a secondary stem of the second class expressive of a subtle, attributive condition. A fuller and more correct rendering of the combination would be something like *he is in a state of aimless movement in the region about the neck and head*.

The foregoing is a brief survey of the method of word combination, yet perhaps ample enough to give a fairly definite impression of the nature of the process. The next will be a short detailed account of the various types of stems that are fused together in the expression of thought. In order to give a nearer insight into the

system of composition it seems necessary to go into some description of the stems themselves. Not all the component parts of an expression will be taken up at the same time, but only such as are for the moment under discussion. For instance, first in the order will come initial stems, then secondary stems of the first class, and then secondary stems of the second class. Each stem will be given with a definition indicating briefly and as nearly as possible the exact nature and scope of its meaning; but the combination that includes the stem will be given a free idiomatic rendering which will go for a translation of the whole as it stands in coördination.

Examples of Initial Stems

The examples to follow first treat of initial stems; the number of them is large and the ideas they express are of great variety.

kī- indicates the general notion of indefinite movement round about, here and there:

<i>kī'wisāw*</i>	<i>it, (a bird), flies round about.</i>
<i>kī'witcimāw*</i>	<i>he swims round about.</i>
<i>kī'weskāw*</i>	<i>he goes a-journeying somewhere.</i>
<i>kī'wāmōw*</i>	<i>he sought safety here and there. [another.</i>
<i>kīwā'bamāw*</i>	<i>he went about looking at one and then</i>

pem(i)- expresses the notion of movement by, past, alongside:

<i>pēmēkāw*</i>	<i>he passes by.</i>
<i>pēmegāw*</i>	<i>he dances by.</i>
<i>pēmināgāw*</i>	<i>he passes by a-singing.</i>
<i>pēmipahōw*</i>	<i>he passes by on the run.</i>
<i>pēmūtāw*</i>	<i>he crawls past.</i>

pem(i)- comes to have the force of an inchoative:

<i>pēmūsāw*</i>	<i>he started off on a walk.</i>
<i>pēmwāgesiw*</i>	<i>she began to wail.</i>

pyā- signifies movement hitherward:

<i>pyā'w*</i>	<i>he comes.</i>
<i>pyā'taciw*</i>	<i>he fetches home game.</i>
<i>pyā'té'kwāwāw*</i>	<i>he brings home a wife.</i>
<i>pyā'tāskāw*</i>	<i>it falls this way.</i>
<i>pyā'tciné'kawāw*</i>	<i>he comes driving them home.</i>
<i>pyā'twāwā'migātw*</i>	<i>it comes a-roaring.</i>

pl(t)- conveys the sense of movement into an enclosure :

<i>pl'fāsēnw'</i>	<i>it blows inside.</i>
<i>pl'fciwēnāw*</i>	<i>he leads him within.</i>
<i>pl'fā'hwāw*</i>	<i>he buries him.</i>
<i>pl'figāw*</i>	<i>he enters.</i>

cōsk- is used in several ways. In a special sense it denotes horizontality, straightness :

<i>cō'skā'kusāw*</i>	<i>he walks erect.</i>
<i>cōskā'pyācinw*</i>	<i>he lies at full length.</i>
<i>cō'skāpyāw'</i>	<i>it is straight.</i>

In another sense, closely related to straightness, is one meaning smoothness, lack of friction, ease of movement :

<i>cō'skwāw'</i>	<i>it is smooth, slippery.</i>
<i>cō'skwicīnw*</i>	<i>he slips and falls.</i>
<i>cō'skonāw*</i>	<i>he slips hold of him.</i>

sāg(i)- implies the notion of exposure, manifestation, visibility :

<i>sā'gisēnw'</i>	<i>it sticks out.</i>
<i>sā'gitepācinw*</i>	<i>he lies covered all over except at the head.</i>
<i>sā'giwinā'gāpāw*</i>	<i>but for the tips of his horns he stands shut off from view.</i>
<i>sā'gitepā'hogōw*</i>	<i>he floats with the head only out of the water.</i>
<i>sā'gikumāw*</i>	<i>he exposes his nose to view.</i>

sag(i)- has a transitive force with the meaning of seizing hold :

<i>sagēcānāw*</i>	<i>he holds him by the ear.</i>
<i>saginē'kānāw*</i>	<i>he leads him by the hand.</i>
<i>sagī'pwāw*</i>	<i>he bites hold of him.</i>
<i>sagānē'kwānāw*</i>	<i>he grabs hold of him by the hair.</i>

mīk- conveys the sense of occupation, employment in the performance of some activity :

<i>mī'kēcāwīw*</i>	<i>he works, is busy.</i>
<i>mī'ketām*</i>	<i>he is occupied with a piece of work.</i>
<i>mī'kēmē'kwāwāw*</i>	<i>he goes a-wooing.</i>
<i>mī'kēcīhāw*</i>	<i>he is engaged in an attempt to heal him.</i>
<i>mī'kwā'nemāw*</i>	<i>she dotes upon it — her child.</i>

kōg- refers to an activity with a fluid, most often with water, in which instance is derived the idea of washing :

<i>kōgēnigāw*</i>	<i>she is at work washing clothes.</i>
<i>kōginetcāw*</i>	<i>he washes his own hands.</i>
<i>kōgenāw*</i>	<i>he washes him.</i>
<i>kōgigēnānōw*</i>	<i>he washes his own forehead.</i>
<i>kō'giw*</i>	<i>he mires (in the mud).</i>

kās(i)- denotes the idea of obliteration, erasure, wiping :

<i>kā'sihāmw*</i>	<i>he erases it.</i>
<i>kās'gwāhōw*</i>	<i>he wipes his own face.</i>
<i>kās'gācinw*</i>	<i>he wipes his own foot.</i>

pās(i)- implies the notion of swift, lively contact :

<i>pāsiti'yāhwāw*</i>	<i>she spans him.</i>
<i>pās'gwāhwāw*</i>	<i>he slaps him in the face.</i>
<i>pāsīgūmāhwāw*</i>	<i>he barely grazes his nose.</i>
<i>pāsīmā'sōw*</i>	<i>it (an animate subject) fries.</i>
<i>pāsetāw'</i>	<i>it is hot.</i>

w- expresses the sense of accompaniment, association, companionship :

<i>w' dāmāw*</i>	<i>he accompanies him.</i>
<i>w' tcāwāw*</i>	<i>he goes along, too.</i>
<i>w' pāmāw*</i>	<i>he sleeps with him.</i>
<i>w' pumāw*</i>	<i>he eats with him.</i>
<i>w' kumāw*</i>	<i>he invites him to the feast.</i>

tā(wi)- has to do with the sensation of physical pain :

<i>tā'witēpācinw*</i>	<i>he fell and hurt his head.</i>
<i>tā'witanāsitāgāpāw*</i>	<i>it hurts his feet to stand.</i>
<i>tā'wēkwāw*</i>	<i>his head aches.</i>

nāg(i)- denotes the change from an activity to a rest and is best translated by words like halt, stop, pause :

<i>nāgiw*</i>	<i>he stops moving.</i>
<i>nāgicinw*</i>	<i>he halts on the journey.</i>
<i>nāgipāhōw*</i>	<i>he stops running.</i>

pōn(i)- also expresses the notion of cessation, but with more of the idea of the negative temporal element *no more, no longer* :

<i>pō'negāw*</i>	<i>he is no longer dancing.</i>
<i>pō'nēnagāw*</i>	<i>he has ceased singing.</i>
<i>pō'nēsēnyāw*</i>	<i>he has done eating.</i>
<i>pō'nēpyāw*</i>	<i>he is no longer a drunkard.</i>
<i>pō'nimāw*</i>	<i>he has stopped talking to him.</i>

wāp(i)- signifies the idea of commencement, inception, inchoation :

<i>wāpīnāhusāw*</i>	<i>he is beginning to know how to walk.</i>
<i>wāpīkēmiyāw*</i>	<i>the rain is beginning to fall.</i>
<i>wā'piwī'senīw*</i>	<i>he is starting to eat.</i>

kāsk(i)- implies potency, ability, efficiency, and gets the meaning of success, triumph, mastery :

<i>kāskihāw*</i>	<i>he succeeds in buying him.</i>
<i>kāskimenōw*</i>	<i>he is able to drink.</i>
<i>kāskini'mānām*</i>	<i>he can lift it.</i>
<i>kāskimāw*</i>	<i>he succeeds in persuading him.</i>
<i>kāskināwāw*</i>	<i>he can see him.</i>

kī'c(i)- expresses the completion, the fulfilment of an act :

<i>kī'cāwīw*</i>	<i>he has finished (a task, an undertaking).</i>
<i>kī'cetāw*</i>	<i>it is done cooking.</i>
<i>kī'cī'tōw*</i>	<i>he has finished making it.</i>
<i>kī'cipyāw*</i>	<i>he has already arrived.</i>
<i>kī'cīnepōhiw*</i>	<i>he has since died.</i>

The initial stems that have just been shown represent but a few out of a vast number. The account will pass on to a description of secondary stems, treating first the class that usually come after initial stems. Though secondary stems are not so numerous as initial stems, they nevertheless can fill an extended list.

Examples of Secondary Stems of the First Order

-ākw- relates in a general way to matter at rest and in the form of linear dimension together with an uncertain implication as to its state of hardness. The term is of frequent use, an example of which comes out in the notion of wood, tree, forest :

<i>pe'kwā'kwāwīw*</i>	<i>it is a place of clumps of trees.</i>
<i>pi'gwā'kwāwīw*</i>	<i>a grove stands dense in the distance.</i>

pāgā'kwicinw*	he bumped against a tree, post, bar.
pécigwā'kwátw'	the log, tree, stick is straight.

-nag- expresses the idea of an opening, as of a hole :

pā'kānāgetāw'	the hole gapes open.
māgānāgetūnw*	he has a large mouth.
kūgwānāgucāw*	he has holes pierced in his ears.

-tag- is another characteristic term of uncertain definition. It refers to the idea of color without having reference to light, shade, hue, or any quality attributive of color. It is simply the idea in the abstract :

ketāgesiw*	its color is spotted.
wābā'tāgawāw*	its color is white.
meckwā'tāgawāw*	its color is red.

-nāgu- stands for the idea of look, appearance, resemblance :

pé'kīnā'gusiw*	he looks like a foreigner.
ā'kwā'wināgusiw*	he has an angry look.
kecā'tcinā'gusiw*	he has a gentle appearance.
kiwā'tcinā'gusiw*	he seems sad, lonely.

-itā- refers to subjective feeling and so finds place for manifold application :

icitāhāw*	thus he feels (i. e. thinks).
myācitāhāw*	she is tearful, sad to weeping.
mā'necitāhāw*	he is ashamed.
upitāhāw*	he is joyful.
kiwātcitāhāw*	he is lonely.

-āne- relates to mental operation :

ke'kānemāw*	he knows, understands him.
muswā'nemāw*	he suspects him.
menwā'nemāw*	he feels well disposed toward him.
nā'gatawā'nemāw*	he keeps him constantly in mind.
panā'nemāw*	he makes fun of him.

-kam- expresses the idea of indefinite space as applied to such terms as sweep, range, latitude, expanse :

ke'tcikamīw'	it is the sea ; it is the great expanse.
ta'kamisāw*	it flies over an expanse.

<i>tá'kamíw*</i>	<i>he crosses an open space.</i>
<i>ká'kamíw*</i>	<i>he makes a short cut across.</i>

In the list of examples that follow immediately are stems relating to parts of the body. Their inherent sense is concerned with space, each form having to do with situation in a given relation.

-cā- carries the vague notion of something thin, as of a sheet, film, blade. It is an association with this spatial sense that makes it a term applied to the ear:

<i>mamá'gecāw*</i>	<i>he has big ears.</i>
<i>ki'skecāw*</i>	<i>he has no ears, literally he is cut-ear.</i>
<i>kagā'nocāw*</i>	<i>he has long ears.</i>

-kum- or *-gum-* conveys the intrinsic meaning of linear protrusion, projection out from a base. The use of the term for *nose* is a natural application:

<i>wāgi'kumāw*</i>	<i>he has a crooked nose.</i>
<i>pāgikūmācīnw*</i>	<i>he bumped his nose.</i>
<i>tatōgikumāw*</i>	<i>his nose spreads at the nostrils.</i>
<i>kinigūmāyāw*</i>	<i>it is sharp at the point.</i>

-tun- is used for the external space about the mouth:

<i>mī'setūnw*</i>	<i>he has a mustache.</i>
<i>kepāgetūnw*</i>	<i>he has thick lips.</i>
<i>pā'ketūnw*</i>	<i>he opens his mouth.</i>

-winā- gives the notion of linear dimension round of form and of limited circumference. It is a term for *horn*:

<i>tca'kwī'wināw*</i>	<i>he is short-horned.</i>
<i>pō'kwīwinācīnw*</i>	<i>he fell and broke his horn.</i>
<i>pa'kwīwināw*</i>	<i>he is shedding his horns.</i>

-kwā- is a spatial element expressive of the place back of the neck, of the hair on the head and even of the head itself. The term has also a feminine meaning, taken, it seems, from the notion of hair. The four different expressions, neck, hair, head, and woman-kind are thus shown in the order named:

<i>nāpē'kwāhwāw*</i>	<i>he lassoes him by the neck.</i>
<i>ke'kitē'kwānāw*</i>	<i>he hugs her round the neck.</i>
<i>penāhā'kwāw*</i>	<i>she combs her hair.</i>

<i>mése'kwāw*</i>	<i>she has long hair.</i>
<i>tā'wē'kwāw*</i>	<i>he has a headache.</i>
<i>matagū'kwāhōw*</i>	<i>he covers his (own) head.</i>
<i>pyāté'kwāwāw*</i>	<i>he brings home a wife.</i>
<i>mī'keme'kwāwāw*</i>	<i>he is wooing.</i>
<i>nīcō'kwāwāw*</i>	<i>he has two wives.</i>

-tcā- signifies a material body with volume more or less plump and distended. It is used with reference to the abdominal region:

<i>upiskwātcāw*</i>	<i>he is big round the waist.</i>
<i>pāgētcācinw*</i>	<i>he ran and fell on the flat of his belly.</i>
<i>kē'kitētcānāw*</i>	<i>he grabs him round the body.</i>
<i>mī'setcāw*</i>	<i>he is afflicted with the dropsy.</i>

Examples of Secondary Stems of the Second Order

The secondary stems up to this point have been of the first class. The ones to follow will be of the second class. It is not certain which is the more numerous; and it is not always easy to determine the place of some secondary stems, whether they belong to the first or to the second class. In passing along the list one should note that in some respects there is a general similarity in the groups of ideas expressed by secondary stems of the second class and by initial stems. There are, however, differences in the apparent similarities, the differences being chiefly of manner and degree. The illustrations will bring out these points:

-egā- is for the movement of one in the dance:

<i>upyā'negāw*</i>	<i>he moves slowly in the dance.</i>
<i>nīgā'negāw*</i>	<i>he leads in the dance.</i>
<i>ā'hā'wegāw*</i>	<i>he dances the swan-dance.</i>
<i>cā'wanō'wegāw*</i>	<i>he dances the Shatnee dance.</i>

-tcim- is locomotion through water. It is equivalent in meaning to the word *swim*:

<i>kiwītcimāw*</i>	<i>he swims round about.</i>
<i>pemītcimāw*</i>	<i>he swims past.</i>
<i>nahītcimāw*</i>	<i>he knows how to swim.</i>
<i>nō'tāwītcimāw*</i>	<i>he gives out before swimming to the end of his goal.</i>

-isā- conveys primarily the notion of velocity, speed, and is associated with locomotion through the air :

hanīwisāw*	<i>he runs swiftly.</i>
myācisāw ¹	<i>it lacks a keen edge.</i>
nemāswisāw*	<i>he lit feet first.</i>
kugwā'tcisāw*	<i>he tries to fly.</i>
pī'tcisāw ¹	<i>it blew inside.</i>
tcapō'gisāw*	<i>he fell into the water.</i>

-isahō- is swift locomotion through the air and of a kind that is limited as to space and duration. The idea of the motion is defined by such terms as *jump, leap, bound* :

pītcisahōw*	<i>he leaps into an enclosure.</i>
pyātcisahōw*	<i>he comes a-jumping.</i>
kwāskwisahōw*	<i>he dismounts.</i>
nūwisahōw*	<i>he goes out on the jump.</i>

-ōtā- is for locomotion along a surface and attended with effort and retardation. It is tantamount to the notion expressed by the word *crawl* :

anēmōtāw*	<i>he crawls moving yon way.</i>
tā'kamōtāw*	<i>he crawls athwart.</i>
āgōsiōtāw*	<i>he crawls upward (as up a tree).</i>
kētāsiōtāw*	<i>he crawls upward (as up a hill).</i>
pī'tōtāw*	<i>he crawls inside.</i>

-usā- has to do with locomotion by land, with particular reference to that of the foot and leg, and of such nature as to imply lack of speed. The combination of ideas involved is synonymous with the word *walk* :

cōskā'kusāw*	<i>he walks straight, erect.</i>
wā'pusāw*	<i>he starts off on a walk.</i>
nāhusāw*	<i>he learns how to walk.</i>
tetēpusāw*	<i>he walks round in a circle.</i>
pyā'tusāw*	<i>he comes a-walking.</i>

-gapa- is for perpendicularity, and its use is observed in situations of rest with upright support. The term is rendered by the word *stand* :

nénigwigāpāw*	he stands trembling.
nēmaswigāpāw*	he rose to his feet.
nāgigāpāw*	he came to a standstill.
pōnigāpāw*	he ceased standing.

-*pahō-* is of the nature of *usā*, differing from it only in the degree of locomotion. It denotes speed and swiftness, and is best translated by the term *run*:

pēmipahōw*	he runs past.
nāgipahōw*	he stops running.
ki'wipahōw*	he runs around.
nāgaskipahōw*	he runs with back bent forward.
pā'cipahōw*	he leaves a gentle touch as he flies past on the run.

-*ō-* implies conveyance, portage, transportation. It has acquired the specific meaning of carrying a burden on the back:

ki'yōmāw*	she carries it (her child) about on her back.
pēmōtām*	he passes by with a burden on his back.

-*hogō-* is locomotion by water and differs from -*tcim-* in having more of the sense of conveyance:

pyātāhogōw*	he comes a-swimming.
kīwāhogōw*	he swims about.
ānemāhogōw*	he swims thitherward.
sā'gitepā'hogōw*	he swims with the head above water.

-*pugō-* is another term for locomotion by water. It expresses passive conveyance, the sense of which comes out well in the word *float*:

pēmitetepipūgōtāw*	it floats past a-whirling.
nū'wipugōw*	he came out a-floating.
nānōskwipūgōtāw*	it floats about at random.
kāskipugōw*	he is able to float.

a in its naked form is so vague of sense that it is almost undefinable. Its nature comes out well in the rôle of an assisting element and as such often helps to convey the idea of motion. In one instance its help brings about the definite notion of flight from danger:

<i>ki'wāmōw*</i>	<i>he flees hither and thither.</i>
<i>pēmāmōw*</i>	<i>he hurries past in flight.</i>
<i>pyā'tāmōw*</i>	<i>he comes fleeing hitherward.</i>

Secondary Stems of the Coordinative Class

There is yet another class of stems that occupy a place in front of the terminal suffixed pronouns. They serve a double office: one as coordinatives between preceding stems of a purely verbal nature and following pronominal elements, the other as verbals signifying intransitive notions of existence, being, state, condition. Some express the notion feebly, others do it with more certainty. Many stand in an intimate relation with the subjective terminal pronouns, in a relation of concord and one so close that they take on different forms, some to agree with the animate, others with the inanimate. Their nature and type are shown in the examples:

-cin- is an animate term with much variety of use. Its essential meaning is change from motion to rest. The length of the pause can be long enough to indicate the idea of reclining, lying down:

<i>sā'gicnw*</i>	<i>he lies exposed.</i>
<i>ātāwācinw*</i>	<i>he lies on his back.</i>
<i>kicn'wicnw*</i>	<i>he lies warm.</i>

The cessation may be only momentary, like the instant respite of the foot on the ground during the act of walking. The term is translated into *step, walk*, in the following examples:

<i>pēmiwā'wācinw*</i>	<i>it is the sound of his footstep as he passes by.</i>
<i>pyātwā'wācinw*</i>	<i>it is the sound of his walk coming home.</i>
<i>anēmā'wācinw*</i>	<i>it is the sound of his step going away.</i>

Again, the rest may be sudden, and indefinite as to duration. The meaning in this light comes out in words expressive of descent, as *fall, drop*:

<i>pāgicnw*</i>	<i>(the bird) lights.</i>
<i>pī'tācinw*</i>	<i>he dropped inside.</i>
<i>cō'skwicnw*</i>	<i>he slips and falls.</i>

-sen- is inanimate and corresponds to *-cin-*. It is of wide use, too. It can be applied in the same examples illustrating some of the uses of *-cin-*. To indicate rest in place it is:

sā'gisēnw ¹	<i>it lies exposed.</i>
ātāwāsēnw ¹	<i>it lies wrong side up.</i>
kicū'wisēnw ¹	<i>it lies in a state of warmth.</i>

It likewise expresses the notion of instant change coming from rapid contact between two bodies. As in the illustrations for *-cin-*, so in the following the idea for sound is represented by the reduplicated form of *wā*. The idea of contact and the idea of interval between one contact and another are expressed by *-sen-*:

pémiwā'wāsēnw ¹	<i>it passes by a-jingling.</i>
pyātwā'wāsēnw ¹	<i>it comes a-ringing.</i>
anēmā'wāsēnw ¹	<i>it goes yon way a-tinkling.</i>

Some of its uses to express descent are:

pāgisēnw ¹	<i>it struck, hit, fell, lit.</i>
pī'tāsēnw ¹	<i>it dropped inside.</i>
cō'skwisēnw ¹	<i>it slid and fell.</i>

-si- implies in a general way the attribute of being animate. It can almost always be rendered in English by an adjective used with the verb *be*:

mō'wesiw*	<i>he is untidy.</i>
kā'wesiw*	<i>he is rough, uneven, on the skin.</i>
cā'wesiw*	<i>he is hungry (i. e. feeble, faint by reason of being famished).</i>
kepāgesiw*	<i>he is thick of skin.</i>

-ā- is the inanimate correspondent of *si*:

mō'wāw ¹	<i>it is soiled, stained.</i>
kā'wāw ¹	<i>it is rough, unpolished, prickly.</i>
cā'cawdw ¹	<i>it is pliant, yielding.</i>
képagydw ¹	<i>it is thick.</i>

-sū- signifies that the animate subject is in a state of heat, fire, warmth:

wī'casūw*	<i>he is sweating.</i>
ā'kasūw*	<i>he is burned to a crisp.</i>
pāsesūw*	<i>he is burned.</i>
kī'cesūw*	<i>he is cooked done.</i>

-tā- is the animate equivalent of *sā* :

wi'catāw ¹	(weather) <i>is warm.</i>
ā'katāw ¹	<i>it burned to ashes.</i>
pāsetāw ¹	<i>it is hot, heated.</i>
kī'catāw ¹	<i>it is alone cooking.</i>

The *ā* of *tā* in the last illustration has been met before in combinations like *usā walk*, *isā flight*, *otā crawl*, *egā dance*, and some others. In the form of *kā*, *kā*, and sometimes *gā* it helps to express activity, occupation, exercise, industry. It admits of a wide range of use with the three forms, but everywhere is distinguished the idea of doing, performing :

nenūsu'kāw [*]	<i>he is on a buffalo hunt.</i>
kepīhikāw [*]	<i>he is making a fence (i. e., an enclosure).</i>
kōgēnigāw [*]	<i>she is washing clothes (i. e., doing work with water).</i>

There is no precise notion expressed by the vowel *ā* in such augmented forms as *-hā-* and *-wā-*. It is an empty sign so far as standing for an idea goes. Yet the vowel, like some others in its class, plays an important function. It helps to define the preceding stems and to connect them with the terminal pronouns. A copula might be an apt term for it, for such is its office. The following show some of its uses :

kī'wātcitāhāw [*]	<i>he is melancholy.</i>
ā'kwitāhāw [*]	<i>he is sullen.</i>
kī'yāwāw [*]	<i>he is jealous.</i>
ā'kwāw [*]	<i>he is angry.</i>

The inanimate retains *ā* in *-āmigat-*. As in the animate, so in the inanimate the rendering is usually with some form of the verb *be*. The inanimate admits of a further meaning, implying something of the notion of vague extension, like prevalent tone, pervading temper, dominant state of things. Such is the essential idea that comes from the substitution of *-āmigat-* for the animate in the forms that have just been given :

nenūsu'kā' migāt ¹	<i>the buffalo hunt is the all-absorbing topic.</i>
kepīhikā' migāt ¹	<i>everything is given over to the building of enclosures.</i>

kō'genigā'migāt ^w	<i>the place is astir with the washing of clothes.</i>
kl'wācitāhā'migāt ^w	<i>the place is sad, dolefully sad.</i>
ā''kwitāhā'migāt ^w	<i>the air is all in a spleen.</i>
klyāwā'migāt ^w	<i>the place is mad with jealousy.</i>
ā'kwā'migāt ^w	<i>it is aflame with anger.</i>

It is well to mention at this point an inanimate use of *-gat-*, a component element of *-āmigat-*. The form is sometimes *-gwat-*, *-kwat-*, or *-kwāt-*. In function it is not unlike the inanimate *-ā-*, shown a little way back as an equivalent of the animate *-si-*. Furthermore, it has a very common use of expressing ideas of vague existence in space of such things as odor, fragrance, atmospheric states of the weather:

peclgwā'kwāt ^w	<i>(tree, log, stick) is straight.</i>
mī'cāgāt ^w	<i>it is fuzzy.</i>
mēnāgwāt ^w	<i>it smells, stinks.</i>
mī'cātcīyāgwāt ^w	<i>it is fragrant.</i>
mēcā'kwāt ^w	<i>it is a clear day or starry night; literally, it is a state of immensity.</i>
negwā'na'kwāt ^w	<i>it is cloudy; more literally, a process of covering is going on above.</i>
pōsā'na'kwāt ^w	<i>clouds hang heavy, look angry; literally, a condition of enlargement, expansion, is taking place over head.</i>

The vowel *i*, in the forms *-wi-* and *-hi-*, is another element with the office of a link auxiliary. It is a common characteristic of *i*, in one or the other form, to increase or to retain the quantity of the vowel in the preceding syllable. It frequently lends emphasis to the meaning of a whole combination:

kiwātesīhiw [*]	<i>he is so lonely.</i>
sanāgesīhiw [*]	<i>he is positively unyielding, incorrigible.</i>

The inanimate of the same is:

kīwā'tcāhiw [*]	<i>the place is so lonely.</i>
sanagātōhiw [*]	<i>it is certainly tough, formidable.</i>

Some instances show that the use of *i* is not always in agreement

with the principle of strict pronominal concord ; in other words, that it is not a peculiarity of one or the other gender :

mé'tōsānēnihtw*	<i>he is mortal, exists as a mortal.</i>
wāwānēskahtw*	<i>he is bad, lives an evil life.</i>
mé'tōsānēnihtw ¹	<i>it is in nature mortal.</i>
wāwānēskahtw ¹	<i>it has the stamp of evil on it.</i>

A common use of *i* conveys the idea of entrance into a state or of becoming a part of a condition :

mānetōwiw*	<i>he takes on the essence of supernatural power, is supernatural power itself (personified).</i>
ugimāwiw*	<i>he becomes chief.</i>
mānetōwiw ¹	<i>it is charged with, is possessed of, supernatural power ; it becomes the supernatural power itself.</i>
ugimāwiw ¹	<i>it partakes of the nature of sovereignty.</i>

Groups of Ideas Expressed or Conveyed by Stems

It is not possible yet to distinguish exactly the groups of ideas expressed by initial stems and the groups of ideas conveyed by each class of secondary stems. It seems that, on the whole, initial stems predominate in the expression of subjective activities and that they more definitely perform the function of verbs, while on the other hand secondary stems are more intimately concerned with the objective relations. It is true that both initial and secondary stems sometimes refer to similar notions, like movement and space ; but it is possible to observe a distinction in the nature of the reference. A great many initial stems define movement with reference to a particular direction, as hither, thither, round about ; secondary stems, on the other hand, indicate movement, as slow, swift, or as changing to rest. Secondary stems denoting space seem to lack extension in the sense they convey, as top, cavity, line, and terms indicating parts of the body ; initial stems refer to space in a wide general sense, as distance, dimension, immensity, totality.

The illustrations plainly indicate the nature of the method of composition from the standpoint of a verb in the nominative singular of the third person ; and they also show the character of the elements that enter into combination to form complete wholes. It is

observed how every stem is stamped with the quality of abstract meaning; the notion of some stems is so vague and so volatile, as they stand in detached form, as to seem almost void of tangible sense. Some stems can be analyzed into elements that have at most the feeblest kind of sense; it is only as they stand in compound form that they take on a special meaning. It is not altogether clear how these stems, so vague and subtle as they stand alone, came to convey the sensuous notions that they do when thrown together into a group; how, for example, an initial stem introduces a general notion and forms a group complete in statement but incomplete in sense, as when in composition it terminates with only a pronominal ending. Yet such a group can be of sufficiently frequent use as to become an idiom; in that case it takes on an added sense which is due not so much perhaps to the inherent meaning of the combined stem and pronoun as to an acquired association with a particular activity. The psychological peculiarity of the process is more marked in the wider developments, as when initial and secondary stems combine for the larger groups. The components seem to stand toward each other in the position of qualifiers, the sense of one qualifying the sense of another with an effect of directing the meaning toward a particular direction. But whatever be the influence at work, the result is a specialization of meaning, not only of the single member in the group but of all the members as they stand together with reference to one another. The stems seem charged with a latent meaning which becomes evident only when they appear in certain relations; out of those relations they stand like empty symbols. It is important to emphasize the fact that the order of stems in a group is psychologically fixed. Initial stems precede and secondary stems follow after, not with a freedom of position and not in a haphazard manner, but with a consecutive sequence that is maintained from beginning to end with firm stability.

A general summary of the process can thus be put in illustration: *pōni* is an initial stem signifying *no more, no longer*; its original sense comes out best by adding the terminal animate pronoun and making *pōntwa*; the group means that one has previously been engaged in an activity and has now come into a state of

cessation, making altogether a rather vague statement, as it stands unrelated to anything else; but travel has made a figure of speech of it, and so it has come to be the particular idiom for *one camps, one goes into camp*. So much for the simpler form of a combination.

Pag- is an initial stem with the general sense of striking against something; *-d'kw-* is a secondary stem of the first class denoting resistance, and so *pag'd kw-* is to strike against a resistance. The stem *-tun-* is a mobile secondary member of the first class denoting the special notion of place about a cavity and has become a special term indicating the place about the mouth; and so *pag'd kwitūnā-* is 'to strike against a resistance at a point on the mouth.' Again, *-cin-* is a secondary stem of the second class and refers to change from motion to rest, but leaves the character and the duration of the change to be inferred from the implications of the stems that precede; furthermore, it indicates that the performer is animate, and serves as a link between the terminal pronoun and what precedes; and so *pag'd kwit' ūnācinu'* is a definite statement meaning that 'one strikes against a resistance and is brought for a time at least to a condition of rest.' 'He bumps himself on the mouth,' or 'he bumps his mouth,' would be two ways of putting the same thing in English.

Instrumental Particles

A set of elements denoting different notions of instrumentality incorporate after initial stems and after secondary stems of the first class. They introduce a causal relation and render verbs transitive. Their nature and type come out in the illustrations.

-h- is for instrumentality in general:

<i>kāskahāmwa'</i>	<i>he accomplishes an act with the aid of means.</i>
<i>pānahāmwa'</i>	<i>he failed to hit it with what he used.</i>
<i>hāpinahāmwa'</i>	<i>he unloosed it by means of something.</i>

-h- often gets so far away from its instrumental significance as to be absorbed by a general causal idea:

<i>kiwā'mohāwa'</i>	<i>he puts them to wild flight.</i>
<i>mānēcihāwa'</i>	<i>he disgraces him.</i>
<i>nī'cwiāhāwa'</i>	<i>he owns two (animate objects).</i>

The instrumental form is frequently *-hw-* instead of *-h-* :

<i>pī'tahwāw*</i>	<i>he buries him.</i>
<i>pā'guhūwāw*</i>	<i>he makes him run.</i>
<i>pōtci'gwāhuwāw*</i>	<i>he pierced him in the eye with something.</i>

-n- refers to the instrumentality of the hand :

<i>nō'tānām*</i>	<i>he falls short of reaching it with his hand.</i>
<i>pānenām*</i>	<i>he failed to hold it with the hand.</i>
<i>atā'penām*</i>	<i>he takes hold of it with the hand.</i>

The use of *-n-* is so common that its symbolism gets pretty far from its original meaning. In some instances *-n-* refers just as much to mechanical means in general as it does to hand :

<i>nā'nāw*</i>	<i>he goes to fetch him.</i>
<i>ā'wanāw*</i>	<i>he carries him away.</i>
<i>mécenāw*</i>	<i>he catches him.</i>

And in other instances the notion of hand becomes obscure :

<i>mānéwānāw*</i>	<i>he loves her as a lover.</i>
<i>tāpānāw*</i>	<i>he is fond of her as a lover, friend, or relative.</i>
<i>kānōnāw*</i>	<i>he talks to her.</i>

-sk- expresses the doing of an act with the foot or leg :

<i>tāgeskām*</i>	<i>he kicks it.</i>
<i>tā'geskām*</i>	<i>he touches it with the foot.</i>
<i>patā'ketcā'skawāw*</i>	<i>he spurs him in the side; literally, he pierces him in the side with the foot.</i>

-p-, *-pu-*, or *-pw-* denotes an act done with the mouth :

<i>sāgi'pwāw*</i>	<i>he bites him, i. e. he takes hold of him with the mouth.</i>
<i>sāgi'putōw*</i>	<i>he bit it.</i>
<i>ki'ckikūmā'pwāw*</i>	<i>he bites off his nose.</i>
<i>pō'tetūnā'pwāw*</i>	<i>he kisses her.</i>

-c-, *-cw-*, or *-su-* signifies an act done with something sharp :

<i>pē'tecōw*</i>	<i>he cut himself accidentally (with a knife).</i>
<i>kiskānōwācwāw*</i>	<i>he cut off the (animal's) tail.</i>
<i>ki'skecām*</i>	<i>he cut it off.</i>
<i>kiskēcāstōw*</i>	<i>he cut off (another's) ear.</i>

The association of the two ideas of something sharp and something thin and film-like affords an explanation why *c* refers not only to the ear but also to the notion of the ear as an instrument; usually, however, in an intransitive sense:

<i>pésecāw*</i>	<i>he listens.</i>
<i>nanā'tucāw*</i>	<i>he asks questions, i. e. he seeks with the ear.</i>

Farther back was shown a number of attributive elements indicating activities with reference to one or the other gender. The elements were preceded by certain consonants which had much to do with indicating the gender of what followed. There is an analogous process in causal relations. Certain consonants precede pronominal elements in much the same way as the instrumental particles that have just been shown. These consonants serve as intervocalics and at the same time point out the gender of what follows. A very common consonant is *m*, which precedes incorporated animate pronominal elements in the objective case. It sometimes means 'doing something with the voice,' the act being done with reference to an animate object:

<i>pō'nimāw*</i>	<i>he stops talking to him.</i>
<i>tanwā'wāmāw*</i>	<i>he quarrels with him; literally, he engages in repeated noise with him.</i>
<i>kāskimāw*</i>	<i>he gains her by persuasion.</i>

Corresponding with *m* on the inanimate side is *t* or 't, but the use appears there in a different sense:

<i>pō'nī'tōw*</i>	<i>he stops doing it.</i>
<i>tanwā'wā'tōw*</i>	<i>he bangs away on it.</i>
<i>kāskī'tōw*</i>	<i>he gets it, he buys it.</i>

It is not always certain if the symbol stands for a genuine instrumental. Its causal force is so indefinite at times as to represent no other function than to make an animate verb transitive:

<i>wā'bamāw*</i>	<i>he looks at him.</i>
<i>pāgamāw*</i>	<i>he hits him.</i>
<i>mī'kemāw*</i>	<i>he is occupied with (an animate object).</i>
	<i>It is the idiom for he woos her, he attends him (in sickness).</i>

The parallel of the same thing with *t* and the inanimate would be:

wá'bařámw*	<i>he looks at it.</i>
págařámw*	<i>he hits it.</i>
mí'keřámw*	<i>he is busy with it.</i>

Another frequent consonant, indicating that the following vowel represents an animate object, is *s*:

kúřáw*	<i>he fears him.</i>
ásáw*	<i>he owns something animate.</i>

In the inanimate, *t* replaces *s*:

kú'řámw*	<i>he fears it.</i>
á'řow*	<i>he has it.</i>

It was shown that *n* referred to activity with the hand. The reference was clear when the object was animate, as:

pyá'nāw*	<i>he fetches him; literally, he comes, bringing him with the hand.</i>
nā'nāw*	<i>he goes to fetch him with the hand.</i>

The instrumental notion of the hand is sometimes lost when the object of the activity is inanimate. In that case *t* replaces *n*:

pyá'řow*	<i>he fetches it.</i>
nā'řow*	<i>he goes to fetch it.</i>

SUBSTANTIVE

It may be well to close the paper with a brief mention of the substantive. A pure substantive in the strict sense of the word is wanting in the language of this Algonquian dialect. What is here termed a substantive is only part of that. It will be seen in the examples to follow that the composition of a so-called substantive group is not at all unlike that of a verb. Initial and secondary stems combine in the same kind of way; link stems also fall in line; and the element to indicate the notion of a specifier is a sort of designating suffix that is susceptible of a comprehensive application. The suffix in turn ends with one or the other of the pronominal signs to show which gender the word is, *a* for the animate and *i* for the inanimate. Often there is no designative suffix at all, but merely a pro-

nominal termination to mark the end of the word and leaving the idea of a substantive to be inferred from the context. In the illustrations of noun composition only the absolute form of the nominative is given and under the component parts of secondary stems and suffixes :

Secondary Stems

-ā kw- met with before in another connection and meaning mass usually in linear dimension and referring to *wood, tree*. It conveys much the same meaning in the noun :

méciwā kw*	<i>dead fallen tree.</i> Initial <i>meci-</i> really means <i>large</i> .
māgā kwā'k'	<i>tree of large girth.</i> Initial <i>mag-</i> means <i>large</i> .
mā'ckwā kw*	<i>red stem, the name of a medicinal plant.</i> <i>māck-</i> is for <i>meck-</i> , <i>blood</i> or <i>red</i> .
pémitā kw*	<i>collar-bone.</i> Initial <i>pemi</i> gives the spatial notion of <i>side, by, lateral</i> .

-ōtā- is probably akin to the same form met with in the verb and denoting *crawl*. It has no such specific meaning in the noun, but refers in a general way to human interests, especially in an objective relation :

mégō tāwēn'	<i>dress of a woman.</i> <i>meg-</i> is an initial stem and is expressive of <i>cover</i> .
mēsōtāw'	<i>rain, wind, rumor, news, the whole world.</i> <i>mes-</i> is an initial stem signifying <i>totality</i> .
ūtōtām* or utō tāman'	<i>his eldest brother, his guardian, his master, his clan tutelary, his giver of supernatural power.</i>
ō tāwēn'	<i>town, probably belongs to the class.</i>

-nā'k- refers to the spatial notion of *top, crest, apex* :

kā'watānā'k'	<i>brittle top, the name of a medicinal plant.</i> <i>kāw-</i> gives the notion of <i>roughness, asperity</i> .
māckwānā'k'	<i>red top, the name of a plant used for medicine.</i> <i>māckw-</i> is fo. <i>red</i> .

-ōtc- or *-ōt-* conveys the idea of *latency* and refers to something used for a purpose. The *-ō-* is the same met with before as denoting the notion of *passive conveyance* :

tēsōtēl'	<i>trap.</i> Initial <i>tes-</i> signifies to <i>entrap</i> .
acāmōtēl'	<i>bait.</i> <i>acām-</i> is to <i>give to eat</i> .

nā'neskwāput¹ *dart*; nāne- is to *poise*, nāneskwā is to *poise by the neck*, nāneskwāp is to *poise by a notch in the neck* which is done by a knot at the end of a string used in throwing the dart.

-pyā-, a term incapable of specific definition. It denotes something of the vagueness implied in words like *essence*, *quality*, *condition*:

- ki'wāpyā¹ *crawling vine*; literally, a something with the attribute of movement almost anywhere about. *kiw-* is for indefinite movement or space.
- kicō'pyātāg¹ *hot water*. The notion of warmth comes from the initial *kic-* and helped by -tā-. The objective idea of water is transferred to the acquired condition; and the term signifying the new state stands for water, although it does not mean water, a common process peculiar to the psychology of the language.

-gi- or -ge- expresses the idea of similarity, resemblance. With the connective ā, as -āgi- or -āge-, it is used to represent the idea for some kinds of cloth:

- mānetōwāgēn¹ *like the mysterious*, the name of an expensive broadcloth used for leggings and breech-clout.
- mēckwāgēnw¹ *like the red*, the name of a red woolen broadcloth with white edge.
- cō'skwāg¹ *like the smooth*, a fine woolen broadcloth used for garments by women on ceremonial occasions.

-pa'k- refers to the external structure of a dwelling:

- pēmitōpā'kw¹ *side of a lodge*.
- tcā'pa'kwān¹ *wall of a lodge*. Initial tcā- refers to interlocation.
- a'kwitapā'kw¹ *roof of a lodge*. ā'kw¹ is *on top, surface*.

Nominal Suffixes

The examples from this point on to the end contain formatives that make a combination take on more of the character of a substantive. The stems that precede the formatives stand in a kind of attributive relation:

-*ask-* is a generic term for plants and herbs and is common in the names for medicines:

<i>tanétiwáskw¹</i>	<i>gambling medicine.</i> The idea of gambling comes out in <i>tanéti</i> , which expresses the notion of mutual activity.
<i>micátcinéniwáskw¹</i>	<i>perfume.</i> <i>mic</i> is for <i>large</i> ; <i>micátc</i> for the state of largeness; <i>micátcinéni</i> is for man in a feeling of largeness.
<i>wá'basákw¹</i>	<i>white medicine</i> ; <i>wáá-</i> gives the meaning for <i>white</i> ; it also means <i>to look at</i> .

-*ap-* appears in combinations denoting *cord, string*:

<i>mé'tegwáp¹</i>	<i>bow-string</i> ; <i>mé'tegwá¹</i> is the word for <i>wood, stick</i> .
<i>atú'sitáp¹</i>	<i>moccasin string</i> ; the part in - <i>ási-</i> is related to the stem - <i>usá-</i> , <i>walk</i> .
<i>ásapáp¹</i>	<i>string, thread, cord.</i>

-*min-* is a collective term for *fruit, grain, berry*:

<i>mécímin¹</i>	<i>apple</i> ; literally, <i>large fruit</i> .
<i>ádāmin¹</i>	<i>corn.</i>
<i>wá'bimin¹</i>	<i>white corn.</i>
<i>adā'imín¹</i>	<i>strawberry</i> ; literally, <i>heart berry</i> .
<i>kā'wimin¹</i>	<i>gooseberry</i> ; literally, <i>prickly, rough, or thorny berry</i> .

-*pō-* or -*apō* refers to *fluid, liquid*:

<i>népōp¹</i>	<i>soup</i> ; <i>nép¹</i> is for <i>water</i> .
<i>máciskiwápōw¹</i>	<i>tea</i> ; literally, <i>herb-drink</i> or <i>herb-fluid</i> .
<i>wickúpápōw¹</i>	<i>wine</i> ; literally, <i>sweet fluid</i> .
<i>maskutā'wápōw¹</i>	<i>whiskey, rum, alcohol</i> ; literally, <i>fire-fluid</i> .

-*mutā-* is a general term for receptacle as the notion is expressed in *pocket, pouch, bag*:

<i>micímutā¹</i>	<i>paunch</i> ; <i>mic</i> is for <i>littleness, shortness</i> as in <i>fuzz</i> , and so <i>fuzzy pouch</i> .
<i>maskímutā¹</i>	<i>bag, sack</i> ; <i>maski-</i> as in <i>ma'skiskítw¹</i> is for <i>grass, reed</i> , and so <i>reed bag, grass bag</i> .
<i>kā'kímutā¹</i>	<i>bag made from linn-wood bark</i> ; <i>kā'k-</i> is <i>to dry, season</i> , and so a <i>bag of seasoned material</i> .

pīcā'ganimutā' *parfleche*; *pī'cāgān'* is for *rawhide*, and so *rawhide pouch*.

-gān- is a comprehensive term expressive of instrumentality:

kepanō'higān' *lid* for a bucket, basket; *kep-* is to *en-*
close, *-an-* is *opening*, and so an *object*
for closing an opening.

ke'patcihigān' *lid, cork* for small opening as in a bottle.
kepi'higān' *fence*.

kā'wipātciḡān' *file*; *kāwi-* is *rough, serrated*, and *-pu-*
or *-put-* is *bite*, and so an *indented tool*
for taking hold.

apwā'tciḡān' *scaffold* for roasting and drying meat;
apwā- is to *roast*, and so a *thing for*
roasting.

-gān- is a common element for many nouns denoting parts of the body:

mī'setūnāgān' *mustache, beard*; *mīs-* is for *hair, fuzz*;
-tun- is for the *mouth, lips*, and so the
hair or thread-like arrangement about
the mouth.

uwī'pīgān' *marrow*; *-wip-* is for *form* and vaguely
implies *length and roundness*.

ū'kwāgān' *neck*; *-kwā-* is for the space back of the
neck.

-nā- refers in a general way to place and is used to denote an inhabited region or community:

*Cā'wanō'indw** *Shawnee village*; *Cā'wanōw** a *Shawnee*.

*Wacā'cindw** *Osage town*; *Acāca* an *Osage*.

*Ō'tcipwā'hindw** *Ojibwa country*; *Ō'tcipwāw** an *Ojibwa*.

With the locative ending *-gi*, as *-nāgi*, the meaning becomes more of *country, land*:

acā'hindg' *in the country of the Sioux*; *Ācā** a *Sioux*.

kī'gāpō'hindg' *in the Kickapoo country*; *Kī'gāpōw** a
Kickapoo.

-gān- is another collective term for *place*. It refers especially to enclosures:

adā'wāgān' *store*; *adāwā-* is to *sell*, and so *selling place*.

asénigān¹ *stone house; āsen¹ is stone.*

pā'kwaigān¹ *flag-reed lodge; pā'kwā¹ is flag-reed or flag-reed mat.*

There is one suffix that imparts an abstract meaning to a combination; it is analogous in meaning to *a'wahin¹*, a demonstrative pronoun with an indefinite sense of vague reference, allusion, and having a close parallel to the colloquial "*What d'ye call it?*" The suffix appears in slightly varying forms as *-in-*, *-win-*, *-wen-*, *-ān-*, *-wān-*, *-ōn-*:

āpapin¹ *chair, seat; ap- is to sit, and so something to sit on.*

kānawin¹ *word, talk, report; kan- is to talk, and so something about talk.*

mī'tciwēn¹ *food; mī- or mīt- is to eat, and so something to eat.*

pāgān¹ *hickory-nut; pag- is to hit, alight, and so something to drop and hit.*

pī'tanwān¹ *quiver; pī- or pīt- is to put into, -ān- is receptacle, and so an object to contain something inside.*

wā'hāmōn¹ *mirror; wāb- is to look at, and so something to look at.*

These few examples are perhaps enough to give an idea of noun structure. As in the verb, so in the noun there is much the same general character of vague implication in the component parts when they stand alone. They offer no definite meaning by themselves, it is only as they enter into combination that they convey specific sense to the mind. The moment they fall into composition they acquire the force of precise statement which they hold within definite limits. The method of procedure is to advance progressively from one general notion to another, each qualifying the other with the result of a constant trend toward greater specialization.

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THE MYTHOLOGY OF THE KORYAK¹

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All the peoples of Siberia, central Asia, and northeastern Europe whose languages are not of Aryan or Semitic origin, speak Ural-Altaic languages. This group, which contains about fifty peoples and tribes, consists of five branches, the Mongolian proper, the Tungus, the Turk, the Samoyed, and the Finn. The group was established and its branches were classified on the basis of linguistic indications, that is, on the similarity in the phonetics and morphology of the languages, by the Finnish investigator Castren, whose researches were conducted some sixty years ago. Anthropological and ethnological investigations subsequently confirmed this classification.

However, there is a small group of tribes in northeastern Siberia which cannot be classed as belonging to the Ural-Altaic family, for in spite of the fact that until recently this group has been investigated but little, Steller's work on the Kamchadal, written in the middle of the eighteenth century² and remarkable for its time, and occasional records of various travelers on the languages and life of other tribes, point to the fact that this group cannot be classed among the family mentioned, but that it stands alone. The group includes the Ostyak and Kot on the Yenisei; the Gilyak and Ainu at the mouth of the Amur river, on the island of Saghalin, and

¹ Read at the meeting of the American Ethnological Society, New York, March 21, 1904. Published by permission of the American Museum of Natural History.

² Georg Wilhelm Steller, *Beschreibung von dem Lande Kamtschatka dessen Einwohnern, deren Sitten, Nahmen Lebensart und Verschiedenen Gewohnheiten*, Frankfurt und Leipzig, 1774.

partly in Japan; and the Kamchadal, Koryak, Chukchee, and Yukaghir in extreme northeastern Siberia.

Ethnologists have designated the tribes of this isolated group as either "palæasiatics" or "hyperboreans"; but these names, invented for purposes of classification, have no intrinsic meaning. At best they may answer as geographical, but by no means as ethnological, terms.

It is not, therefore, without reason that Peschel, the well-known German ethnologist, calls these tribes "North Asiatics of indefinite relationship." He says: "The question in this part is not of giving a description of a new group within the Mongolian branch of the human race, but of making the frank confession that our scientific structure will have to be handed down in an incomplete state."¹

The study of these tribes, the necessity of which was long recognized by Russian ethnologists, was commenced under the so-called "Yakut Expedition," in which the present writer participated,² and at the same time the Jesup Expedition of the American Museum of Natural History undertook similar researches among them. The work of the latter expedition was based on the probability that in the remote past there existed some connection between the cultures and types of the Old and the New Worlds, and that for an understanding of the history of the American tribes it is indispensable to determine this connection. Therefore the attention of the expedition was directed, first of all, to the northern coasts of the Pacific, the geographical and geological conditions of which must have facilitated intercourse between the tribes and helped their migrations from one continent to the other.

For this reason the investigation of the Koryak was included in the plans of the expedition.³ The results of this investigation have shown that the original hypothesis with reference to the kinship of culture of the isolated Siberian tribes with the American aborigines has been fully confirmed, and that the Koryak are to be regarded as one of the Asiatic tribes which stand nearest to the American Indian. I intend to confine myself in this paper to a

¹ Oscar Peschel, *Völkerkunde*, Leipzig, 1876, p. 413.

² The Yakut Expedition (1894-1897) was fitted out by the Imperial Russian Geographical Society at the expense of Mr I. M. Sibiryakov.

³ The study of the Koryak was intrusted by the Jesup Expedition to the author and was conducted in 1900-01.

consideration of the similarities in the beliefs and myths of the Koryak and the American tribes. It will be necessary, however, to make a few preliminary remarks on the geographical distribution of the Koryak. Their territory is bounded by the Pacific ocean on the east, by the Stanovoi mountain range on the west, by the Palpal range on the north, and by the bays of the Okhotsk sea on the south. The climate of the country is one of the severest on earth; but there is a difference between the climate of the interior and that of the strip of land along the coast. At the beginning of April, when I left the coast of Penshina bay, the temperature was 27° above zero; a day later, eighty miles inland, the thermometer registered 38° below zero. But the interior experiences quite a few warm days during summer, when the temperature sometimes rises to 70° and even higher, while the strip along the coast seldom enjoys temperature higher than 50° . Moreover, the winds and storms that rage along the coast make even a slight cold unbearable. My anemometer frequently registered wind-velocities of 10 to 20 meters per second, or 22.5 to 45 miles per hour; and once, in November, while I was at the settlement of Kamenskoye, a gale raged with a velocity of 22 meters per second, or about 68 miles per hour. I went outside to make a meteorological observation, and when but a few paces from my house, I lost sight of it, owing to the drifting snow, and had it not been for the assistance of my Cossack, I should have been unable to find my way back.

It must be clear that in such a climate agriculture is impossible; hence the inhabitants depend for their subsistence on fish, sea-mammals, and reindeer, supplemented by edible roots and berries. According to the source of their means of maintenance, the Koryak are divided into Reindeer Koryak (who, with their herds of domestic reindeer, wander over the interior of the country) and Maritime Koryak (who live in settlements along the coast).

In our investigations of all the features of Koryak life we meet with three elements—the Indian, Eskimo, and Mongol-Turk, the first generally predominating. This is particularly true with reference to their religious concepts, for the Koryak view of nature coincides in many points with that of the Indians of the north Pacific coast. Their cosmogony is not developed, and in their tales about heroes

and deities they assume that the world existed before them. We find here the tale of the Raven Stealing the Sun, and that of the Sun's Release by the Raven. The universe consists of a series of five worlds, one above the other, the middle one being our earth. The same conception is found among the Bellacoola Indians.

There is a well-known series of myths, especially developed among the Tlingit, Haida, and Tsimshian, in which the raven is recognized as the organizer of the universe. The Koryak myths resemble this series closely; indeed almost their entire mythology is confined to raven stories. Of the hundred and forty recorded myths there are only nine in which the mythical raven or his children are not mentioned.

The mythical raven, or Big-Raven (*Quikinnágu*), of the Koryak appears also as organizer of the universe. He is the first man, and at the same time the ancestor of the Koryak. The manner of his appearance on earth has not been made quite clear. According to some tales, the Supreme Being, of whom I shall speak later, created him; according to others, he created himself; while a third version asserts that he was left by his parents when quite small, and grew up alone into a powerful man. His wife is sometimes considered to be the daughter of the Supreme Being, sometimes the daughter of the sea-god who has the appearance of a spider-crab (*Toyókoto* or *Ávvi*).

At the time of Big-Raven, or during the mythological age, all objects on earth could turn into men, and vice versa. There were no real men then, and Big-Raven lived with animals, and apparently with inanimate objects and phenomena of nature, as though they were men. He was able to transform himself into a raven by putting on a raven coat, and to resume the shape of man at will. His children married or were given in marriage to animals, such as seals, dogs, wolves, mice; or phenomena of nature, as the wind, a cloud (or Wind-man, Cloud-man); or luminaries, like the Moon-man, Star-man; or inanimate objects, such as the Stone-men, trees, a stick, or plants. Men were born from these unions.

When Big-Raven was no more, the transformation of objects from one form to another ceased to take place, and a clear line distinguishing men from other beings was established. Big-Raven left

the human race suddenly, because, it is said, they would not follow his teachings; and it is not known what became of him. According to some indications his abode is in the zenith.

Big-Raven gave light to men; he taught them how to hunt sea and land animals; he also gave them reindeer, made the fire-drill, gave them the drum, left incantations for amulets, and set up shamans to struggle with the evil spirits, with whom Big-Raven himself had carried on a constant and successful warfare. He is invisibly present at every shamanistic performance; and the incantations are dramatized stories telling how Big-Raven is treating his sick son or daughter, the male or female patients impersonating his children.

Big-Raven is regarded as the assistant of the Supreme Being, whom he helped to establish order in the universe. In the myths and tales the Supreme Being is called Universe or World (*Naiñmen*), or Supervisor (*Ináhítela'n*); in other cases he is called Master-of-the-Upper-World (*Gízhol-Et'nvila'n*), or simply The-One-on-High (*Gí'čhola'n*), Master (*Étm*), Existence, Being, or Strength (*Yaqlí'čān*, *Vahl'čān*, or *Vahl'thān*), or Dawn (*Thārgin*). In some instances he is referred to as Sun (*Tiykitiy*) or Thunder-Man (*Kihigila'n*). Although these names translated into a civilized language may seem to indicate abstract conceptions, they appear to the Koryak mind in a crude, material, anthropomorphic form.

The Supreme Being is represented as an old man living with his family in a settlement of the Upper World, in heaven; and he keeps order on earth. If he wishes to punish men for their transgression of taboos, or for their failure to offer the required sacrifices, he goes to sleep, when the regular course of events on earth comes to a standstill, hunting becomes unsuccessful, and people suffer starvation and other disaster. The Supreme Being, however, does not long bear ill-will, and he may be very easily propitiated. He is, as a rule, rather inert.

The so-called *kaláu* (plural of *kála*) beings that are hostile to man, display much more activity. At the time of Big-Raven, or during the mythological age, they used to assault man openly, and they usually figure in myths as ordinary cannibals. Big-Raven overcame them frequently, but after Big-Raven's departure they

became invisible, and they now shoot man with invisible arrows, catch him with invisible nets, and strike him with invisible axes. Every disease and every death is the result of an attack of these unseen evil spirits. The Supreme Being seldom comes to the assistance of men in this deadly and unequal struggle; man is left to his own resources, and his only means of protection are the incantations bequeathed to him by Big-Raven, charmed amulets and guardians, performances of shamans who act with the help of their guardian spirits called by the Koryak *ehen*, and the offerings of dogs and reindeer as sacrifices to the spirits. Every family is in possession of a certain number of incantations, which pass from father to child as heirlooms and constitute a family secret.

While the Supreme Being is a tribal deity and Big-Raven the common Koryak ancestor, all the guardians are either family or individual protectors. In only one case does a guardian, which has the form of a pointed post and which may well be called an idol, appear as a guardian and master of an entire village.

Crude representations of animals or men carved of wood serve as guardians or amulets. Parts of animals (like hair, the beak, the nose, or a portion of an ear), which are used in place of the whole animal, or inanimate objects (like beads, stones, etc.) serve the same purpose.

The reason why it is believed that objects insignificant in themselves may become means of guarding against misfortune and of curing disease, is primarily the animistic and at the same time the anthropomorphic view of nature held by the Koryak. According to this view not only are all things animate, but the vital principle concealed beneath the exterior visible shell is anthropomorphic. Furthermore, the incantation which must be pronounced over the object makes its vital principle powerful and directs it to a certain kind of activity—to the protection of the family or individual from evil spirits.

I will enumerate here the most important family and individual guardians:

1. The sacred fire-drill, which consists of a board shaped like a human body, a small bow, a drill, and other implements necessary for making fire. By means of this guardian, fire is produced for

religious ceremonies. The fire-board is the master of the hearth, but among the Reindeer Koryak it is at the same time the master of the herd. A few small wood-carvings, representing men, are attached to it; these are supposed to be its herdsman, and to help it in guarding the herd against wolves.

2. The drum, which is the master of the house.

3. A small figure of a man, called the "searching guardian"; it is sewed to the coats of little children for the purpose of guarding their souls. Children particularly are subject to attacks by evil spirits, and the children's inexperienced souls are apt to be frightened and to leave the body. On the "searching guardian" devolves the duty of catching the child's soul and of restoring it to its place.

All guardians are closely connected with the welfare of the household hearth; they cannot, therefore, be given to a strange family or carried into a strange house.

The sacrifices of the Koryak may be divided into bloody offerings, consisting of the bodies of slaughtered dogs and reindeer, and bloodless offerings, which are usually in the form of food, berries, sacrificial grass, ornaments, tobacco, and even whiskey. Bloody sacrifices are offered mostly to the Supreme Being, that he may not be diverted from keeping order on earth, and to his son, Cloud-man (*Yáhalá'n*), for his mediation in love-affairs. Cloud-man can inspire a girl with an inclination toward a young man, and vice versa. Bloody sacrifices are offered also to evil spirits, that they may not attack men.

The number of bloody sacrifices offered by the Koryak in the course of a year is quite large. Of the reindeer they sacrifice, they use at least the meat; but the killing of dogs cripples the domestic economy of the Maritime Koryak. It often happens that, toward winter, Koryak families are left without dog-teams. At one time I came to a settlement of twelve houses, and found there more than forty slaughtered dogs hanging on posts, with their noses pointing upward, a sign that the dogs had been offered to the Supreme Being, not to evil spirits. This was to me a most strange and distressing spectacle.

Bloodless offerings are made to the guardians, to sacred hills, to the "masters" of the sea and river, and to other spirits.

The cycle of yearly festivals is also connected with sacrifices. I will mention here only the most important festivals. Those of the Maritime Koryak are the whale festival, the hauling of the skin boat out of the sea in the autumn for the purpose of putting it away for the winter, and its launching in spring. The most important festivals of the Reindeer Koryak are: one in the autumn, on the occasion of the return of the herds from the summer pasture; and another in spring, in connection with the fawning of the reindeer does.

All these are family festivals, except the whale festival, which in one sense may be regarded as a village celebration. Not only does the entire village participate in the festivities, but people from other settlements are invited. The celebration consists of two parts—the welcoming and the home-speeding of the whale. The killed whale is welcomed as an honored guest with burning firebrands, songs, and dances. The dancers are dressed in embroidered dance-coats. Thereupon the whale is entertained for several days, and then preparations are made to send it off on its return voyage. It is supplied with provisions, so that it may induce other whales, its relatives, also to visit the settlement.

The arrangement of festivals and religious ceremonies, and the preparation of guardians and amulets, incantations, and similar things pertaining to the family cult, are attended to by each family separately. The eldest member of the family usually acts as the priest of the family cult, while some female member acquires particular skill in the art of beating the drum and singing, and familiarizes herself with the formulæ of prayers and incantations. All this combined may be called "family shamanism" as distinguished from "professional shamanism."

A professional shaman is a man inspired by a particular kind of guardian spirits called *eñen*, by the help of which he treats patients, struggles with other shamans, and also causes injury to his enemies. Thus the activity of the professional shaman is outside the limits of the family cult, and a skilful shaman enjoys a popularity for hundreds of miles.

Shamans possessing the art of ventriloquism are endowed with particular power, for the Koryak believe that the voices which seem to emanate not from the shaman but from various parts of the house, are the voices of the spirits called up by the shaman.

The so-called "transformed" shamans are still more interesting. These are shamans who, according to the Koryak belief, have changed their sex by order of the spirits. A young man suddenly dons woman's clothes, begins to sew, cooks, and does other kinds of woman's housework. At the same time he is supposed to be physically transformed into a female. Such a shaman marries like a woman. However, a union of this kind leads only to the satisfaction of unnatural inclinations, which were formerly often found among the Koryak. Tales are current, according to which, in olden times, transformed shamans gave birth to children; indeed such occurrences are mentioned in some traditions recorded by me. On the other hand, the children of the "transformed" woman's husband, born to him by his real wife, frequently resemble the shaman. This institution, however, is now declining among the Koryak, although it still holds full sway among the Chukchee.

I wish to point out here another very interesting feature in the religious ceremonies of the Koryak. I refer to the wearing of masks. Grass masks are used by women during the whale festivals, while wooden masks are worn by young men in the fall of the year, for the purpose of driving away evil spirits. The Koryak do not attempt to give their masks animal forms, and in this respect they resemble those of the northern Alaska Eskimo.

In summing up my observations of the religious life of the Koryak, I have come to the conclusion that their views of nature closely resemble those of the Indians of the north Pacific coast; but we likewise find in their religion Asiatic, or rather Turkish-Mongolian, as well as Eskimo elements. It is difficult to say at what period the Koryak first came in contact with the Turkish-Mongolian tribes, or to what period may be ascribed their relations with the Eskimo, with whom they have no intercourse at present; but the fact that we find in Koryak religion and customs a good many features common to those tribes cannot be attributed solely to the influence of similar geographical conditions. The domesticated reindeer of the Koryak is a cultural acquisition of Asiatic origin; and with this factor are connected some religious ceremonies and customs — for instance, bloody sacrifices offered to deities and spirits. These are not found on the Pacific coast of America; but

they do occur east of the Rocky mountains, among tribes like the Iroquois and the Sioux, who kill dogs as sacrifices.

The particular customs connected with the celebration of successful whale-hunting, and their taboo with reference to sea-mammals (the meat of which must not be partaken by women after confinement, and which must not come in contact with dead bodies) are also found among the Aleut and the Eskimo. This similarity is especially interesting since the chief food of the Maritime Koryak, as well as of the Indians of the Pacific coast, does not consist of sea-mammals, but of fish; and berries and edible roots are used extensively by both.

Nothing shows more clearly the close similarity between the culture of the Koryak and that of the Indians of the north Pacific ocean than their mythology. While some religious customs and ceremonies may have been borrowed at a late period, myths usually reflect for a long time the state of mind of the remotest periods. True, we find Mongolian-Turk as well as Eskimo elements in the myths also; but not to any considerable degree. To the Mongolian-Turk elements belong the presence of the domestic reindeer in the myths, and, further, the magic objects and houses of iron, as well as the seas and mountains of fire; but in all other respects the Koryak mythology has nothing in common with that of the Mongolian-Turk peoples. At this time I must confine myself to a mere statement, without a comparative outline of the Mongolian-Turk and Koryak series of myths.

While incidents characteristic of Eskimo tradition occur with great frequency in Chukchee mythology, and while their raven myths are not numerous, we find in Koryak mythology comparatively few elements that are common to the Eskimo. The most distinctive type of their myths is that of the raven cycle. It may be said, in general, that while the Koryak myths, by their lack of color and by their uniformity, remind one rather of the traditions and tales of the Athapaskan tribes, they also contain topics from various groups of myths of the north Pacific coast. We find not only the elements of the raven myths proper of the Tlingit, Haida, and Tsimshian, but also incidents from the coyote and the mink, from various other culture-hero cycles, and from other animal tales.

All of these incidents have been adapted to Big-Raven and to his family.

Big-Raven combines the characteristics of the American mink in his erotic inclinations, and those of the raven in his greediness and gluttony; and we find in the tales relating to him some of the features common to all the tales current on the north Pacific coast, namely, a love for indecent and coarse tricks which he performs for his own amusement.

Erotic episodes may be found in Mongolian-Turk myths also; but, in spite of their primitive frankness, these episodes are clothed in a poetic form, and are by no means so coarse as the myths of the Pacific coast. The readiness with which the heroes form marital connections with animals and with inanimate objects is characteristic of both sides of the Pacific.

In analyzing the Koryak myths, I have made a list of 122 episodes which occur over and over again. It appears that 101 of these are found in Indian myths of the Pacific coast, 22 in Mongolian-Turk myths, and 34 in those of the Eskimo. I will mention some of the frequently occurring episodes common to the Koryak and the Indian.

1. The tale of the Raven swallowing the sun, and another in which it is told how he released the sun. In the Koryak tale Raven-man swallows the sun, and Big-Raven's daughter releases him. Raven-man keeps the sun in his mouth, and Big-Raven's daughter tickles him until he laughs, opens his mouth, and lets the sun fly out. Then daylight appears again.¹

2. The Raven puts out the fire in order to carry away a girl in the darkness.²

3. A boy, driven out of his parents' house, goes to the desert and becomes a powerful hero.³

4. Numerous tales about people who, by putting on skins of beasts and birds, turn into animals, and vice versa.⁴

¹For similar episodes, see Boas, *Indianische Sagen*, pp. 55 (Selish); 105 (Nutka); 173, 184 (Newetsee); 208, 232 (Heiltsuk); 242 (Bilqula); 276 (Tsimshian); 311 (Tlingit). See also A. Krause, *Die Tlinkit Indianer*, p. 261.

²See Boas, *Indianische Sagen*, pp. 43 (Fraser River); 56 (Selish); 260 (Bilqula); 300 (Tsimshian).

³*Ibid.*, pp. 151, 162 (Kwakiutl); 253, 256 (Bilqula); 224 (Heiltsuk).

⁴In various Indian tales.

5. An arrow is sent upward and opens the way into heaven.¹

6. Big-Raven eats all the berries that have been gathered by the women.²

7. Big-Raven mistakes his own reflection in the river for a woman, throws presents to her into the water, until finally he is drowned.³

8. Big-Raven is swallowed by animals, but kills them by pecking at their hearts or by cutting off their stomachs, and then comes out.⁴

9. Big-Raven or some other person, under the pretext that enemies are coming, urges owners of provisions to flee, and then takes away the provisions.⁵

10. A shaman shows his skill; he sings, and the house is filled with water, and seals and other sea-animals swim around.⁶

11. Raven steals fresh water from Crab (*Avva*).⁷

12. Raven and Small-Bird are rivals in a marriage suit. Raven acts foolishly, and is vanquished by Small-Bird, who is very wise.⁸

13. Big-Raven marries a Salmon-Woman, and his family no longer starve. Angered by Miti, the first wife of Big-Raven, the Salmon-Woman departs for the sea, and Big Raven's family again begin to starve.⁹

14. Big-Raven's son, Emémqut, assumes the shape of a whale, induces the neighbors to harpoon him, and then carries away the magic harpoon-line.¹⁰

¹ Boas, *Indianische Sagen*, pp. 17 (Shuswap); 31 (Fraser River); 64, 65 (Comox); 117 (Nutka); 167 (Kwakiutl); 173 (Newettee); 215, 234 (Heiltsuk); 246 (Bilqula); 278 (Tsimshian).

² *Ibid.*, pp. 76 (Comox); 107 (Nutka); 178 (Newettee); 210 (Heiltsuk); 244 (Bilqula).

³ *Ibid.*, pp. 66 (Comox); 114 (Nutka); 168 (Kwakiutl); 253 (Bilqula).

⁴ *Ibid.*, pp. 34 (Ponca); 51 (Selish); 75 (Comox); 101 (Nutka); 119 (Chinook); 171 (Newettee); 212 (Heiltsuk); 256 (Bilqula); 315 (Tlingit).

⁵ *Ibid.*, pp. 106 (Nutka); 172 (Newettee); 213, 233 (Heiltsuk); 316 (Tlingit).

⁶ *Ibid.*, p. 95 (Eksen).

⁷ *Ibid.*, pp. 108 (Nutka); 174 (Newettee); 209, 232 (Heiltsuk); 276 (Tsimshian); 313 (Tlingit); A. Krause, *Tlinkit Indianer*, p. 261.

⁸ Boas, *op. cit.*, p. 165 (Nutka).

⁹ *Ibid.*, pp. 174 (Newettee); 209 (Heiltsuk).

¹⁰ *Ibid.*, pp. 13, 16 (Shuswap); 23 (Fraser River); 64, 66 (Comox); 201 (Newettee); 248 (Bilqula).

15. Excrement or chamber-vessel speaks and gives warning.¹

16. The Seal winds the tongue of his wife around with twine, and thus deprives her of the power of speech.²

At this time I cannot point out in greater detail the identity of the elements of which the myths of the Koryak and of the Indians of the Pacific coast are composed. This subject will be fully treated in my work on the Koryak, to be published by the American Museum of Natural History.³ But the most cursory review of the facts here presented points to the identity of the products of the imagination of the tribes among which originated the cycle of myths current on both sides of the Pacific — an identity which can by no means be ascribed merely to the similarity of the mental organization of man in general.

While the similarity of the physical type of two tribes may give us the right to conclude that they had a common origin, similarities of culture admit of two possible explanations. The identity of the religious ideas of two tribes may be the result of a common origin; or their ideas may have originated from a common source, and one tribe, though different from the other somatologically, may have borrowed its ideas from the other. However, in the one case as well as in the other, these two tribes must have been at some time in close contact.

The somatological material collected by the expedition has not been studied as yet, and it is therefore impossible to say at present what conclusions may be drawn from it with reference to the origin of the tribes of the two coasts of the Pacific. However, the folklore which has been investigated justifies us in saying that the Koryak of Asia and the North American Indians, though at present separated from each other by an enormous stretch of sea, had at a more or less remote time a continuous and close intercourse and exchange of ideas.

¹ Boas, *op. cit.*, pp. 101 (Chinook); 177 (Newetsee).

² *Ibid.*, pp. 176 (Newetsee); 244 (Bikula); 317 (Tlingit).

³ The first part of the memoir on the Koryak, "Religion and Myths," is now in press.

STUDIES ON THE EXTINCT PUEBLO OF PECOS¹

By EDGAR L. HEWETT

INTRODUCTION

The ethno-archeologist who is seeking to recover the history of any one of our southwestern tribes finds his sources of information gradually fading. Ancient dwellings are being torn down and with them are disappearing some of our best evidences of primitive sociologic conditions. Aboriginal burial mounds are being plowed up and the mortuary pottery therein reduced to fragments or scattered abroad with no accompanying data, thus obliterating our best paleographic record of primitive thought. Old people are dying and with their passing ancient languages are lost beyond recovery, and traditionary testimony of ancient migrations, ritual, and religion melt away.

Tracking the movements of any group of the human race is a most fascinating occupation, no matter how obscure may be the traces left behind. But the scientific man feels much more secure in his conclusions if to documentary evidence he can add linguistic, to this ethnologic, to this archeologic, and so on, until, by careful checking of one sort of evidence against another, he is finally able to construct an unassailable record.

The importance of any given group of people can not always be measured by its prominence in documentary history. The Phœnicians never occupied a formidable place among ancient world powers; we look upon them as great disseminators of culture, basing our belief on documentary, traditionary, and linguistic testimony. Now when one spends some time on the prehistoric archeology of Etruria, Campania, the Grecian peninsula, Cyprus, Rhodes, the old Trojan shore, the Nile delta, and ancient Carthaginian sites, he is overwhelmed with the vision of what this small

¹ A brief synopsis of the leading facts of this paper was presented at the meeting of the A. A. A. S. at Washington, Dec-Jan., 1902-'03. Some new matter has been added.

nation may have contributed to human welfare through its influence as a bearer of the pretraditional germs of that art which was to blossom into such marvelous perfection in Greece and Italy. It is simply that another source of evidence has served to illumine all former data.

Thus the student of the aboriginal tribes of America finds something of peculiar importance in every ethnologic area, whether its former occupants have completely vanished from the scene of action or not, and finds worthy of investigation every class of evidence that is still accessible. An area that may be studied from documentary, ethnologic, linguistic, and archeologic sources, and that is so situated as to bear obvious and important relations to surrounding areas, becomes especially attractive. Such is the position of the extinct pueblo of Pecos, in western San Miguel county, New Mexico. The tribe of Pecos may not occupy a commanding place in Pueblo history, but the indications are that the study of its ruined pueblos may yield important data for comparative purposes. This paper will merely point out in a preliminary way some studies that are in progress and may be pursued at some future time with more definite results. This research does not go into the documentary history of Pecos nor traverse again the ground covered by Mr Bandelier. No student of Pecos, nor indeed of any phase of southwestern archeology, will proceed without first becoming familiar with that splendid piece of work. He should carry the report¹ with him and study it on the ground. During the seven years in which I have been spending short vacations and odd days in the study of Pecos, I have never found it necessary to do over again anything that Mr Bandelier has done. That much of the history of Pecos is a reliable and enduring record. My indebtedness to this distinguished savant will be apparent throughout this entire study. I wish here to gratefully acknowledge this obligation.

A brief statement of a few well-established facts of documentary history may be admitted at this point for the use of the general reader.

¹ *Report on the Ruins of the Pueblo of Pecos*, by A. F. Bandelier; Papers of the Archaeological Inst. of America, American series, 1, 1881.

Pecos was discovered in 1540 by the Coronado expedition. The pueblo then contained from 2,000 to 2,500 inhabitants, composing one of the strongest of the Pueblo tribes then in existence. The village consisted of two great communal dwellings, built on the terraced plan, each four stories high and containing, respectively, 585 and 517 rooms. The tribe figures prominently in the annals of the Coronado expedition in New Mexico in 1540-42. Two priests remained there to introduce christianity when Coronado began his long march back to Mexico. Fray Luis Descalona, or de Escalona, established there at this time the first mission planted in New Mexico, but he was killed probably before the close of 1542. There is then a hiatus of forty years in its documentary history. Antonio de Espejo visited Pecos in 1583, Castaño de Sosa in 1590-91, and Juan de Oñate in 1598, the last mentioned naming the pueblo Santiago. At this time Fray Francisco de San Miguel was assigned to administer to the spiritual welfare of the tribe, as well as to that of the Vaquero Apaches of the eastern plains and the pueblo dwellers in the Salinas to the south, but it is not probable that Pecos ever became his residence. Juan de Dios, a lay brother of Oñate's colony, was the next missionary to live at Pecos, where he is said to have learned the language, but he probably returned to Mexico in 1601.

The great mission church, the ruins of which have for more than half a century formed such an imposing landmark on the old Santa Fé trail, was erected about 1617. Pecos practically held its own up to the end of the seventeenth century. Its decline, once started, was peculiarly rapid; the Comanche scourge and the "great sickness" worked speedy destruction. In 1840 the last steps were taken by which Pecos was abandoned and the group as a tribal entity became extinct.

We now pass to the investigations of recent years looking toward a closer ethnological and archeological knowledge of Pecos.

There is living today (August, 1904), at the village of Jemez, 60 miles in an air-line westward from Pecos, the sole survivor of Pecos pueblo. This man, known in his native tongue as Se-sa-fwe-yah, and bearing the baptismal name of Agustin Pecos, is a well-preserved Indian of perhaps eighty years of age. There are still



José Miguel Pecos (Zu-wa-ng), died 1904. (Photograph by K. M. Chapman, 1904.)



Agustín Pecos (Se-an-fwe-yah), nephew of José Miguel. (Photograph by A. C. Vroman, 1899.)

living at Jemez perhaps twenty-five Indians of Pecos blood, but Agustin Pecos has the distinction of being positively "the last leaf on the tree" when we speak of the Pecos as a tribal society, the tribe having ceased to exist in fact in 1838 and as a matter of record in 1840. Agustin was born at Pecos and believes himself to have been from twelve to fifteen years of age when the pueblo was abandoned. He has returned several times to the scenes of his childhood and the home of his ancestors, and his memory seems perfectly clear. He is a very honest and intelligent Indian and rather proud of the history of his tribe.

The next to the last survivor of the Pecos died at Jemez in the fall of 1902. This was Zu-wa-ng, baptized José Miguel Pecos, uncle of Agustin and probably from ten to fifteen years his senior. José Miguel was a young man when Pecos was abandoned; he was an excellent traditionist, possessed a keen memory, treasured his tribal history, and was ready to give information to those who gained his confidence.

Most of the traditionary material for this paper was obtained directly or indirectly from José Miguel and Agustin Pecos. (See plate xiv.) Mr F. W. Hodge visited Jemez in 1895 and 1899, and made some valuable notes which he has generously placed in my hands with permission to incorporate them in this paper. I may not be able to give full credit to Mr Hodge at every point where it is due, but I wish to say that his notes have been of great service in determining some of the most important ethnologic data presented. In recording the clan system of Pecos he was more successful than I, as will be seen by referring to his paper on "Pueblo Clans."¹ Mr Hodge obtained his information from José Miguel Pecos. The writer is indebted for his traditions to both José Miguel and Agustin. This information was received during two visits to Jemez in 1902, and, since the death of Miguel, by communication with Agustin through my friends Jesus Baca, an educated Jemez Indian, and Pablo Toya, son of the last governor of the Pecos tribe, born at Jemez after the abandonment of Pecos; a man who takes great interest in the tribal history and seems to know it very well.

¹ *American Anthropologist*, Oct., 1896.

THE VARIOUS NAMES FOR PECOS

In the Castañeda narrative¹ Pecos is known as Cicuye. This is probably the name by which it was known to the people of Tiguex, the village on the Rio Grande from which the Spaniards proceeded to Pecos—a people who spoke the Tigua language. It would be natural for the historian of the expedition to use the name learned at Tiguex, where Coronado's force had been in winter quarters. The people of Isleta, who speak the Tigua dialect and who doubtless embrace in their tribe some who are direct descendants from Tiguex, give *Sikuyé* as one of their names for Pecos,² and *Sikuyén* for the tribe.

The Pecos people call themselves Pe-kúsh. The Jemez name for Pecos is P'a-qu-láh (Mr Hodge recorded it P'a-tyu-lá). When it is remembered that the initial sound of a word or syllable is often so obscure as to escape notice by one to whom the Jemez pronunciation is new and strange, and the final syllable is also often indistinct, the derivation of a majority of the early documentary names for Pecos becomes plain. The inconsistencies in our synonymy are generally traceable to two or three original errors which have run their usual course of misprinting and misquotation. This is well illustrated by the following partial synonymy prepared by Mr Hodge. It should be borne in mind that the present Jemez name for Pecos is P'a-qu-láh.

A-cu-lah. Simpson (1849) in Rept. Sec. War, 143, 1850. (Given as native name of the pueblo.)

Acuyt. Bandelier in Arch. Inst. Papers, I, 114, 1881. (Probably proper name of pueblo.)

Ágin. Bandelier in Arch. Inst. Papers, I, 20, 1881. (Aboriginal name in Jemez language; *u* evidently a misprint for *u*.)

Ágiu? Bancroft, Ariz. and N. Mex., 53, 1889. (Possible proper name, suggested by Bandelier's Ágiu, below.)

A-gu-yu. Bandelier in Ritch, New Mexico, 201, 1885.

Ágiu. Bandelier in Arch. Inst. Papers, I, 114, 1881. (In the language of the former inhabitants of Pecos and those of Jemez.)

A-g'iu. Bandelier in Arch. Inst. Bull., I, 18, 1883.

Aqui. Bancroft, Ariz. and N. Mex. 53, 1889. (Misquoting Bandelier.)

Agiu. Bandelier in Arch. Inst. Papers, III, pt. 1, 127, 1890. (Or Paquiui; same as Pa-quiu-la, the aboriginal name of the Pecos tribe.)

¹See Winship, *The Coronado Expedition*, Fourteenth Report of the Bureau of American Ethnology, Washington, 1896; reprinted, New York, 1904.

²Gatschet, Isleta MS. vocabulary, Bureau of American Ethnology, 1879.

For the derivation of *Pecos*, which is the Hispanized form, we must go to the Queres or Keresan dialects, where we find it as follows :

Santo Domingo,	Pe-a-go,
Cochiti,	Pe-a-ku,
Sia,	Pe-ko,
Santa Ana,	Pe-a-ko,
Laguna,	Pe-a-ku-ni,

To the Spanish people who came in continuous contact with the Queres people after the founding of Santa Fé early in the seventeenth century, the word naturally soon lost its slight dialectic variations, the people becoming uniformly known as *los Pecos* and their village as *el pueblo de los Pecos*.

THE CLAN SYSTEM OF PECOS

Those who are particularly interested in the Pecos clans should consult the paper by Mr Hodge, previously cited. In 1902 I was able to obtain satisfactory evidence of but twelve clans, but Mr Hodge, in 1895, learned of nineteen. It will be noticed that three of the clans in my list do not appear in that of Mr Hodge, so that, on good traditionary evidence, twenty-two Pecos clans are known to have existed. Following is a list of the clans recorded by me ; those marked with the asterisk are not in Mr Hodge's list.

Wā-kāh,	Cloud,
Pe,	Sun,
Se-peh,	Eagle,
Kyu-nu,	Corn,
Whā-lu,	Bear,
Shi-āñ-hti,	Mountain Lion,
Wā-hā,*	Squash,
Pāh-kāh-tāh,	Sand,
A-la-wah-ku,*	Elk,
Al-lu,*	Antelope,
Pe-dāhl-lu,	Wild Turkey,
Fwah,	Fire.

The linguistic differences will probably be harmonized by further comparison of the Jemez and Pecos dialects. While it is true

that these belong to the same linguistic stock, the differences are greater than the writer had been led to expect. It is still possible, through Agustin Pecos and Pablo Toya, to recover the Pecos language — a work in which some student of Indian philology may render a great service to science. The Pecos dialect was much modified by the Tano, probably also by the Piro, tribes which are now extinct, while Jemez tradition holds that their dialect grew out of the Pecos in combination with their own *Ta-tsa-a*. As it is not obvious that the Jemez dialect was modified by the small accession from Pecos in 1838, the tradition points to a possible earlier and greater accession from the Pecos tribe in prehistoric times. Evidences of the prehistoric relations between Jemez and Pecos should be sought in the Jemez ritual, which has as yet received but little attention; and the clan history of Jemez should be investigated with great persistence, for therein lies the key, when interpreted in connection with archeologic evidence, to the story of ethnological development in the Pecos and Rio Grande valleys.

ARCHEOLOGY OF THE PECOS VALLEY

Let us turn now to a consideration of certain archeological conditions in the upper Pecos valley. Here our old traditionists at Jemez are of great assistance in a corroborative way.

The ruins in Pecos territory may be grouped as follows:

Class I. — The great ruins of the pueblo of Old Pecos. These are described in detail in the report by Bandelier, previously referred to, and will not be redescribed here.

Class II. — Several ruins of smaller communal houses, of the type shown in figure 9, containing from 200 to 300 rooms each, and numerous contemporary ruins of similar construction but containing only from ten to fifty rooms each. These latter were but one story high and were not built around a court or plaza. The former were two stories high and generally embraced the four sides of a quadrangle. These remains are all older than those of Class I.

Class III. — Numerous rock shelters of a very primitive type found throughout the valley wherever there are overhanging cliffs. No description of these will be attempted in this paper.

The only ruins of Class I to be found within the Pecos territory

are those of the well-known Old Pecos pueblo. At the time of the coming of the Spaniards the entire tribe of Pecos was concentrated at this one point. On this documentary,¹ traditional, and archeologic evidences are all in accord.

From among the ruins of Class II, which are scattered over Pecos territory from the north end of Cañon de Pecos Grant to Anton Chico, a distance of about forty miles, I have selected one, the ancient pueblo of Ton-ch-un, for brief description.

Ton-ch-un lies about five miles southeast of Pecos pueblo and about one mile from the Rio Pecos. The accompanying plan (figure 9) should be accepted as only approximately correct. Excavation will be necessary to lay bare the walls, which are in a fairly good state of preservation to a height of six to eight feet, though so obscured by debris as to be difficult to trace. This building was almost 400 feet long and contained upward of 300 rooms. Sections A and B were two stories in height, and section C was of one story. The detached sections D and E were one-story structures and illustrate the plan of the numerous small houses scattered over the valley, which are referred to above, and which of late years are rapidly disappearing. No burial mounds have been discovered at Ton-ch-un, and as yet I have obtained no entire pieces of pottery therefrom. Enough large fragments have been obtained, however, to indicate that excavation will yield what is needed for study.

The traditions regarding Ton-ch-un are well preserved at Jemez. This was the last outlying village in Pecos territory to be abandoned as the process of concentration went on. It held out for many years after the seven or eight other villages of nearly if not quite equal size had given up the struggle and merged with the main aggregation. These were not mere summer residences, but were permanent habitations, each of which sheltered several clans for several generations. Some of the small dwellings referred to doubtless served as summer residences near the growing crops, but on the other hand some of them were permanent clan homes. The traditions indicate that the clan that lived on the Cañon de Pecos Grant and the first dwellers on the site of Pecos pueblo came

¹ See Bandelier, *Report on the Ruins of the Pueblo of Pecos*, op. cit., p. 117.

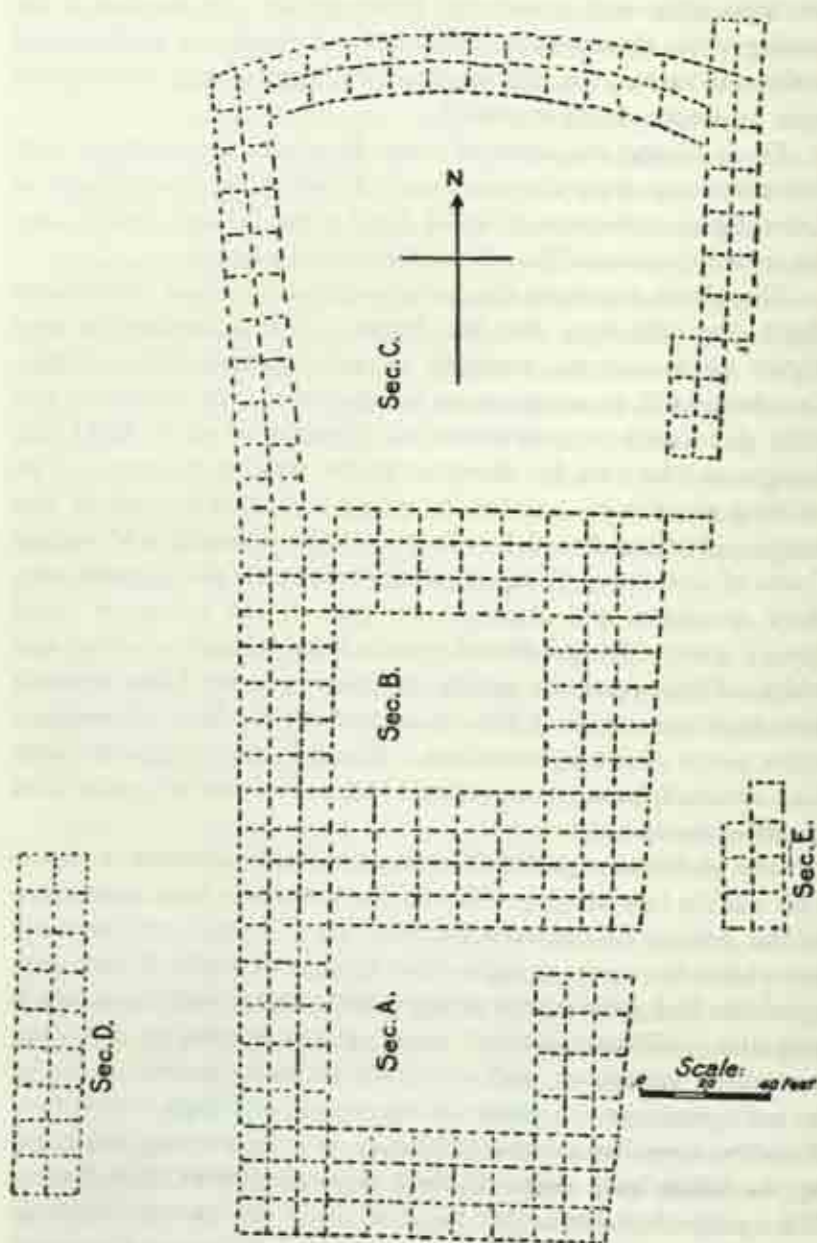


FIG. 9. — Ground-plan of the ruins of Ton-ch-un.

from the north; that those living in Ton-ch-un and the surrounding group of dwellings entered the valley from the west and were of the stock of Jemez; while those living toward the southern end of the territory of Pecos were said to have come from the direction of the so-called Mesa Jumanes and the Manzano mountains. As the traditions are vague, archeological evidence must be brought to bear on this problem. Archeological work should be done among the ruins in the valley first of all, and, for comparative study, any excavations made in the "Gran Quivira" region, in the Rio Grande valley, and about Jemez will be of interest. It is possible also that both archeological and traditionary data bearing on the question may be obtained at Picuris and Taos.

CONCENTRATION AND EXTINCTION

The area occupied by the Pecos tribe was small. It was embraced within the narrow confines of the Pecos valley, extending from northwest to southeast for a distance of about forty miles, or from the north end of the Cañon de Pecos Grant, about five miles above the ruins of Pecos pueblo, to the present Mexican settlement of Anton Chico. Their territory nowhere exceeded ten miles in width and had an average width of about five miles. Their boundary was rather sharply fixed on all sides. At no place outside of these boundaries have ruins indicating Pecos occupancy been found, and the traditions verify this. Their situation was economically strong; their land was productive, their water supply ample, and their proximity to the buffalo country gave them articles of commerce much in demand by the tribes farther west. During a long period of peace they could not fail to prosper. But their geographical position was such as to afford no security after the arrival of the predatory tribes. Their eastern frontier had no protection at all from the nomadic robbers who found in them a desirable prey because of their rather exceptional prosperity.

These depredations certainly began long before the coming of the Spaniards, at a time when the population was distributed in small communities over their entire territory, for the concentration was entirely accomplished by the year 1540. This concentration movement was toward the north. The village at Pecos was the most

favorably situated of any in the valley for a tribal stronghold. To this point the clans gradually fell back, Ton-ch-un being the last to give way. The two great communal house clusters at Pecos were enlarged from time to time as occasion necessitated. It is probable that Agustin Pecos can localize the clans as they occupied the two great house groups if he can be induced to visit the site with some observer. At last the entire tribe was sheltered in the great houses of the one community. Their village was walled and made as nearly impregnable as possible, and there developed a tribe of such strength as to be able to hold its own for some centuries. The traditions of this period of Pecos history point to incessant strife with the Comanches, who made their appearance in New Mexico with the dawn of the eighteenth century.

The story of the decay of Pecos, which had its beginning after the Pueblo revolt of 1680-92, has been told many times—best of all by Bandelier. The traditions of the "great sickness" which reduced the tribe to such desperate straits early in the nineteenth century and finally led to the abandonment of the village, will admit of some further investigation. It now seems probable that this was a malady of frequent recurrence for many years, possibly for half a century. An examination of the drainage of the pueblo makes the cause of the epidemics quite evident. Of the two springs used by the village, the one on the left bank of the arroyo and which never failed, as the one on the right bank sometimes did, is so situated as to receive the drainage of both the church cemetery and the old communal burial mound. It is a singular fact that to this day the Mexicans of the valley speak of this as the "Poisoned Spring." As my party proceeded to Pecos to make camp in the summer of 1899, we were warned by the Mexicans not to use the water from the "Poisoned Spring."

The traditionists at Jemez agreed in stating that on the day of leaving Pecos the tribe consisted of seven men (two of whom had been away for some weeks), seven women, and three children. They fix the date of abandonment almost beyond question by declaring it to have been the year following the murder of Governor Albino Perez. As that event occurred in August, 1837, the extinction of Pecos may be definitely fixed at 1838.

The Pecos Indians still make pilgrimages to their ancestral home. The last occurred seven years ago, and the writer has a letter from them dated October, 1903, stating that the Pecos Indians wish to visit the old pueblo in August of this year and asking the writer if he can help to secure them from molestation when they go to visit and open their sacred cave. I do not know the exact location of this cave, nor have I learned whether or not the proposed visit has been consummated.

CONCLUSIONS

The most important result of the study of Pecos is, to my mind, to be found not so much in what it adds to the history of one Indian tribe, as in the light it sheds on the great problem of primitive sociologic evolution in this highly important branch of our aboriginal races, the Pueblo Indians. This study of a small area is of but little value unless considered in connection with the larger results of other investigators. The masterly work of Dr Fewkes in Arizona marks an epoch in anthropological research in America. To him every student of anthropology in the generations to come must acknowledge profound obligation. Pecos is a "type" area. The study of its problems must be the study of all Pueblo problems and the method employed must be susceptible of wider application.

The writer here desires to propose, provisionally, for the use of students of the Pueblos, the following analysis of their history, founded on sociologic development and pointed out as a conclusion derived from all previous investigations in southwestern ethnology. It was proposed in my unpublished courses of university extension lectures in 1899-1900. I will enter upon no discussion of it here, but at some future time hope to present a paper on the subject.

1. *The Epoch of Concentration.*—From the present day back to the time of the concentration of clans for defensive purposes into the great communal houses, made expedient by the arrival of the nomadic, predatory tribes; giving rise to a new system of social relations; leading to the formation of the present Pueblo languages by composition from clan dialects; the elaboration of the great ritualistic ceremonies as a result of the integration of clan legends

and religious practices.¹ The rivalry of clans at the beginning of this epoch of integration was naturally a great stimulus to certain activities. The supremacy of any clan in the organization would depend largely on the extent to which it could apparently influence supernatural powers by invocatory, propitiatory, or divinatory methods, the exercise of these magic powers taking shape in ritual and finding graphic expression in pictography. Thus the highest development of the ceramic art, particularly its richest symbolic ornamentation, is found in the ruins occupied by tribes in the early stages of this epoch of concentration. The most elaborate of the communal cliff-dwellings may belong to this epoch.

2. *The Epoch of Diffusion.*—A long epoch established by voluminous archeologic and traditionary evidence, during which small communities were distributed over the semi-desert areas; devoted to agriculture; under matronymic social organization; dwelling in fairly substantial houses, yet somewhat migratory in habits. The pottery of this epoch was quite strictly utilitarian, never rich in symbolic ornament. The legends of the clans were embodied in migration and creation myths. In one sense it was an epoch of clan-making. The vast number of small communal houses and countless single cliff-dwellings and cavate lodges probably belong to this epoch. It was characterized by the absence of predatory enemies.

3. *The Pretraditionary Epoch.*—An obscure, archaic epoch of semi-sedentary occupation, supported by no traditionary and scant archeologic evidences, the principal remains of it known to the writer being the many rock-sheltered sites in the Gallinas valley below Las Vegas, many similar remains in the Pecos valley, particularly on the Cañon de Pecos Grant, and the large number of natural caves on the eastern base of the Jemez range in Pajarito Park which seem to have sheltered a population far inferior in culture to the occupants of the cavate lodges proper and the rudimentary communal houses; in short, a people in the most primitive stages of culture of which obvious evidences are found on the American continent.

¹ See *Tutayan Migration Traditions*, by J. Walter Fewkes; Nineteenth Annual Report, Bureau of American Ethnology, p. 578.

APPENDIX

A communication received from the Pecos Indians at Jemez since the foregoing paper was put in type, conveys the information that they made their pilgrimage to their ancestral home during the last week in August and on opening their sacred cave "found everything all right."

I am informed by them in the same letter that the list of Pecos clans should include two more, namely, the *Mor-bāh* or Parrot and the *Hā-yāh* or Snake, neither of which was previously recorded by either Mr Hodge or myself. They assert that all the Pecos clans are now extinct excepting the Cloud, Sun, and Turquoise.

Agustin Pecos has also caused to be compiled for me a complete census of the tribe at the time of leaving Pecos in 1838. I regard it as rather a valuable record. The names are given in the Pecos dialect, and in some cases I am in doubt as to pronunciation. In such cases I have not marked the vowels.

<i>Men</i>	Tye-con-wa-ū
Se-hoñ-ba	Shi-afñ-kya-con-no
Zu-wa-ng	Sun-ti-wa-ū
Shi-to-ne	Ma-ta
Wa-ng	Hā-ya-sha
Gal-la	Wa-ū
Val-ū	<i>Children</i>
Hur-ba	Se-sa-fwe-yah
<i>Women</i>	Tā-at-qū
Po-vā	Da-lur

ABORIGINAL TREPHINING IN BOLIVIA¹

By ADOLPH F. BANDELIER

While engaged in the investigation of Indian ruins in Bolivia, for the American Museum of Natural History in New York, we spent the greater part of the year 1895 on the island of Titicaca and on the shores of the lake of that name. Up to this time, while in Peru, we had not found any skulls showing marks of trephining, and indeed had only heard of their existence in that country, but the belief was expressed that they were also to be found in Bolivia.

During our excavations at a site called Kea Kollu Chico, on Titicaca, we found, close together, in loose soil and without regularity of interment, at least ten trephined crania, which are now in the American Museum of Natural History. Subsequently we found in other parts of Bolivia, but still within the range of the Aymará Indians, sufficient specimens to increase the entire collection to sixty-five. As the total number of skulls collected by us is nearly twelve hundred, it gives for those on which trephining had been performed the proportion of about five percent.

These trephined crania were obtained by means of excavations at various points within the department of La Paz. Most of them came from the tableland, near Sicasica, south of the city of La Paz, but others were obtained from the southeastern end of Lake Titicaca, from the peninsula of Huata, from the northern and southern flanks of Illimani, and from the eastern slope of the cordillera, near Pelechuco and Charassani. At the latter places but few were found, for the reason that human remains are usually decayed beyond recovery on account of moisture.

The trephined skulls sent to the Museum were investigated and arranged by Dr Aleš Hrdlička, so that a description of them would be superfluous. I desire, however, to allude to the present custom of trephining among the Aymará Indians. The valuable memoir

¹ Published by authority of the American Museum of Natural History, New York.

by Drs Muñiz and McGee² furnishes many data on this interesting custom among the ancient Quichua of Peru.

None of the sixty-five trephined crania mentioned above shows quadrangular trephining by incision, as in the case of most of those from Peru described and illustrated by Muñiz and McGee. It may be that the Aymará performed this same method of trephining, but such did not come under our notice.

While at Umayo, near the northwestern shore of Lake Titicaca, the administrator of the hacienda informed me that some twenty-five years before he had known a man near Cuzco who had been trephined for skull-fracture and who wore a piece of gourd inserted in the orifice. I inferred from his conversation that both the operator and the man on whom the operation was performed were Indians. This was the first intimation we received that trephining was practised by Indians at the present time.

Inquiry among the Aymará of Bolivia convinced us that some of them knew about trephining, but were unwilling to impart any information concerning it. When we showed them perforated crania, the usual remark was that they neither knew what it meant nor how it was done. Medicine-men of high standing were sometimes numbered among our laborers, but they were seldom approachable, and in the rare cases, when it was possible to question them, they invariably declared the trephined crania to be those of priests and the perforation the result of tonsure. On the peninsula of Huata, however, we were fortunate enough to find mestizos who held intimate intercourse with the Indians and who gave us information which was subsequently corroborated.

Trephining is today practised in Bolivia, and probably also in the Peruvian sierra, by Indian medicine-men. The operation is performed with any available cutting instrument, such as a sharp pocket-knife or a chisel, and the process is one of incision and scraping. We heard of one case—that above mentioned—in which the aperture, although irregular, was covered by a piece of gourd; but this, if true, would appear to be exceptional. The Indian lived, and possibly still lives, about twelve miles north of La Paz.

² *Primitive Trephining in Peru*, Sixteenth Rep't of the Bureau of American Ethnology, 1894-95, pp. 3-72.

Francisca Calderón, an Indian woman from the vicinity of Huata, had her skull fractured in a fight and was trephined. The aperture was about the temporal ridge, irregularly oblong, and had not been closed; the skin was sewed over it and she felt little discomfort except after a debauch. The operation was performed, with simple, well-sharpened pocket-knives, by a well-known Indian medicine-man named Paloma. The woman said the operation was painful, but beyond this she was uncommunicative; she disappeared as soon as possible and avoided us studiously thereafter. The Aymará Indian, on all such matters, is very reticent toward foreigners, unless he expects relief or assistance; even then he gives only the most indispensable information, and lies deliberately if he thinks some benefit may accrue from it.

At the pueblo of Apolobamba, near the river Beni, in north-eastern Bolivia, a mestizo of consideration named Gregorio Gamez fractured his skull on the left side, above the temporal bone. An amateur surgeon (*aficionado*) trephined him, Indian fashion, and the aperture, which is oblong and irregular, was left open, only the skin being sewed over it. The operation was performed with knives, and Gamez asserted that little pain was felt after the periosteum had been cut, and no inconvenience was experienced after the wound had healed.

Everywhere we heard that trephining was not a "lost art" among the Aymará Indians. It is still performed by the medicine-men, and not infrequently, since fractures of the skull occur during every one of the annual or semi-annual engagements fought between neighboring communities and in the drunken brawls accompanying their festivals. Why the operation is kept secret as far as possible was not ascertainable, for no inconvenience results to the Indian during the healing process so long as reasonable care is exercised. The intimate connection, however, between Indian medicine and witchcraft, and the belief in the reality of "*malefice*" among both mestizos and Indians, are conducive to many crimes, very few of which are ever punished.

That the medical faculty of Bolivia is not jealous of the Indian shaman and does not look upon him as transgressing the law, is shown by their treatment of the Aymará Indian Paloma. This

individual died a few years prior to our visit to the peninsula of Huata, so that our information is derived at second hand, but it comes from sources that place it beyond doubt.

Paloma dwelt at or near the town of Hacha-cache, north of La Paz and a short distance from the lake. He was a shaman or medicine-man of the class called *Kolliri*, who practise Indian medicine, or medical magic, as a special vocation along with the common arts of husbandry or any menial work by which to gain a livelihood. Paloma appears to have had a natural talent for surgery, trephining with striking success although with the most ordinary cutting tools. His fame extended beyond the limits of the province of Omasuyos, of which Hacha-cache is the capital, and some of the members of the medical faculty at La Paz, learning of his successful operations with such clumsy implements, presented him with a box of surgical instruments which, it is stated, he never used, preferring his own primitive way. Whether this detail is true or not I am not prepared to assert, but the fact of the gift has been repeatedly affirmed and seems to be well established. He required and accepted compensation like all medicine-men, when he thought he could get it, but he also plied his professional vocation without pay. Indians in straitened circumstances (and they always declare themselves paupers when it is to their interest to do so) were attended by him without charge. Paloma was a benefactor to his community, since at his time physicians were almost unknown outside of La Paz. He acquired the art empirically and through training by other and older shamans, and made no secret of it. This fact makes it the more singular that the Indians, without the least cause for apprehension, so persistently deny acquaintance with the process, and indeed the same reticence is manifested toward all whites with respect to every phase of their life and activities; their simplest and most harmless actions and customs are concealed or denied. This comes from a profound aversion to all whites, and especially to foreigners. In early times Indian medicine-men were sometimes persecuted, and not without reason, for many of their practices are dangerous. In this connection I wish to state that while I am far from believing in the possibility of direct results, evil or good, from witchcraft, belief in it is by no means harmless.

Those having faith in sorcerers are induced to crime, since, as they believe in the supernatural power of witchcraft, they rely on it for protection, hence regard crime with impunity.

We found no trace of trephining among the Indians at the present time for any but external injuries, but it does not follow that they use it only for the purpose of removing splinters of bone or for relieving pressure on the brain. Among the trephined crania which we disinterred from the burial places there are some that do not show any indication of lesion; there are also specimens that exhibit two to four perforations, some of them quite small. The theory has been advanced that trephining was a ceremonial operation, and it has even been suggested that it was performed as a punishment for crime. I believe the latter interpretation to be scarcely worthy of serious attention; but the hypothesis that it contained a religious element is not to be discarded entirely, for in cases where a trephined skull exhibits no lesion whatever, the operation was doubtless performed for other than an external cause. The Indian attributes every disease to spiritual influence, from the moment it resists ordinary remedies, and even in cases in which the cause is absolutely unquestioned he suspects the interference of higher powers.

This fact came forcibly to our notice on one occasion while on Titicaca island, when my wife hurt herself against a stone. The shaman whom I had taken care to assign as her assistant, so that she might observe him and glean such information as might be possible, told her to eat a small piece of the stone, lest it injure her again. Indians, like other mortals, suffer from pain in the head; when the pain becomes persistent, suspicion of evil powers dwelling within the cranium, or of some evil substance smuggled inside of it through sorcery, naturally follows. In such cases, after all other charms have proved ineffectual, the final resort is to perforate the skull and let the evil out. This is a religious act, and trephining in such cases is accompanied by ceremonies, which are as yet unknown to us. There is abundant evidence that the existence of foreign bodies in our organism is believed by the Bolivian Indians to be the cause of many diseases, and the *callahuayas* or peddling shamans of Curva, near Charassani, are known to make a lucrative industry of the trick of "extracting" these fancied germs of disease. Suck-

ing of parts of the body afflicted with pain or ulceration is common among the Aymará and Quichua, as among other Indian tribes. We know of an instance in which two medicine-men, near Huata, drew the pus from a syphilitic tumor by means of their lips, and the only precaution taken by them was to rinse their mouths with alcohol before and after the process. Another case known to us is that of two *callahuayas* who pretended to expel live toads from the body of a man suffering from chronic dysentery, and produced the reptiles in testimony of the cure; but the division of spoils caused such a lively broil between the impostors that the trick was exposed. However, the impression which the performance created on the patient's mind, combined with the violent internal remedies used, effected a complete cure. Where such a belief is so deeply rooted, it would not be strange if the same people had opened skulls of those suffering from tumors or from chronic headache, in order to drive out the evil spirit believed to be responsible for the ailment.

The Indians have no anesthetics, properly so called, but the constant use (or I might say abuse) of *coca* creates insensibility. The plant is always applied by them to wounds, bruises, and contusions, and it certainly tends to deaden pain, if not to eliminate it. In this manner the Indians unconsciously employ an anesthetic, although they believe only in its healing qualities.

As to the implements used in trephining before the introduction of iron, we have no positive knowledge. At the ruins of Chujun Paki, near Huata, my wife obtained from a cyst a fragment of skull which had been trephined, and close to it was a small, rude bowl containing two fragments of chipped obsidian with very sharp edges. From the coast at Arica we procured a lancet consisting of a sharp obsidian point inserted in a wooden handle, the point resembling the extreme tip of an arrowhead. While investigating the ruins at Ezcupa, near Pelechuco, in northern Bolivia, on the eastern slope of the Andes, one of our men complained of a strained knee. Our principal laborer at that time was a Quichua medicine-man; he at once broke a bottle in which he had carried alcohol for the offering (without which no excavation, it is thought, can be successful), and from the sharpest fragment made a lancet, with which he bled the

painful spot. There were knives at hand, sufficiently sharp for the purpose, yet the Indian refused to use anything but the glass, which, as it resembled obsidian, he may have preferred on that account.

The primary cause of the invention of trephining by the mountain tribes of Peru and Bolivia may be looked for in the character of their weapons, which are mostly blunt, for crushing and breaking; hence they had to deal almost exclusively with fractures. The ancient missiles were and still are the sling-stone and the *bola* or *llini*, but at close quarters a club of stone or of metal was chiefly used. Spears were carried by the Incas of Cuzco as well as by those of the coast, but their use was not general. A fracture of the skull sometimes resulted in almost instant death, but on the other hand many survived wounds of this sort, at least for a time, and an attempt to remove splinters of bone that pricked the brain, or to cut out fragments that pressed upon it, must have been early regarded as a natural procedure. From such operations on external injuries to similar ones for internal maladies the step was comparatively short.

In closing this brief paper I may say that the Aymará Indians of the province of Pacajes, on the western slope of the cordillera in northwestern Bolivia, were among the few tribes that, in their primitive condition, used bows and arrows. They also employed lancets of flint for bleeding. The Aymará language contains the terms *llisa*, "white flint," and *chillisaa kala*, "black flint," or obsidian. The latter material was especially used for shearing the llama, and there is every likelihood that where obsidian was obtainable, implements made from it were employed in many cases for trephining. The Jesuit Bernabé Cobo, who wrote in the first half of the seventeenth century, and who had considerable practical acquaintance with the Indian tribes of the Peruvian and Bolivian mountains, mentions the custom of bleeding with "very sharp points of flint" and that in very serious cases the shamans placed the patient in a room by himself, "and the sorcerers did as if they would open him by the middle of the body with knives of crystalline stone, and they took out of his abdomen snakes, toads, and other repulsive objects."

It is a source of surprise to me that thus far I have not been able to find any mention of trephining in the early sources.

NUMERAL SYSTEMS OF THE COSTA RICAN INDIANS

By H. PITTIER DE FÁBREGA

In the *Nineteenth Annual Report* of the Bureau of American Ethnology there appears an extensive memoir on the "Numeral Systems of Mexico and Central America," by Dr Cyrus Thomas. This work contains many facts and interesting suggestions, and it may be regarded as exhaustive in so far as it relates to the numeral systems of Mexico and the adjacent parts of Central America. We regret, however, to find several errors, some of which would indicate that the author was not familiar with all the literature pertaining to the languages of southern Central America.

In the present paper I desire to offer what I hope will prove to be a better explanation of the numeral systems of the several Costa Rican tribes; but first I wish to call attention to a few points in Dr Thomas's memoir. On page 882, we read: "The four following lists are from R. F. Guardia (*Lenguas indígenas Cent. Am. Siglo*, pages 101 and 110). The tribes are classed with the Chibcha group, a South American stock, but are, or were, located in Guatemala and Porto Rico." Then follow the lists, which include three Costa Rican languages and the Lean y Mulia. As the Cabécara, Viceyta, and Lean y Mulia appear under the same head, it will be natural for the casual reader to regard them as belonging to a single stock. But I do not see how such an investigator as Dr Thomas, who may be considered an authority on the distribution of the languages and tribes of Central America, could overlook the identity of the Lean y Mulia numerals with those of the Jicaque de Yoró (Honduras), published on page 915 of his memoir:

1.	<i>pani</i>	<i>pani</i>
2.	<i>matiaa</i>	<i>mata</i>
3.	<i>contias</i>	<i>condo</i>
4.	<i>chiquitia</i>	<i>diurupana</i>
5.	<i>cumasopni</i>	<i>comasopeni</i>
	etc.	etc.

A comparison of the vocabularies published by Fernández y Ferráz and Membreño¹ illustrates better still the identity, so that it is easy to understand that the Lean y Mulia were families of the Jicaque stock and were placed next to our two Costa Rican languages simply because the monk who understood these was also acquainted with the first ones. The Jicaque stock is situated in Honduras and not in Guatemala or "Porto Rico," as Costa Rica is called in Dr Thomas's paper.

On page 914 are found the numerals of the "Morenos" of Honduras. As explained by Membreño in his *Hondureñismos* (p. 193 et seq.), the Morenos are Caribs, brought to the mainland from the island of St Vincent, and their numerals are intermixed with French, not with Spanish as Dr Thomas asserts.

	MORENO	FRENCH	SPANISH
4	<i>gadri</i>	<i>quatre</i>	<i>cuatro</i>
5	<i>senc</i>	<i>cinq</i>	<i>cinco</i>
6	<i>sis</i>	<i>six</i>	<i>seis</i>
7	<i>set</i>	<i>sept</i>	<i>siete</i>
8	<i>vit</i>	<i>huit</i>	<i>ocho</i>
9	<i>nef</i>	<i>neuf</i>	<i>nueve</i>
10	<i>dis</i>	<i>dix</i>	<i>diez</i>

I fear, moreover, that the *cínca* of the Sumos, and especially the *aunqui* of the Payas, have nothing to do with the Spanish *cinco*, notwithstanding their apparent likeness.

Now, to return to the numeral systems of Costa Rica, I would first state that Dr Thomas seems to have overlooked the two very important publications of Thiel² and Gabb,³ and also the essays of Gagini and Pittier.⁴ The first two are fundamental to the study of Bribri, or Viceyta, and to that of several other dialects; and in the

¹ Alberto Membreño, *Hondureñismos: Vocabulario de los provincialismos de Honduras*, 2ª edición, Tegucigalpa, 1897.

² Dr Bernardo Augusto Thiel, *Apuntes lexicográficos de las lenguas y dialectos de los Indios de Costa Rica*, San José de Costa Rica, 1882.

³ Williams M. Gabb, *On the Indian Tribes and Languages of Costa Rica*, Proceedings Amer. Philosophical Society, Philadelphia, 1875.

⁴ H. Pittier and C. Gagini, *Ensayo lexicográfico sobre la lengua de Tirraha*, San José de Costa Rica, 1892. H. Pittier de Fábrega, *Die Sprache der Bribri Indianer in Costa Rica, herausgegeben und mit einer Vorrede versehen von Dr. Friedrich Müller*. Mit einer Karte. Wien, 1898.

latter the numeral systems are explained at length, at least for the Bribri and Térraba. In recent years I have been enabled to make a partial investigation of most of the other native languages still spoken in Costa Rica, the results of which, in relation to the numerals, I shall here endeavor to give.

1. BRIBRI

As already shown by Gabb, the Bribri have six distinct modes of counting, dependent on the shape or nature of the objects to be counted. In explanation of these methods, it will suffice to reproduce the examples given in my *Sprache der Bribri*:

BRIBRI MODES OF COUNTING

(a) *For People*

<i>Sē ekur</i>	1	person (lit. us one, or our one)
<i>sē biúr</i>	2	persons
<i>sē mñor</i>	3	"
<i>sē kur</i>	4	"
<i>sē sker</i>	5	"
<i>sē terul</i>	6	"
<i>sē kuúr</i>	7	"
<i>sē pagul</i>	8	"
<i>sē suri-tu</i>	9	"
<i>sē dābop</i>	10	"
<i>sē dābop ki ekur</i>	11	" (lit. ten upon one)
<i>sē dābop ki buúr</i>	12	"
<i>sē dēbop buu djuk</i>	20	" (lit. to do two, or twice ten)
<i>sē dēbop buu djuk ki ekur</i>	21	"
<i>sē dēbop mña djuk</i>	30	"
<i>sē dēbop kie djuk</i>	40	"
<i>sē dēbop ske djuk</i>	50	"
<i>sē dēbop ker djuk</i>	60	"
<i>sē dēbop kuúr djuk</i>	70	"
<i>sē dēbop par djuk</i>	80	"
<i>sē dēbop suri-tu</i>	90	"
<i>sē dēbop djuk dēbop</i>	100	" (lit. to do ten times ten)

In this case the expression corresponding to the number is preceded by the pronoun *sē*, we, us; *Sē ekur*, *sē biúr*, etc., should be translated 'one of us,' 'two of us,' etc.

(b) Round Objects

<i>áx ek</i>	1 orange
<i>áx buúk</i>	2 oranges
<i>áx mñor</i>	3 "

and so on, as for people. Here, as in every other case, the name of the objects to be counted precedes the numeral, and the only distinguishing feature is a slight variation in the form of the latter.

(c) Small Animals

<i>du etk</i>	1 bird
<i>du butk</i>	2 birds
<i>du mñatk</i>	3 "
<i>du kir</i>	4 "

and so on. Same observations as for round objects.

(d) Long Objects and Large Animals

<i>stsa è-tub</i>	1 rope
<i>stsa bu-tub</i>	2 ropes
<i>stsa mña-tub</i>	3 "
<i>stsa ki-tub</i>	4 "
<i>stsa ske-tub</i>	5 "
<i>stsa tek-tub</i>	6 "
<i>stsa tuk-tub</i>	7 "
<i>stsa pak-tub</i>	8 "
<i>stsa suri-tub</i>	9 "
<i>stsa dēhop-tub</i>	10 "
<i>stsa dēhop ki e-tub</i>	11 "

The numeral is followed by the particle *tub*, the meaning of which I have not as yet been able to ascertain.

(e) Trees and Plants

<i>tsirú iré kar</i>	1 cacao tree
<i>tsirú bur kar</i>	2 cacao trees
<i>tsirú mñor kar</i>	3 " "
<i>tsirú kir kar</i>	4 " "
<i>tsirú sker kar</i>	5 " "
<i>tsirú fērul kar</i>	6 " "
<i>tsirú kur kar</i>	7 " "
<i>tsirú pagur kar</i>	8 " "

<i>tsirú suri-tu kar</i>	9 cacao trees
<i>tsirú džəp kar</i>	10 " "
<i>tsirú džəp ki er-kar</i>	11 " "

and so on, as for the first series. In counting trees, the name of the special tree (here *tsirú*, cacao) precedes the numeral, which is followed by the generic name *kar*, tree.

(f) Houses

<i>hú etk ué</i>	1 house
<i>hú butk ué</i>	2 houses
<i>hú mñatk ué</i>	3 "
<i>hú kir ué</i>	4 "
<i>hú sker ué</i>	5 "
<i>hú terur ué</i>	6 "
<i>hú kur ué</i>	7 "
<i>hú págur ué</i>	8 "
<i>hú suri-tu ué</i>	9 "
<i>hú džəp ué</i>	10 "
<i>hú džəp ki etk ué</i>	11 "

and so on. The mode of counting houses is analogous to that for trees, except that the suffix is *ué*.

2. CABÉCARA

In the Cabécará language the first five numerals are *é-kra*, *boor*, *mñar*, *kir*, and *sker*, with the following variations :

<i>é-tka hú tré</i>	1 house
<i>boor hú tré</i>	2 houses, etc.
<i>gsa djuri é-tba</i>	1 rope
<i>gsa djuri bo-tbú</i>	2 ropes
<i>gsa djuri mña tbú</i>	3 "
<i>gsa djuri thi-tbú</i>	4 "
<i>gsa djuri sker-tbú</i>	5 "
<i>tsirú-kurú er-ka-ri</i>	1 cacao tree
<i>tsirú-kurú bor-ka-ri</i>	2 cacao trees, etc.

For people, round objects, and birds or other small animals, the Cabécará use the ordinary numerals, preceded by the name of the

object counted and without a suffix. The Cabécara have also ordinal numbers, as follows:

<i>i-sē-kētū</i>	first
<i>i-tū-ki</i>	second
<i>i-bē-ta</i>	third
<i>i-xā-na</i>	fourth

In comparing the four dialects of the Cabécara language, a few slight variations are observed. The examples given are from the Coen dialect, which I have studied at length. One and two, *ē-kra* and *bo-or*, remain the same; *mēnar* differs only in its terminal vowel being more or less open, i. e., it passes gradually through *a*, *ā*, and *o*. *Kir* takes a *b* initial in the Chirripó and Tucurrique dialects (*e-kir*), and sometimes a *t* (*t-kir-i*) in Cabécara. In Chirripó, *sker*, five, becomes *skun-grē*.

The Tucurrique count only to five in their language, and thence onward employ the Spanish numerals. For numerals six to nine the Coen repeat the count from one to five, adding the prefix *ki*, 'upon': *ki-e-kra* upon one, *ki-boor* upon two, etc. The Estrella and Chirripó have special terms, viz., *ter-lu* or *ter-ē-re* six, *kur* seven, *pagr* eight, *tēnt-grē* nine. In the four dialects ten is *dē-bop* or *dē-bom*, and none of them seems to extend beyond this. On asking a Cabécara why he did not count like the Estrella people, he answered, "Because *this* is the only right way," and at the same time put his left thumb against his right thumb and said, "*ki-ē-kra*"; then he placed his left index against his right index and said, "*ki-boor*," etc.

3. TÉRRABA

The Térraba language seems in many ways to have been systematized, probably at the instance of Franciscan missionaries. For example, there are two definite series of numerals, characterized by the prefixes *kró* and *kuó*, the first of which is employed in counting long objects, the other in counting rounded ones. In fact, *kró* means 'tree,' and *kuó* 'round.' The Brurán people can count up to one thousand, although I doubt whether there is among them any one who can conceive such a quantity.

1. <i>kua-rá</i>	<i>kra-rá</i>
2. <i>kuú-bú</i>	<i>kru-bú</i>

3.	<i>kuo-miá</i>	<i>kro-miá</i>
4.	<i>kuo-bkin</i>	<i>kro-bkin</i>
5.	<i>kuo-xkin</i>	<i>kro-xkin</i>
6.	<i>kuo-terrē</i>	<i>kro-tērre</i>
7.	<i>kuo-kok</i>	<i>kro-kok</i>
8.	<i>kuo-kuong</i>	<i>kro-kuong</i>
9.	<i>kuo-xkup</i>	<i>kro-xkup</i> (u = French <i>eu</i>)
10.	<i>kuo-rubōp</i>	<i>kro-rbōp</i>

Ten is also *sak-kuará*, and this term is used in forming the numerals from 11 to 19.

11.	<i>sak kua-rá kinxó kua-rá</i>	<i>sak kua-rá kinxó kra-rá</i>
12.	<i>sak kua-rá kuú-bú</i>	<i>sak kua-rá kru-bú</i>
13.	<i>sak kua-rá kuo-miá</i>	<i>sak kua-rá kro-miá.</i>
20.	<i>sak puk</i>	
21.	<i>sak puk kinxó kua-rá</i>	<i>sak puk kinxó kra-rá</i>
22.	<i>sak puk kinxó kuú-bú</i>	<i>sak puk kinxó kru-bú</i>
30.	<i>sak mia</i>	
31.	<i>sak mia kinxó kua-rá (etc.)</i>	
40.	<i>sap kin</i>	
50.	<i>sak xkin</i>	
60.	<i>sak tērre</i>	
70.	<i>sak kok</i>	
80.	<i>sak kuong</i>	
90.	<i>sak xkop</i>	
100.	<i>sak dēbop</i>	
101.	<i>sak dēbop kinxó kua-rá</i>	
110.	<i>sak dēbop kinxó sak kua-rá</i>	
120.	<i>sak dēbop kinxó sak puk</i>	
130.	<i>sak dēbop kinxó sak mia</i>	
200.	<i>sak dēbop krin kuú-bú</i>	
210.	<i>sak dēbop krin kuú-bú kinxó sak kua-rá</i>	
300.	<i>sak dēbop krin kuo-miá</i>	
400.	<i>sak dēbop krin kuo-bkin</i>	
1000.	<i>sak dēbop krin kuo-ru bop.</i>	

Sak or *sap* means the fingers, that is, the ten fingers of both hands. One finger is *sapkuó*; ten, or *sak-kua-rá*, means the (ten) fingers once. In *sak-puk*, twenty, or twice ten, we find the Tirub *puk* or *pug*, instead of *bú*. In counting the whole series of numbers,

the tens are not expressed, i. e., 11 is *kin-xó kua-rá* or *kin-xó kra-rá*, 16 is *kin-xó kuo-tërre* or *kin-xó kro-tërre*; and similarly 21, 31, or 26, 36, etc. But an isolated number must express itself completely: *luú sak-mia kin-xó kua-rá*, 31 houses, etc.

4. TÍRUB

The Tírub, on the headwaters of Tararia river, are partly the ancestors of the Térraba of Diquis valley. They seem to count up to seven only:

- | | |
|--------------------|---------------------|
| 1. <i>fra-da</i> | 4. <i>b-keng-de</i> |
| 2. <i>pug-da</i> | 5. <i>x-keng-de</i> |
| 3. <i>mia-re</i> | 6. <i>ter-de</i> |
| 7. <i>ko-gu-de</i> | |

But their language has not yet been thoroughly investigated, and further research may bring to light a more comprehensive numeral system.

5. BRUNKA

The Brunka Indians certainly do not count beyond eight, and this is much the more to be wondered at, inasmuch as they are by far the most intellectual and civilized of all the Costa Rican aborigines. Their numerals are:

- | | |
|--------------------|---------------------|
| 1. <i>et-tse</i> | 5. <i>kxi-xkang</i> |
| 2. <i>boók</i> | 6. <i>ttx-hang</i> |
| 3. <i>ma-ang</i> | 7. <i>kuú qhú</i> |
| 4. <i>ba-qkang</i> | 8. <i>ut-ang</i> |

Beyond eight they employ the Spanish numerals.

6. GUATUSO

The numeral system of the Guatusos is still more poverty-stricken, extending only to five; but they have also a word for ten, the root of which evidently means two:

- | | |
|-------------------|---------------------|
| 1. <i>doo-ka</i> | 4. <i>po-quái</i> |
| 2. <i>ppán-gi</i> | 5. <i>o-ti-ni</i> |
| 3. <i>poò-se</i> | 10. <i>pa-un-ka</i> |

THE COSTA RICAN LANGUAGES IN GENERAL

In 1898, not having knowledge at that time of Dr Adolf Uhle's paper, presented ten years before, on the relations and migrations

of the Chibcha,¹ I appended to my grammar of the Bribri² the following conclusions, the result of personal investigations on the subject:

(1) With but few and possibly casual exceptions there is no close connection between the languages of Costa Rica and those formerly spoken northward from that country.

(2) San Juan river and Lake Nicaragua form the true ethnic boundary between Central America and South America, excepting about the western slope, where northern migrations penetrated as far as the peninsula of Nicoya.

(3) The Costa Rican languages undoubtedly bear closest resemblance to those spoken toward the southeast, in Chiriquí and Veragua, and analogy can be traced to the Cuna, Chibcha, Tule, and the languages of more distant tribes in the northern part of South America.

(4) The Nicaragua depression forms a chorographic limit to the dispersion of the two great ethnic groups of Central America as well as to the distribution of plants and animals.

A further study of the subject has satisfied me that the second and fourth of these conclusions are too absolute in their assertion, since it has been found that the southern migration has gone beyond the San Juan river as far as Honduras, in the same way that, on the western side, the Chorotegas have penetrated far beyond the lake of Granada, to the end of the peninsula of Nicoya. For there is no doubt that the Ramas and Sumos of Nicaragua and the Payas of Honduras belong to the same linguistic stock as the Costa Rican Indians, as a comparison of the numerals in the table which follows quite clearly shows.

In 1888 Dr Uhle endeavored to prove the existence of a parental bond between the Isthmian Indians and the Chibcha, by comparing their numerals and an extended series of selected words. But at that time he did not have at his disposal very complete data on the languages of the former, so that a repetition of the experiment will give results far more conclusive.

An examination of the Guaymi and Dorasque dialects will show

¹ Adolf Uhle, *Verwandtschaften und Wanderungen der Tschibtscha* (*Compte-Rendu du Congrès International des Américanistes*, 7^e session, Berlin, 1888, pub. Berlin, 1890).

² Loc. cit., p. 51.

at once their analogy with the Terraba; they have the prefixes *kuo* and *kra*, more or less altered; and similar lexical devices are traceable in the Cuna and even in the Chibcha. In order to facilitate these comparisons, the first thing to be done is to eliminate the affixes, so as to have before us the numerical expressions only. Also, in the cases where there are several variations of a single idiom, the simplest root should be chosen as a standard. We have taken into account these details in forming the following tables, in which are compared the numerals of all the Central American tribes that may possibly belong to a single linguistic stock:

COMPARISON OF NUMERALS IN CENTRAL AMERICAN LANGUAGES

	1	2	3	4
Chibcha	<i>at-a</i>	<i>bo-za</i>	<i>mi-(ka)</i>	<i>mui-hi-(ka)</i>
Cuna	<i>(kuē)-tai-ke</i>	<i>po-kua</i>	<i>pa-(gua)</i>	<i>pa-ke-(gua)</i>
Dorasque	<i>ku-ē</i>	<i>mat, mo</i>	<i>mas, bak</i>	<i>pa-ki, pa-ka</i>
Guaymi	<i>ti, da</i>	<i>bu</i>	<i>mo</i>	<i>bo-ko</i>
Terraba	<i>ra</i>	<i>bu</i>	<i>mia</i>	<i>b-kin</i>
Tirub	<i>ra</i>	<i>pug</i>	<i>mia</i>	<i>b-keng</i>
Cabécara	<i>ek</i>	<i>be</i>	<i>mē-nar</i>	<i>b-kir</i>
Bribri	<i>ek, et</i>	<i>bu</i>	<i>mē-nar</i>	<i>kir</i>
Brunka	<i>et</i>	<i>bo</i>	<i>ma-ang</i>	<i>ba-qkang</i>
Guatuso	<i>doō-ka</i>	<i>pan</i>	<i>poō-se</i>	<i>po-qai</i>
Rama	<i>sai-ming</i>	<i>puk</i>	<i>pang-(sak)</i>	<i>kun-kun</i>
Sumo	<i>as</i>	<i>bo, bu</i>	<i>bas</i>	<i>arun-ka</i>
Paya	<i>as</i>	<i>pok</i>	<i>ma-i</i>	<i>ka</i>
	5	6	7	
Chibcha	<i>kiz-(ka)</i>	<i>ta</i>	<i>ku-kup(ka)</i>	
Cuna	<i>a-ta-le</i>	<i>ner-kua</i>	<i>ku-(ble-ge)</i>	
Dorasque	<i>ma-le</i>	<i>pa-ka, ta-ka</i>		
Guaymi	<i>ri-ge</i>	<i>ti</i>	<i>ku-gu</i>	
Terraba	<i>x-kin</i>	<i>terre</i>	<i>kok</i>	
Tirub	<i>x-keng</i>	<i>ter</i>	<i>ko-gu</i>	
Cabécara	<i>s-ker</i>	<i>ter, ted</i>	<i>kur</i>	
Bribri	<i>s-ker</i>	<i>ter</i>	<i>kur</i>	
Brunka	<i>xki-xkang</i>	<i>tex-hang</i>	<i>ku-u-qku</i>	
Guatuso	<i>o-ti-ni</i>			
Rama	<i>kuik-as-tar</i>			
Sumo	<i>cin-ka</i>			
Paya	<i>aun-ki</i>	<i>se-ra</i>	<i>ta-uā</i>	

	8	9	10
Chibcha	<i>su-hu(za)</i>	<i>a-ka</i>	<i>uò-chi-hi-ka</i>
Cuna	<i>pa-ba-ka</i>	<i>pa-ke-ba-ge</i>	<i>am-be-gi</i>
Dorasque			
Guaymí	<i>huò</i>	<i>kon-kon, t, kon</i>	<i>jó-to</i>
Térraba	<i>kuòn</i>	<i>xkup</i>	<i>s-bop</i>
Tirub			
Cabécará	<i>pa-grè</i>	<i>tè-ne-grè</i>	<i>dè-bom, do-bob</i>
Bribri	<i>pa-gul</i>	<i>su-ri-ti</i>	<i>dèbop</i>
Brunka	<i>ut-ang</i>		
Guatuso			<i>pa-un-ka</i> ¹
Rama			
Sumo			<i>sa-lap</i>
Paya	<i>o-uá</i>	<i>tax</i>	<i>u-ka</i>

MODES OF COUNTING

It is not for me to decide whether the variation according to the class of the objects to be counted, observed in the numerals of several of the languages referred to in this paper, is a peculiar and original feature of these languages, or whether it has been transmitted from a more highly developed linguistic system. With reference to the use of the fingers in primitive numeration and to the origin of the words expressing numbers, I may be allowed to mention that the Costa Rican Indians have a double mode of counting, i. e., they use their fingers in current oral computations, and grains of corn whenever they wish to keep a record of any number. In my expeditions across the southern part of the country, my men used grains of corn to keep an account of their days of labor; and in Talamanca, a Bribri, who had collected beetles and land shells for me at the rate of ten for five cents, presented me with a number of grains corresponding to the groups of ten collected. The custom of counting by means of seeds was transmitted from the aborigines to the Spanish invaders, but instead of corn they used cacao beans, and these even acquired sometimes a monetary value. A popular expression still in vogue in Costa Rica, in speaking of a worthless thing, is "*No vale dos cacao*"; that is to say, "It is not worth two cacao beans."

¹ *Pa, pan* is two in Guatuso, *am-ki* is five in Paya. It is not unlikely then, that, given the relation between the two languages, *pa-un-ka* is "two-five."

Now, the numeral expressions bear a well-defined correlation with the custom just described. In Bribri, *i-kuo* means a grain of corn, and *e-kra* means one (originally, without doubt, to count long things, *e-kuo* having fallen into disuse; compare the Térraba numerals). In Brúnka *e-e-tsi* and *e-e-tsé* have the same relative signification, and the *as* (= one) of the Sumos and Payas is found to correspond again with corn in *as-ka*, a corn-field. This seems to indicate that several, if not all, of the tribes of southern Central America counted by means of grains of corn, one grain finally becoming the symbol of unity.

IROQUOIS IN NORTHWESTERN CANADA

By ALEXANDER F. CHAMBERLAIN

The primitive home of the Iroquoian stock was, according to Brinton,¹ "in the district between the lower St Lawrence and Hudson bay." Their historical area, exclusive of the Cherokee offshoot and cognate tribes in the Virginia-Carolina country (with its *Hinterland*), is represented on the Powell linguistic map by an irregular triangular extension from a point about two-thirds the distance between the mouths of the Ottawa and the Saguenay, the base-line of which runs from the head of Chesapeake bay to central Ohio and southern Michigan. The lines of the excursions and forays of the Iroquois outside this area led to St John's river in New Brunswick, to the interior of Massachusetts and parts of Maine in New England, far into the Ohio-Mississippi valley and along the northern shore of Lake Huron, whither they went in pursuit of the Ojibwa and other tribes.

Besides these warlike expeditions, the energy and spirit of adventure of the Iroquois have asserted themselves in other and more peaceful directions. Their intelligence and their ability as canoe-men led the whites who had to do with the fur-trade and the exploration of the far west to employ them both in private enterprises and as servants of the great corporations. The Hudson Bay Company, the Northwestern Fur Company, etc., had from time to time many Iroquois Indians in their service. In the "Liste des 'bourgeois,' commis, engagés, et 'voyageurs' de la Compagnie du Nord-Ouest, après la fusion de 1804," we find Simon Allen, an Iroquois, set down as *contremaître* for the department of Athabasca river; and as simple *voyageurs*, "Paul Cheney-e-choe, Iroquois," "Ignace Nouwanionter, Iroquois," and "Jacques Ouitier Tisato, Mohawk."² The departments farther east show also a few Iroquois names.

¹ *The American Race*, N. Y., 1891, p. 81.

² Masson, *Récits de voyages, lettres et rapports inédits relatifs au Nord-Ouest canadien*, 1^{re} ser., Quebec, 1889, pp. 395-413.

The Iroquois canoemen in the service of the Hudson Bay Company are reputed to have been the most expert in the country, and many stories are told of their skill and spirit of adventure. Sir George Simpson, a famous governor of the Hudson Bay Company, after whom Fort Simpson was originally named, used to make an annual trip from Montreal (*via* the Ottawa, Lake Nipissing, Lake Superior, Lake of the Woods, and Winnipeg river) to the end of Lake Winnipeg in a birch-bark canoe, paddled by Iroquois. Says Rev. E. R. Young:¹ "His famous Iroquois crew are still talked about, and marvellous are the stories in circulation about many a northern camp-fire of their endurance and skill." And again: "There are hundreds of people still living who distinctly remember when the annual trips of a great governor were made from Montreal to Winnipeg in a birch-bark canoe, manned by Indians."

Harmon,² under date of June 22, 1800, mentions encountering near Rainy Lake Fort, west of Lake Superior, "three canoes, manned by Iroquois, who are going into the vicinity of Upper Red River to hunt beaver, for the North West Company. Some of them have their families with them." One of Harmon's men, "an Iroquois," died Oct. 22, 1903, at Alexandria, near the source of Upper Red River, west of Lake Winnipeg.

Father Petitot³ pays tribute to the services of the Iroquois of the Sault St Louis (Caughnawaga) as canoemen, guides, carriers, and *voyageurs* in the service of the Hudson Bay Company, — "they followed Franklin, Richardson, and Back to the Polar Sea." In the first years of his residence in far northwestern Canada, Petitot met with several of these expatriated Iroquois in the *pay d'en haut*, as the popular Canadian-French term for this region runs. In another place Petitot briefly relates the fatality which, in the old days, overtook a large canoe, manned by Iroquois at the great rapids of the Noyés on the Slave river, in consequence of the foolhardiness of the *commis* in charge. It is from this catastrophe that the rapid got its name of "Rapids of the Drowned."

¹ *By Canoe and Dog-train among the Cree and Salteaux Indians*, Toronto, 1890, p. 75.

² *Journals*, new ed., N. Y., 1903, p. 19.

³ *En route pour la Mer glaciale*, 2^e éd., pp. 53, 311.

Major Chadwick,¹ in his sketch of the Iroquois, mentions "Michel's Reserve," near Edmonton, in Alberta, 40 square miles," on which are situated 82 "Indians" of this stock. The existence of these Iroquois so far beyond the normal limits of their people has apparently been overlooked altogether by ethnologists. They are not noticed under the rubric of the Iroquoian family in Major J. W. Powell's "Indian linguistic families of America, north of Mexico."² Just as these lines are being written, however, there appears a note on the subject by Mr James Gibbons,³ Indian agent at Edmonton, under date of November 24, 1903. From this we learn that "the members of Michel's band are the children and grandchildren of two brothers, Michel and Baptiste, who came originally from near Montreal (probably from Caughnawaga)." According to Michel Callihoo (i. e., Garheyo, "Fine Forest"), who is now more than seventy years of age, his father went to the North West "at least a hundred years ago." The party of Iroquois who went with him are said to have numbered about 40 (all males, no women venturing with them), and they entered the service of the Hudson Bay Company and other fur companies, Michel's father becoming a boatman in the pay of the Hudson Bay people.

It appears that some of the more adventurous ones made their way out on the plains, where eighteen were killed in a fight with the Blackfeet. After this, Mr Gibbons says, "the majority appear to have gone up to the Jasper Pass country, and though I hear of them occasionally, they are outside my field of enquiry." It is probable that some of those who went into the Jasper Pass region were the Iroquois referred to by Father Morice as having been killed by the Carrier Indians of British Columbia "some 60 or 70 years ago" (from 1889), for the sake of their canoes.

The father of Michel married a French *métisse*, and he and his brother alone are said to have left descendants in Alberta. Of these Mr Gibbons gives the following account: Thirteen families, numbering sixty-six individuals, can trace descent from one or other of these brothers, and, as no women came with the original immi-

¹ *The People of the Long House*, Toronto, 1897, pp. 124-125.

² *Seventh Ann. Rep. Bur. Ethnol.*, 1885-'86, Washington, 1891, pp. 76-81.

³ *Iroquois in the North West Territories*, Annual Archaeological Report for 1903, pp. 125-126.

grants, it is obvious that the Iroquois blood in this generation is attenuated to the vanishing point. They have lost their language, and, if they retain any tribal characteristics, they have become so feeble that the ordinary observer of Indian manners is unable to discern them. In appearance, habits, and social status, they are indistinguishable from the half-breeds of the country.

The Iroquois community of the Jasper Pass is evidently the one referred to by Dr V. Havard,¹ in his account of "The French Half-breeds of the Northwest," in which he states that "where the Saskatchewan issues from the Rocky mountains are a small number of Iroquois *métis*." Their settlement in the Rocky mountains he regards as "a striking illustration of the roaming propensity of savages."

Mackenzie² mentions these Iroquois as follows: "A small colony of Iroquois emigrated to the banks of the Saskatchewan, in 1799, who had been brought up from their infancy under the Romish missionaries, and instructed by them at a village within nine miles of Montreal."

This little group of Iroquois may have exerted an influence even beyond the Rocky mountains. Father Morice,³ in his detailed account of the Western Dénés, describes and figures "a Tsé'kéhne cross-bow of modern manufacture," which "does duty against small game, or for target practice, and is also used by children as a plaything." Although the old men of the tribe now living state that such weapons have always been in use, Father Morice remarks: "I cannot believe that cross-bows were known to the original Tsé'kéhne. It is much more probable that they have been derived from the band of Iroquois established in close proximity to the territory of the Beaver Indians."

Elsewhere the same authority⁴ ascribes another factor in Déné culture to the Iroquois. In the beginning of the nineteenth century the Carrier Dénés used only birch-bark canoes, — "'dug-outs' are a recent importation from the east." Says Father Morice: "Some sixty or seventy years ago, a party of Iroquois, having crossed the

¹ *Ann. Rep. Smithsonian Inst.*, 1879, Washington, 1880, p. 318.

² *Voyages*, new ed., N. Y., 1903, vol. II, p. 345.

³ *Trans. Canadian Inst.*, Toronto, 1894, IV, pp. 59-60.

⁴ *Proc. Canadian Inst.*, 1889, 3d ser., vol. VII, p. 131.

Rocky mountains, reached Lake Tatlh'a in two wooden canoes which at once excited the curiosity and covetousness of a band of Carriers, who killed the strangers for the sake of their canoes. These having been brought here (Stuart's Lake) served as models for the building of the first home-made 'dug-outs.'"

Writing in 1871, Mr C. S. Jones,¹ United States Indian Agent at the Flathead agency, Jocko reserve, Montana, attributes to Iroquois from Canada the stimulating of the Flathead Indians to send to St Louis in 1839 the deputation whose visit resulted in the coming to their country of Father de Smet, the famous missionary, who labored so well among the Indians of Idaho, Montana, and British Columbia — Kootenay, Flatheads, and others. According to Mr Jones, "nearly forty years since [about 1830] some Iroquois from Canada, trading with the Flatheads, told them of the teaching of the Jesuit fathers, who for many previous years had been laboring among them."

These facts and statements are of interest as indicating the culture-bearing character of the Iroquois and the influences exerted by them at points so far distant from their original home.

¹ *Rep. Comm'r Ind. Aff.*, 1871, p. 425.

DERIVATION OF THE NAME POWHATAN

By WILLIAM WALLACE TOOKER

No name, perhaps, is more thoroughly identified with the early annals of the Virginia Colony than that of *Powhatan*, which still survives among the geographic names of the state to designate a county, its seat, a station, and other features, both natural and political.

During several years' research on the Algonquian names recorded on Captain John Smith's map of Virginia, aided by careful study of his writings for any clew or hint that might tend toward the solution of some of the problems presented by them, I became strongly impressed with the idea that the generally accepted etymology and translation given by the late Dr J. H. Trumbull,¹ viz., "*Powhat-hanne*, or *Pau't-hanne*, 'falls in a stream'," and so reiterated in several of his contributions to Algonquian geographic nomenclature, was in error for a number of reasons; but what might be its more probable and acceptable etymology for a long time eluded my best efforts. I am at last fully satisfied that the true meaning of the term has been discovered, as it is so well corroborated by the contemporary facts herein presented.

Indeed, it is these facts that have brought about the discovery, which, like that of Columbus and the egg, is a simple one; yet the facts plainly indicate the error into which Dr Trumbull was led, as they show indisputably that he did not study the main points of the question concerning the exact locality of the Indian town. Dr Trumbull's translation, therefore, must be regarded as a hasty conclusion, which a subsequent revision of the name might have changed, although his etymology is seemingly upheld through the resemblance of *Powhatan* to names of similar orthography, but which are of different etymology and meaning.

¹ *Historical Magazine*, 2nd ser., vol. VII, p. 47, 1870.

Heckewelder's "*Pawat-hanne*, 'the stream of wealth and fruitfulness'," like other of his derivations, is unworthy of consideration.

For a proper understanding of the real origin and etymology of *Powhatan*, we shall quote Smith and his associates in order to show the exact location of the place which bore this name, the true appreciation of the application of the term by the Indians themselves, and its use by Smith and his companions. We cannot doubt that Smith was well aware of the derivation, although he never alluded to it.

In the first place, as Smith¹ informs us, "Their chiefe ruler is called *Powhatan*, and taketh his name of the principall place of dwelling called *Powhatan*. But his proper name is *Wahunsonacock*." This explanation takes away the personal attributes as embodied in a name when bestowed upon an individual, and gives it to a place.

Captain Archer² says: "We came to the second Ilet Described in the Ryver; over against which on *Popham* syde is the habitatyon of the greate kyng *Pawatah*: which I call *Pawatahs Towre*; it is scituat upon a highe Hill by the water syde, a playne betweene it and the water. 12. score [yards] over, whereon he sowes his wheate, beane, peaze, tobacco, pompions, gourdes, Hempe, flaxe, &c. And were any Art vsed to the naturall state of this place, it would be a goodly habitatyon. . . . But now rowing some. 3. myle in shold water we came to an overfall, impassable for boates any further."

Smith further says (page 6): "Giuing vs in a guide to go with vs vp the Riuer to *Powhatan*, of which place their great Emperor taketh his name, where he that they honored for King vsed vs kindly. But to finish this discoverie, we passed on further, where within an ile [a mile] we were intercepted with great craggy stones in the midst of the riuer, where the water falleth so rudely, and with such a violence, as not any boat can possibly passe, and so broad disperseth the streame."

Again, according to Wingfield, Smith says (pages 91-92): "In 6 daies they arrived at a towne called *Powhatan*, consisting of

¹ *History of Virginia*, p. 375.

² *Arber's Smith*, p. xliii.

some 12 houses pleasantly seated on a hill: before it, 3 fertile Isles, about it many of their cornfields. The place is very pleasant, and strong by nature. . . . To this place, the river is navigable; but higher within a mile, by reason of the Rocks and Isles, there is not passage for a small boat: this they call the Falls."

Mr Edward C. Bruce¹ says: "Smith's brief description is enough in itself amply to identify the locality. The falls are about a mile above; directly in front are the three islands, though one of them has been reduced by freshets to the humble station of a sandbar. Of this there can be no mistake, since no other island exists between the falls and the immediate neighborhood of Appomattox, a distance of forty miles. For considerably more than a century, Powhatan, as it is styled, has been in the hands of one family. Taste, time, and wealth have combined to enhance the natural beauty of the spot."

Dr Lyon G. Tyler² says: "A mile below Richmond is a place called Powhatan, long the home of the Mayos, who came from Barbadoes to Virginia."

It will be observed that these quotations are explicit in locating the village of Powhatan on a hill, and in a locality situated about a mile below the falls, a fact that in no event, to an Indian's mind, would induce him to bestow a name connotive of "falls in a river" on a place where it would not be appropriately applied. The Indians were very literal and particular in naming natural features, so that no doubt could arise about the description in another native's mind. Strachey³ gives "*Pagwachowng* (= *pagu-achuan*, 'where the overflow widens or breaks'). The falls at the end of the Kings river," as the true name for the falls. Therefore Trumbull's translation does not harmonize with the actual situation of the town, and on that account must be in error.

Again, the town was situated on a high hill, doubtless a notable landmark some little distance back from the water; and this fact is confirmed by Smith's map, on which Powhatan is laid down as a "king's residence" with the contour lines of a hill about it, the river a short distance away, and the falls still farther off.

¹ *Loavings in the Footprints of the Pioneers*, Harper's Magazine, May, 1859.

² *Cradle of the Republic*, p. 134.

³ *The Historie of Travaile into Virginia, Britannia*, etc., 1612.

The hill site is also established by the terminal *-atan*, which, in nearly all Algonquian dialects, is a radical element signifying 'to search', or 'to look about', secondarily, 'hill', or 'mountain'; hence this affix should be translated 'hill', for it substantiates, etymologically, the exact location of the town, and no other sounds need be accounted for.

The prefix, *powh-*, *powwh-*, *pough-*, *powah-*, *patw-*, *poh-*, and *pewh-*, as it is variously found in Arber's Smith, does not here refer to *pau't* 'a fall of water' (although it is possible that both are derived from the same root, signifying, 'to make a loud noise'), but is the Virginia equivalent of our adopted word *-powwow*, Massachusetts *pauwau*, 'he uses divination', or, as employed by Eliot, 'a witch, wizard, sorcerer'; or by Roger Williams, *powwaw*, 'a priest.' Williams says it was a term applied to the "Priests, their wise men, and old men, they make solemn speeches and orations, or Lectures to them, concerning Religion, Peace or Warre and all things."

Brinton¹ translated the word as 'the dreamer' or 'an interpreter of dreams'. This was simply collateral to a *powwow's* labors, and is not a literal translation of the word. Hariot² says of the conjuror: "The inhabitants give great credit unto their speeche, which often tymes they finde to be all true."

Wood³ says: "Their *pow-wows* betakeing themselves to their exorcismes and necromanticke charmes by which they bring to passe strange things, if we may believe the Indians."

The *Century Dictionary*, under the word *powwow*, as adopted, gives, as a primary meaning, "to perform a ceremony with conjurations for the cure of diseases, or for other purposes"; and as a secondary one, "to hold a meeting—a powwow."

The village was therefore the *Pauwau-atan*, 'the hill of the pauwau,' 'the hill of the sorcerer,' or 'the hill of divination,' where Powhatan, or Wahunsonacock, held his powwows.

Archer⁴ speaks in the following terms of the first English-Indian powwow held there: "Heere we were conducted vp the Hill to the kyng, with whome we found our kinde kyng *Arahatec*: Thes. 2.

¹ *The Lenape and their Legends*, p. 70.

² *Narrative*, 1685.

³ *New England's Prospect*, chap. XII, 1634.

⁴ Smith, p. xlv.

satt by themselves aparte from all the rest (saue one who satt by *Powatah*, and what he was I could not gesse but they told me he was no *Wiroans*): Many of his company satt on either side: and the mattes for vs were layde right over against the kynges."

That Powhatan, the man, was the chief priest, is amply shown by Smith in several instances. He remarks (page 75): "Their principall Temple or place of superstition is at *Vitamussack* at *Pamavneke*, neare vnto which is a house Temple or place of *Powhatans*." Also (page 376): "A myle from *Orapakes* in a thicket of wood, he hath a house in which he keepeth his kinde of Treasure. . . This house is fiftie or sixtie yards in length, frequented onely by Priests. At the foure corners of this house stand foure Images as Sentinels, one of a Dragon, another a Beare, the third like a Leopard, and the fourth like a giantlike man: all made evill favouredly, according to their best workemanship."

He also remarks (page 81): "It is strange to see with what great feare and adoration all the people doe obay this *Powhatan*."

Thus after nearly three centuries do we learn the true meaning of this well-known Virginian name.

A MODERN MOHEGAN-PEQUOT TEXT

By FRANK G. SPECK

The following text is in the dialect of the Mohegan-Pequots, a New England branch of the great Algonquian linguistic stock. The dialect was originally spoken by the Pequots, who, after migrating about the year 1600 from the upper Hudson River country, inhabited that portion of Connecticut lying between Connecticut river on the west, the Pawcatuck on the east, Long Island sound on the south, and the Nipmuck country on the north. The Mohegans, however, a mutinous offshoot of the Pequots, formed under Uncas a separate band about the year 1640, retaining nevertheless their maternal Pequot tongue.¹ Outside linguistic influences are noticeable, too, in some loan-words, but the dialect is practically identical with that of the Pequots of long ago. Today the modern Mohegan-Pequots number fewer than one hundred, their principal settlement being near Norwich, Conn.

Of these Indians there lives but one who still retains a knowledge of the ancient dialect, namely Fidelia A. H. Fielding, the narrator of the accompanying text. The writer's effort for a number of years has been to school himself with Mrs Fielding that her dialect and tradition may not pass away with her. It is needless to say that under such conditions of isolation a language must necessarily be found in a state of decay, and that much of the fulness and complexity of Indian grammar has been modified and lost. I might further mention that, previously to what has been done by Professor J. Dyneley Prince and myself, nothing has been written in connection with this dialect except a manuscript vocabulary by President Stiles of Yale College, a number of years ago. Consequently shortcomings on my part are due largely to scantiness of material and the decaying condition of the dialect as it survives today.

¹ See "The Modern Pequots and their Language," by J. Dyneley Prince and F. G. Speck, *American Anthropologist*, 1903, vol. 5, No. 2, pp. 193-212.

MOHEGAN-PEQUOT TEXT

(¹) *Inchūnī'n wī'nai mō'wī ū'nkshā biū'mch New Lōndonūg.* (²) *Sū'mī' dū'pkwā.* (³) *Gūtō'wī tū'bō jōhō'g?* (⁴) *Nā'wā jōkwi'ūn.* (⁵) *Wōtāiū''tūm bā'kimūs dā'bi nūtū'b nidā'i yūdū'pkwūg.* (⁶) *Nūmō'wī ti!* (⁷) *skwū'ndōg.* (⁸) *Owā'nūks squā bi'yā yūnjō'nūm skwūnd.* (⁹) *Nūnūnā'wā.* (¹⁰) *Ū'wā gūsūgwī'sh, wī'chū.* (¹¹) *Nū'ŵā dā'bi nūtū'b yūdaī yūdū'pkwūg?* (¹²) *Owā'nūks squā ŵ'wā, nāi! mūd gūyū'ndūm, nūmī'cī tū'kūnīg dā jīshs, dā'bi gūmī'tchiūn?* (¹³) *Mūd nūyū'ndūmī' yūdū'pkwūg, mūs nūmī'jūnī wōmbū'nsiōñ.* (¹⁴) *Wō'nūks squā ŵ'wā, chū'nchī mūd gū'ŵā gūnā'wānī yūdaī.*
 (¹⁵) *Ūndaī' nūpō'nūm nūmūnū'dī, dāg ūndaī' nūzūmū'ksūn.* (¹⁶) *Nūgāwī'.* (¹⁷) *Yūmbō'wī nūgūtū'mkī.* (¹⁸) *Mūdjō'g jōkwi'ūn.* (¹⁹) *Jō'nān gū'nkchī sūn, ūndaī nūkō'nū'm nūtū'kūnīg dā jīshs gū'nkchī kaiyāū gī'tiis mī'gūchīd dā'kū wōmbā'iyō skūn. Dī'blūg!*

Translation

An old Indian woman goes to sell brooms at New London (Conn.). It becomes very dark. Where is she going to stay? She sees a house. She thinks, "Perhaps I can stay there tonight." I go rap! rap! on the door. A white woman comes and opens the door. I know her. She says, "Come in"; she smiles. I say, "Can I stay here tonight?" The white woman says, "Yes! Are you not hungry? I made some bread and cheese, can you eat some?" "I am not hungry tonight. I will eat if I live in the morning." The white woman says, "You must not say that you saw me here." (She did not wish it to be known that she was a witch.)

Then I put down my back-basket, and then I lie down. I go to sleep. Early I arise. There is nothing (to be seen) of the house; it is all a great stone. Then I find my bread and cheese (to be) a great cold piece of cattle dung and a white bone. Horrors!

Analysis

1. *Inchūnī'n wī'nai mō'wī ū'nkshā biū'mch New Lūndonūg.*

Inchūnī'n—English loan-word for Indian + *in* man (pl. *inūg*). So *Inskī'dūmbāk*, concrete for Indians (Lat. *viri*) or 'true men.'

wī'nai—radical for 'woman,' containing stem *in*, often appearing as *wīnais*, with contracted suffix *kchalsū* to be old, hence 'old woman.'

mō'wī—modal particle, denoting future and motion toward, from stem *m* to go, with probable 3d pers. element *w* and *i* modal. Also seen

in *nugutawi g'shtātūsh* I am going to wash. The common indicative future particle is *mūs*. *mō'wī* seems also to have the idea of purpose.

ū'nkshā — she sells, 3d pers. sing. trans. with inanimate objective wanting. *ū'nkshā* ought to show coördination with *mō'wī*.

bīū'mch — Indianized English for 'brooms,' with usual inan. pl. ending *ch*, as *sūn* stone, *sūnch* stones. In all such transmutations Mohegans pronounce *n* or *y* for *r*; e. g., *yātsh* rat.

New Lōndonūg — *ūg* is nominal locative suffix meaning at, in, on. Said to be from *ū'kt*, earth, ground.

2. *Sū'mī' dū'pkwā*.

sū'mī' — superlative substantive 'too much.' Final *i* is 3d pers. inan. impers., seen also in other adverbial ideas, viz., *mīchi'mī* always (lit., 'it is always'), *m'tā'wē* much, *chūnchūcht'* only a little, etc. *sū'mī'* has usual meaning 'because.'

dū'pkwā — substantive, night.

3. *Gūtō'wē tū'bō jōhō'g?*

gūtō'wē — compounded of *t*, one of the stems 'to go,' and 3d pers. future modal *ō'wē*, as above (sentence 1) *mō'wī*.

tū'bō — 3d. pers. sing. animate of stem *tūb* or *dūp*, he stays, sits, exists, remains, etc. The 3d pers. sing. is made in the animate indic. by suffixing *ā*, *ō*, or *ū* to the stem; cf. *gīgītū'kū* he speaks, *wūskūsū* he writes, *nūpā'* he dies, etc.

jōhō'g — interr. compounded of *jō* or *chō*, simple interr. particle (as in *chāgwān* what?) and vocalic connective *h* + locative suffix *ūg* or *ōg*. *jō* also has the significance of an indef. relative, referring to inan. objects.

4. *Nā'wā jōkwī'ūn*.

nā'wā — 3d pers. sing. animate indic. pron. *wā* suffixed to stem *nā*, to see, know, understand.

jōkwī'ūn — 'a white man's house,' probably from *jō* inan. indef. relative and form of *wī'tū* (?) house.

5. *Wōtāiū'tūm bā'kīmūs dā'bi nūtū'b nūdā'i yūdū'pkwūg*.

wōtāiū'tūm — from stem (composite) *aiū'tūm*, lit., 'to be minded' (cf. Ojibway *inendam* he thinks), + trans. 3d pers. pron. *w* prefixed, and connective *t*. The principal element *ai'tūm* is found suffixed to stems of all verbs denoting a state of mind, and some others of a similar nature. See list of such verbs at end of analysis.

bā'kīmūs — from *bā'kt*, a subjunc. verbal; stem *b* to come, and *mūs*, simple future indic. particle. *kt* is inan. 3d pers. The combination means maybe or perhaps.

dā'bi — an impersonal verb commonly in use denoting can, am able,

but derived from *dāp*, distantly meaning it is enough, with *i* inan. 3d pers. pron.

nūtū'b — 1st pers. sing. pron., with stem *tūb* (see sentence 3). The full form of pron. is wanting here.

(In considering the connection between these last three verbs I am inclined to think that they should be incorporated into one word, although the narrator keeps them divided: *bā — kī — mūs — dābī — nū — tūb* — (Potential) Come — it — will — it may happen, or be (subj.) — I — stay. The simple indicat. future *mūs* invariably precedes its verb, instead of being suffixed to another, as *bā' kīmūs*. The whole phrase, however, seems to be incorrectly construed.)

nīdā'i — from *nī*, demonstr. that + *dāi* inseparable locative adverbial suffix, so *yū'dai* here, *dō'dai* where (relative).

yūdū'pkwūg — composed of *yū*, demonstr. this, prefixed to *dū'pkwō* night, and locative *ūg*.

6. *Nūmō'wī tī! tī! skwū'ndōg*.

nūmō'wī — for *mō'wī* (see sentence 1), *nū*, 1st pers. sing. pron. The forms of this verb are defective throughout.

tī! tī! — exclamatory, 'rap! rap!'

skwū'ndōg — *skwūnd* door, locative *ōg* on.

7. *Owā'nūks squā bī'yā yūnjō'nūm skwūnd*.

owā'nūks — from *ōwā' nūg* pl. of *āwā'n* animate interr. and relative pron. 'who?' and ablative *ūch* from, which appears mutilated in final *s*. The term *Owā'nūks* came to be used for the whites, illustrating the question in the native mind, "Whence did they come? Who are they?" The word is erroneously supposed by some to have come from the Indian term for "pale-face."

squā — usual suffix used dependently for female. Cf. *Chākū's squā* (Schaghticoke dialect; see Prince and Speck in *Proc. Amer. Philos. Soc.*, vol. XLII, no. 174) negress, *squā'si's* little girl. *squā* is said to be derived from *i'kwē* to split, with infix *s*.

bī'yā — 3d pers. sing. animate of stem *bī* to come.

yūnjō'nūm. — from *yūnjā'n* open, conjunc. mood, transitive as shown by indef. obj. *ūm*. Cf. *nūqū'tsh' tūm*, I taste it.

skwūnd — see sentence 6.

8. *Nūnūnd'wā*.

nūnūnd'wā — I know her. Stem *nū* or *nā* to know, with incorporate subject *nū* and object animate *nā'wā*.

9. *ī'wā gūsūgwī'sh, wī'chū*.

ī'wā — 3d pers. sing. of stem *īw* to speak, whence *wāt* mouth; im-

perative form is *l'wāsh*. In all terms denoting parts of the body, local suffixes express the part of the body, as *qūnnū'ng* throat, *qū'ddūng* a swallowing.

gūsūgwē'sh — formed from stem *w* to come, with imperative *wish* or *ish* modal suffix, and emphatic 2d pers. pron. prefixed, *gū*. *ūg* is perhaps locative with connective *s*.

wē'chū — Independent mood, 3d pers. sing. This verb also shows action of mouth, *wē*.

10. *Nū'l'wā dā'bi nūtū'b yūdai yūdū'pkwūg?*

nū'l'wā — For *l'wā* (see sentence 9). *nū*, 1st pers. pron. with connective *t* wanting (*nūtū'wā*).

dā'bi — see sentence 5.

nūtū'b — see sentence 5.

yūdai — demonstr. *yū* this, with suffix, for which see sentence 5.

yūdū'pkwūg — same as sentence 5.

11. *Owā'nūks squā l'wā, nai'! mūd gūyū'ndūm, nūm'l'ci tū'kūntg dā jīshs, dā'bi gūm'l'tchiūn?*

owā'nūks squā' — see sentence 7.

l'wā — see sentence 9.

nā'i — affirmative yes, possibly a subjunctive. The usual 'yes' monosyllabic is *nūk*.

mūd — This negative is an invariant particle, expressing all conditions of negation, prohibition, etc. Other forms must formerly have existed for different moods, but they are now obsolete.

gūyū'ndūm — 2d pers. sing. pron. *gū*, and *yū'ndūm* hungry, showing suffix *dūm* state of mind or body. See *wōtāiū'tūm*, sentence 5.

nūm'l'ci — 1st pers. pron. with subjunc. element probably. I am undecided as to whether the stem is *wū'stū* he makes, or a stem containing *m*.

tū'kūntg — noun, bread, from *ptū'kwē* it is round, referring to cakes, loaves, whence bread. Final *g* denotes 'the thing that is.'

dā — coordinate conjunction. There probably existed a discrimination between this form and *dā'kū*, but none is noticeable now.

jīshs — English loan-word with Indian stress, i. e., 'cheese.'

dā'bi — see sentence 5.

gūm'l'tchiūn — 2d pers. sing. transitive subj. of stem *mitch* to eat, with incorporate obj. *ūn*, inan.; so *gūwō'jinūm* you have it.

12. *Mūd nūyū'ndūm tū'kūntg, mūs nūm'l'jūnē wōmbō'nstōn.*

mūd — see sentence 10.

nūyū'ndūm — for *nūyū'ndūm* see sentence 11; the final *t* or *m* is the suffixed portion of the negative.

mús námí'jáni — 1st pers. sing. of the future subjunc. *nú* . . . *I*, and stem *mítch* with incorporate inan. object *ún*.

wómbo'ñstōñ — from *wómboñ* sunrise, or tomorrow, and *stōñ* animate subjunc. 1st pers. 'if I.' A final *I* should be found to complete the subj. pron., but owing to the obscurity with which final vowels are pronounced, its absence is explained. *bún* may more properly be the stem 'to live,' but as this stem is not found now, I cannot be certain of it.

13. *Wó'núks squá'í'wā, chū'nchí mūd gū'í'wā gūnā'wān' yūdai.*

wā'núks squá — see sentence 7.

í'wā — see sentence 9.

chū'nchí — impersonal verb from *chū*, to want, or to be necessary, and *ch*, contracted for adjectival *gū'ncht* great, always used thus in composition (cf. Ojibwa *gítche*). The final *t* is inan. 3d pers. sing. *chū'ncht* literally means 'it is greatly needed,' hence 'must.'

mūd gū'í'wā — another defective verb with 2d pers. sing. pron. and negative element loosely attached to stem *tw*; see sentence 9.

gūnā'wān' — stem *nā*, for which see sentence 4, in conjunc. mood with preceding *í'wā*, having incorporate 2d pers. subject and 1st pers. object, *ní*, the 2d pers. subject *gū* being prefixed. This precedence of the 2d pers. over the 1st pers. is a common characteristic of nearly all North American languages. In the Tsimshian of the North Pacific coast, where the verb uses different stems for the sing. and the pl., the presence of a 2d pers. pron. influences the construction so much that the sing. or the pl. stem is used according to the number of the 2d pers. pron.

yūdai — see sentence 10.

14. *Ūndai' nūpō'nūm nūmūnū'di, dāg ūndai' nūzūmū'ksūn.*

ūndai' — *ún* I cannot place. For *dai* see sentence 5; the meaning is 'then,' 'at that time.'

nūpō'nūm — from stem *pōn*, to put, to place, etc., with 1st pers. pron. and incorporate indef. object *ūm*. For similar transitive forms see sentence 7.

nūmūnū'di — made from *mūū'ndū* mystery, or *Mūū'ndū* God (cf. Ojibwa, etc., *Manitu*). Final *t* is inan. noun ending, as *bí'ñ* plate, etc.; and *nū* 1st pers. sing. pron., the whole meaning 'my basket,' cognate with idea of unknown inan. contents. Indians of the east designate a basket or its contents as objects which betray nothing of their internal character by their outside appearance or shape, hence the psychological analogy with God, or mystery.

dāg ūndai' — see sentences 11 and 14.

nūzūmū'ksūn — composed of *zū* 'from out of' (?) + connective *m*,

+ *úk*, locative down, or on; *sún* to fall (cf. *dúksú'ni* I fall down), and 1st pers. pron. *nú*, intrans.

15. *Núgáwí'.*

núgáwí' — made from *gá'wí*, uninflected, 'sleep,' + 1st pers. pron. *nú*.

16. *Yámbó'wí núg'útú'mkí.*

yámbó'wí — contraction of *yá*, demonstr. this; *ó'mbí* time, and *wígú'* light. Or else final *i* is impers. 3d pers. pron. element; see *dá'bí*, *chú'nchí*, sentences 5 and 13.

núg'útú'mkí — from *ó'mbí* to get up, with *g* progressive, and 1st pers. pron., the suffixed element being absent, hence intrans.

17. *Mú'djóg jókwi'ún.*

mú'djóg — negative *múd*, + *jóg* inan. relative, elliptical for *jógwá'n* a thing. *mú'djógwá'n* 'nothing' also occurs.

jókwi'ún — see sentence 4.

18. *Jó'náú gú'nkchí sún, úndai' núkó'nú'm nútú'kúnig dá jíshs gú'nkchí káiyáú g'í'tús m'í'gúchíd dá'kú wómbáiyó skún.*

jó'náú — Intensive *jó*, inan. indef. with *nó*, or *ná'gám*, a form of the independent animate 3d pers. sing. pronoun.

gú'nkchí — emphatically protracted form of adjective *kchí'* great, large.

sún — substantive, inan.; pl. *súnch* stones.

úndai — see sentence 14.

núkó'nú'm — from *kú'ná* he catches, finds, hunts, etc., 1st pers. sing. trans. indic., with incorporate object *úm*.

nútú'kúnig — same as in sentence 11, but with 1st pers. pron. In these nouns with pronoun elements the required subjective and objective sets have been lost.

dá — see sentence 11.

jíshs — see sentence 11.

káiyáú — adjective from *tíká'* cold, hard, + *yá*, demons. this. This combination of the adjective and a demonstrative is frequent, so *squá'yau* red, *wómbáiyau* white, *súggá'yau* black, etc.

g'í'tús — possibly a generalization from *jíts* bird, barnyard fowl, and broadly used for any general animal term, hence cattle. The animate pl. *g'í'túsúg* is commonly used at Mohegan to designate 'critters.'

m'í'gúchíd — derived from *m'íkí* hard, strong; ending *íd* or *od* denotes inan. state of being.

dá'kú — see sentence 11.

wómbáiyó — adjective white from *wó'mbí* white; see *káiyáú* above.

skún — inan. substantive, pl. *skúnch*.

19. *Dí'biüg*—pl. of animate noun *dí'bi*, from *chí'pi* terrible, awful, bad, whence Devil. Other forms of same occur, as *jíbatôg*, *tí'piüg*, *bí'biüg*.

Nouns and verbs are traceable to common radical elements, which take both suffixes and prefixes. Adverbial and pronominal affixes construct them into verbs; substantive (animate or inanimate) and pronominal affixes form them into nouns.

Furthermore, there is very little difference between intransitive verbs and nouns with possessive pronominal formatives, e. g., *nügáwí'* I sleep, or my sleep; *nünüpá'* I die, or my death.

The list of verbs containing element *ú'* (*tám*) or *ú'* (*dám*), mentioned in sentence 5, follows:

<i>yú'ndám</i> to be hungry, or, feel hunger;	<i>síwá'tám</i> to feel sorry.
<i>kú'ngútám</i> to feel thirsty;	<i>chú'ntám</i> to feel want.
<i>wí'ktám</i> to feel love;	<i>jókwá'tám</i> to feel haste.
<i>qú'tshtám</i> to feel taste;	<i>pú'dám</i> to feel hearing.
<i>nútú'dám</i> to find out by asking;	<i>múddúmdámō</i> to feel badly or sick.

For further remarks on Mohegan-Pequot morphology see Prince and Speck, "Glossary of the Mohegan-Pequot Language," *American Anthropologist*, N. S., vol 6, No. 1, pp. 18-21.

THE DEVELOPMENT OF THE CLAN SYSTEM AND OF SECRET SOCIETIES AMONG THE NORTHWESTERN TRIBES

By JOHN R. SWANTON

The peculiar aboriginal culture found on the northwest coast of America occupies, so far as is now known, an altogether isolated territory. Within this area are embraced (see plate xv) the Tlingit, Haida, Tsimshian, Ha-ila, Heiltsuk, Kwakiutl, Nootka, and the Bellabella and other coast Salish, while its influence extends northward to the Eskimo and southward to the coastal stocks of northwestern California. In the interior the Chilkotin, Carriers, western Nahane, Kutchin, Khotana, and Ahtena belong to it or are greatly affected by it.

Considered from the technical and the esthetic points of view, this culture is found to reach its highest development among the Haida of Queen Charlotte islands, although the Tsimshian and the Tlingit are but slightly inferior. I shall adduce evidence to show that the origin of the clan system associated with mother-right must be looked for in the same region.

On the map (plate xv) the heavy, broken line separates the area of tribes possessing mother-right from those having paternal descent or those in which the form of descent is transitional. All of these tribes except the Kootenai possess clans, or organizations that seem to correspond to them, and all belong to the area of northwest coast culture. The Chilkotin "gentes" mentioned by Father Morice¹ appear to admit descent in the male line, and therefore this tribe falls outside the list of tribes with maternal descent. Fortunately for us in this connection, it happens that, for the interior tribe of Carriers, which has a most highly developed maternal clan system, we have the first-hand authority of Father Morice. This writer has made the question "Are the Carrier Sociology

¹*Trans. Canadian Inst.*, vol. IV, p. 28, 1892-93; also *Trans. Roy. Soc. Canada* for 1892, sec. II, p. 121.

and Mythology Indigenous or Exotic?" the subject of a special paper¹ and, from a study of their arts, customs, social organization, and myths, comes to the conclusion that both have been introduced, principally from the Tsimshian. He even goes further and says:

"In all the tribes of the Déné nation which have no intercourse with coast Indians, patriarchy takes the place of the matriarchy obtaining here, and the clans, with their totems and the social peculiarities derived therefrom are unknown. So are the tribes' divisions into nobles and common people, the right of the former or any to particular hunting-grounds, the potlatches or distribution feasts, as observed here, the burning of the dead, the protracted and systematic wooing of the young man before winning over his wife's parents," etc.

The clan system of the western Nahane, Kutchin, Khotana, and Ahtena has never been made a special object of study. From Callbreath² we learn that the Nahane of Stikine river, also called Tahltan, have two clans or "castes," Birds and Bears, with descent in the female line.³ It is certainly significant that, while the Carriers have four clans like their coastal neighbors, the Tsimshian,⁴ the Tahltan have two like *their* coastal neighbors, the Tlingit. The Kutchin are said to have three exogamic divisions with female descent,⁵ but our information regarding them is too meager to enable us to determine whether this organization is a very old one or whether it was introduced from the Tlingit of Chilkat and Copper rivers.

The Knaikhotana of Cook's inlet are said to be divided into two sections and subdivided into eleven "stocks," each exogamic and with descent in the female line. They are the following: *First series*: 1, Raven; 2, Weavers of Grass Mats; 3, Corner in the Back Part of the Hut; 4, named from a color; 5, Descendant from

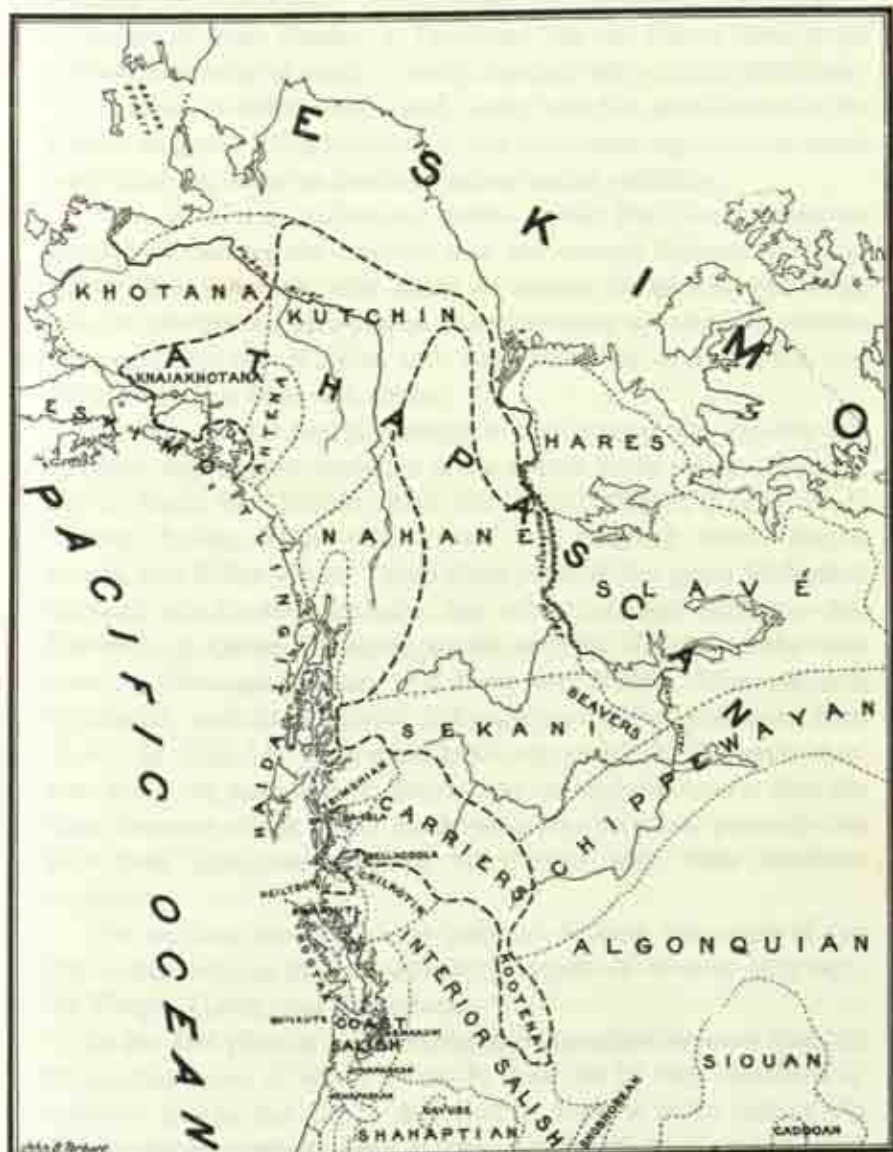
¹ *Trans. Roy. Soc. Canada*, op. cit., p. 109.

² *Ann. Rep. Geol. and Nat. Hist. Surv. Canada*, N. S., vol. III, pt. 1, 1958.

³ A slip in printing seems to have occurred here. Evidently the sentence reading, "A man who is a Bird must marry a Bear and his children belong to the Birds" should be "and his children belong to the Bears."

⁴ The Grouse, Beaver, Toad, and Grizzly Bear (*Trans. Canadian Inst.*, vol. IV, p. 203). In an earlier paper (*Proc. Canadian Inst.*, 3d ser., vol. VII, p. 118) he speaks of five, but it may be assumed that the above, being later, is correct.

⁵ Hardesty in *Ann. Rep. Smithsonian Inst.* for 1866, p. 315; Jones in *ibid.*, p. 326.



TRIBES OF NORTHWESTERN NORTH AMERICA, SHOWING THE REGION OCCUPIED BY THOSE HAVING MATERNAL DESCENT

Heaven; 6, Fishermen. *Second series*: 1, Bathers in Cold Water; 2, Lovers of Glass Beads; 3, Deceivers like the Raven (who is the primary instructor of man); 4 and 5, named from a certain mountain.¹

The binary division indicated, along with the prominence of the Raven, suggests Tlingit influence, but this entire region needs much more study in order to develop its true social condition.

From all of this evidence it seems certain that the matriarchal clan system among the Carriers and the western Nahane has been mainly, if not entirely, the result of coastal influences, and while lack of information prevents us from reaching an absolute conclusion regarding the Kutchin and their allies, we may suspect that the same is also true with them.

Among coast tribes possessing a clan system the Ha-isla and Heiltsuk may also be excluded in our search for its origin. According to Boas the Ha-isla have six clans: Beaver, Eagle, Wolf, Salmon, Raven, Killer whale; and the Heiltsuk three: Eagle, Raven, and Killer whale. Both form parts of the great Wakashan linguistic stock which includes two other principal groups—the Kwakiutl of Queen Charlotte sound and the Nootka of the west coast of Vancouver island. Of these the Nootka have paternal inheritance, and the Kwakiutl, although now transitional, have been shown by Boas² to have once been organized in the same way. This being the case, it is a simple and natural conclusion that the other divisions of the same stock were also formerly paternal but have been completely altered by contact with their northern neighbors.

We are thus brought to the point of seeking the origin of the clan system among three neighboring peoples of diverse language, the Tlingit, Haida, and Tsimshian.

In the first place it is interesting and important to know that the geographical area in which we are to look can be very considerably reduced; this is due to the fact that at least a large part of the Tlingit people formerly lived at the mouths of Nass and Skeena rivers in much closer proximity to the other two stocks mentioned (see plate xvi).

¹ Richardson, *Arctic Searching Exp.*, London, 1851, p. 406, quoted by Bourke in *Jour. Am. Folk-Lore*, 1890, III, 122.

² *Rep. U. S. Nat. Museum for 1895*, pp. 333-335.

The arguments on which this conclusion is based are the following :

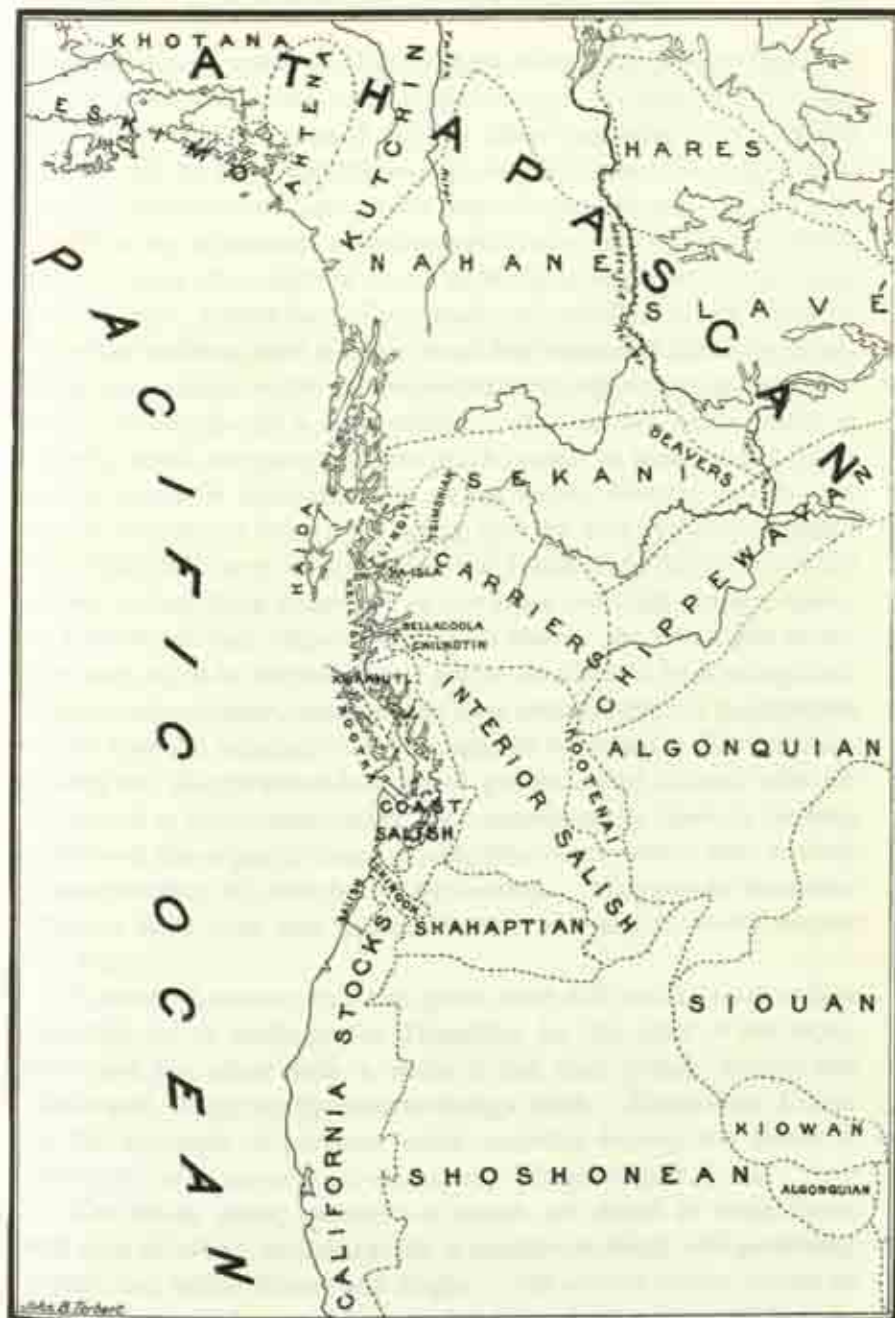
(1) A large proportion of the traditions of the different Tlingit family groups state that they formerly lived on the coast of British Columbia "below Port Simpson." This would place them in the neighborhood of Old Metlakahtla, where were a large number of ancient towns of which many stories are still told.

(2) This coincides completely with Tsimshian traditions, according to which the Tsimshian have moved southwestward to the coast, in quite recent times, from their former homes near the sources of the Nass and the Skeena.

(3) A comparative study of the Tlingit and Haida languages shows certain similarities which can most readily be explained in this way. The most striking point is that the name of nearly every animal not found upon the Queen Charlotte islands, but occurring on the neighboring mainland, is almost identical in the Haida and Tlingit tongues. The only name that the Haida seem to have borrowed from the Tsimshian is that for the mountain goat (*mat*), while the terms for grizzly bear, wolf, marten,¹ wolverine, moose, and ground-squirrel are all plainly taken from Tlingit. Now, in the present geographical arrangement of the three stocks, there is no apparent reason for such preponderance in favor of Tlingit. The communication between the southern Haida and the Tsimshian in historic times has been of so intimate a nature, and the Tsimshian language is so popular among the former (amounting, as it does, to the adoption of nearly all of their potlatch songs from that language, and of many other songs besides), that it seems incredible they should have gone so far afield as Alaska for the names of animals so abundantly well known to the Tsimshian. Indeed one name for the Haida town on terms of closest social intimacy with the Tsimshian was "Grizzly-bear town" (*Xú'adjî lnagd-i*), and the word for grizzly bear in Tlingit is *xats*!

Whether all the Tlingit lived in this region is of much less consequence than the very evident fact that they consider it to have been once their most important seat. We are thus led back quite surely for the origin of clan organizations in the northwest to a

¹The marten, however, is found on both the islands and the mainland.



TRIBES OF NORTHWESTERN NORTH AMERICA, SHOWING THE FORMER HABITAT OF THE TLINGIT, TSIMSHIAN, CHILKOTIN, AND BELLACoola

small section of coast on Hecate strait, within the present limits of British Columbia; and even could we go no farther, this result would be sufficient reward for the labor expended on it. What follows will be largely in the way of suggestion, but the suggestions are founded on some facts which may themselves prove of interest.

Were we to attempt to reduce still further the number of stocks within which the origin of clans is to be sought, we should first exclude the Tsimshian. This stock is peculiar in its absolute linguistic isolation, and it might be at first supposed that a peculiarity in one respect might be associated with other peculiarities, such as the possession of a clan system. But on the other hand, as already noted, the people of this stock appear to have pushed down to the coast in comparatively recent times, directly against the stream of cultural influence; again, had the clan system originated with them and been transmitted to the Haida and Tlingit, we should expect to find them possessed of the same four-clan system, while, as a matter of fact, they have but two clans. An exception in the one case might be explained, but not so readily two such exceptions. If a two-clan system, however, be once established, it is not difficult to see how the number of clans might be increased. For instance, among the Tlingit there is a small group, called *Nehadi*, who are privileged to marry into either clan, consequently there is nothing to prevent these people from moving into other towns and, in time, from spreading all over the Tlingit country. They would thus constitute a third clan, and, in fact, they do so today in every respect but size.

Granting, however, that this point must still remain more or less doubtful, let us exclude the Tsimshian for the sake of the argument and see what facts a study of the clan system among the Haida and Tlingit by themselves brings forth. These facts I state on the authority of personal notes recorded among the Haida in the winter of 1900-01 and among the Tlingit early in 1904.

The Haida clans, members of which are found in every town and each of which is divided into a number of local, self-governing groups, are called Raven and Eagle. The second is also known as *Giti'ns*, a term of uncertain meaning but which may possibly contain the word for "son" (*git*). My investigation into the origin of

these clans has seemed to develop a different character for each. Traditions regarding the Ravens lead back to three centers, with a certain tendency to carry two of these back into the third, a point near the southern end of the Queen Charlotte islands. But in only one tale is reference made to immigration from beyond the sea or to any foreign groups having been received into the Raven clan. This exception is in the case of the leading Raven family of Skedans and relates that those people came down from Nass river with the people of Kitkatla; but the account differs entirely from all others and appears to have arisen to explain the intimate friendship existing between the leading families of the two places. Another tradition of the same group points back to one of the three origins above referred to and migration thence in an exactly opposite direction.

Quite different are the traditions of the Eagle people. Not only do they fail to indicate the same unity of origin among the groups reckoned as Eagle, but some point to a strictly foreign inception. The only one that fails to do so is very short, relating how a certain Eagle woman married in Masset and had daughters there from whom the Eagle groups in that place came, and how she afterward went to Cape Ball, married a chief at that point, and had other children from whom came the Eagle families of Skidegate inlet. It seems to have been constructed rather with the idea of recording relationships and does not carry the history of the groups involved very far back. Part of the Eagles of the northern end of Graham island, however, refer their origin directly to the Stikine and Nass rivers.

More significant, in my judgment, than either of these is the famous Haida story of *Djilâgons* which records the origin of the southern groups of Eagles. According to this all of the inhabitants of a large town in the Haida country, except one woman, were once destroyed by fire. This woman, after various adventures, reached the Tsimshian country, married a chief and had many children by him, some of whom remained where they were while some returned to their mother's country. From them, the story concludes, came five of the principal Haida families and several of those among the Tsimshian. This may indicate nothing more than the clan connec-

tion recognized between the groups involved in the story, but it is strange that all the progenitors are brought from the mainland rather than from the Haida side, while on the other hand the question is raised why, with the small exception above noted, there are no such traditions among the Raven groups.

It is worthy of notice in this connection that a wild band of Haida, described by the rest of the people as "uncivilized," once lived on the west coast of the Queen Charlotte islands and were reckoned as Ravens. Moreover, all of the towns of first consequence, except the comparatively modern ones like Tanu and Ninstints, were owned by families of the Raven clan, and to that clan are attributed all the chief deities recognized by the Haida people.

Concerning the Tlingit clans my records are not so complete. One was called Raven; the other, Wolf among the southern Tlingit and Eagle among the northern ones; but the independence of the groups of which each was composed was apparently greater than among the Haida. Even if it has no deep significance, it is peculiar that the status of the Tlingit clans seems to have been exactly the reverse of that among the Haida. The most prominent groups—those about which the nationality of the stock centered strongest—are Eagle or Wolf groups, such as the Kagwantan of Sitka and Chilkat, and the Nanyeyai of Wrangell. On the other hand it happens, by accident or otherwise, that all the groups known to me that are said to have been taken in from the outside, are Raven. This was true of the Kashkekwan of Yakutat, who are said to have been Athapascans, of part of the Katcade of Wrangell and Kake who were from the same source, and of the Kaskakoedi of Wrangell who claim to have been once Haida.

Supposing that the Tlingit formerly lived along the mainland coast now occupied by the Tsimshian, where they were neighbors for a long time of the Haida on the coasts of the Queen Charlotte islands opposite, and supposing that both people had loose social organizations without clans, is it possible that the clan idea could have originated among them through intermarriage, resulting in the continued presence on each side of a number of persons of alien stock? Although no clan can now be traced back so far, we have several cases in which smaller groups have sprung up in this way,

such for instance being the history of the Tsimshian family *Gittai's*, who sprang from a Haida woman, and that of a now extinct group at Sitka who were also descended from the Haida. Differences in speech would probably tend more strongly to bring about such a distinction. The point least clear in this particular case is why the children should have been reckoned with the mother's rather than with the father's people.

General Conclusions.—From the evidence presented by Morice and Boas I think it is safe to look for the original seat of the clan system with maternal descent on the northwest coast among the Tlingit, Haida, and Tsimshian, and from that brought together by myself I consider it demonstrated that a large portion of the Tlingit once lived at the mouths of Nass and Skeena rivers. At the time when the clan system arose here, therefore (unless it be supposed always to have had existence among these people), we find the three stocks in question brought close together at this one point on the coast. So much seems certain. On the other hand I admit that my argument regarding the priority of the two-clan system among the Haida and Tlingit to the four-clan system of the Tsimshian and the upgrowth of the whole from matrimonial alliances between different people to be entirely hypothetical. These are, however, hypotheses founded on certain observed peculiarities of social organization in this region, such as the occurrence of a Tlingit group which can marry into either of the two great clans, and on studies of the relative status of the two clans among the Haida and the Tlingit.

One point developed incidentally in the preceding argument is that the origin of the system under discussion is traceable to a region where several different linguistic stocks were in close contact. Another institution characteristic of northwest coast culture — the so-called "secret societies" — seems to refer back to a similar area, although at a different point on the coast. Owing to the fact that the names applied to several of these secret societies are Kwakiutl, as well as to other considerations, Professor Boas has traced back their origin to that people and has further traced the origin of the cannibal rites to the Heiltsuk.¹ The traditions regarding these societies among the Haida, both at Masset and Skidegate, uniformly

¹ *Rep. U. S. Nat. Mus. for 1895*, pp. 660-664.

place their beginning in "Gitadjä'," evidently Kittizoo or Gyidestzo, the southernmost Tsimshian town, which stood on Millbank sound, not far from the chief town of the Bellabella. Judging from the facts at our disposal, it would appear likely that the more important features of the secret societies arose among the Heiltsuk proper or Bellabella, who were in close contact with the Tsimshian of Kittizoo on one side and with the Bellacoola on the other. Now these latter are a fragment of the great Salishan stock, which Boas supposes to have moved northward from among the coast Salish at some distant time to take up their abodes on Dean canal and Burke channel. Morice tells us, however, that the Athapascan Chilkotin, who now separate these people from their congeners in the interior, once occupied but a single village back of the Bellacoola and have driven the Shuswap eastward out of the valley of Chilkotin river quite recently.¹ If this process has been going on for some time longer the interior Salish must have bordered on the Bellacoola at no very distant day (see plate xvi). It would seem more likely, therefore, to suppose that some interior Salish at that time effected a lodgment near the heads of the long inlets just mentioned, and have gradually pushed seaward, while the Chilkotin meanwhile cut them off from the rest of the linguistic stock to which they belong, and this explanation makes it easier to understand why they are not found at the mouths of those inlets. If this suggestion prove correct, regarding both the origin of the Bellacoola and the point of origin of the secret societies, a possibility of influences having effected an entrance into the latter from the eastern Indians is suggested, more plausible than would at first appear.

¹ *Trans. Canadian Inst.*, 1892-'93, p. 23.

THE PERIODICAL ADJUSTMENTS OF THE ANCIENT MEXICAN CALENDAR

By ZELIA NUTTALL

The interesting question as to whether and how the ancient Mexicans rectified their calendar has been resuscitated by a treatise recently published in the *Zeitschrift für Ethnologie* under the title "The rectifications of the year and the length of the Venus year," in which Prof. Edward Seler propounds the new hypothesis that the ancient Mexicans rectified their solar calendar by intercalating 10 days at intervals of 42 years, and their Venus calendar by the deduction of four days at the end of 55 Venus years, which are equivalent to 88 solar years.

On studying Professor Seler's treatise with the careful attention due to the work of such a well known authority, I was surprised to find therein certain inaccuracies which completely invalidate his theory. It is my duty to point out the following facts to my fellow workers, in order to avert the confusion which would inevitably arise if Professor Seler's new hypothesis were to obtain currency amongst Americanists.

In the opening sentences of his treatise, and in support of his statement that the oldest authorities explicitly deny that the Mexicans employed bissextile intercalation, Professor Seler quotes two passages from Bernardino de Sahagun's writings. In both of these the friar employs the expression "it is conjectured," and in one he adds, "it is probable that in the festival held at intervals of four years the Mexicans made a bissextile intercalation."

Commenting on this Professor Seler says: "Be it well noted that the friar does not say that he has heard this, he only says it is probable and it is conjectured. Therefore it is his own supposition only. And, in point of fact, no word of this occurs in the corresponding portion of the Nahuatl text."

A reference to the passages quoted from Sahagun's work shows that, in both cases, the point under consideration was the *time* or

period when an intercalation was made, and not the *fact* whether or not bissextile intercalation was employed by the Mexicans. Without entering into a discussion of the latter question, and merely for the purpose of accurately representing Sahagun's views, I refer the reader to the appendix to book iv of the latter's *Historia*, with which Professor Seler is naturally supposed to be familiar.

In the friar's long and vehement refutation, contained in this appendix, of what he terms the "falsehoods" written about the native calendar by a now unknown friar, the following sentence occurs :

"What he [the unknown friar] says about the bissextile intercalation not being used is also false, for in the count known as the real calendar they count 365 days and every four years they count 366 days by means of a festival that they hold for this purpose every four years."

It is evident that, had Professor Seler quoted the above explicit expression of opinion by Sahagun, he could hardly have emphasized, as he does, that the friar expressed only "a *supposition* which is, indeed, directly contradicted by other early authors."

The above sentence is followed by Professor Seler's statement that Motolinia, one of the first Spanish missionaries who went to Mexico, and after him Torquemada, *denied* that such an intercalation was used, and that the author of a chronicle written in Guatemala in 1683 maintained that neither the Mexicans or the Guatemalans employed bissextile intercalation. A translation is here given of this part of Professor Seler's text :

"Whereas the old authors are quite explicit on this point, later scholars sought to meet the difficulty by the assumption that an intercalation was made at the end of the 52-year period. There is no doubt that this theory is to be assigned to the learned Jesuit Don Carlos Sigüenza, who lived in the second half of the 17th century.

"An intercalation of a whole week of thirteen days at the end of the 52-year cycle, or, as León y Gama prefers, an intercalation of 25 days at the end of the double cycle of 104 years, would have, in point of fact, pretty well rectified the calendar. Unfortunately this whole theory is an idle or fantastic speculation which is not proven by any old record ; nor is it corroborated, so far as one can judge at present, by the picture-writings."

Professor Seler's positive assertions that the idea that the Mexicans intercalated 13 days at the end of the 52-year cycle was a fantastic theory assignable to Sigüenza y Gongora, and that no old document recorded such an intercalation, prove that Professor Seler must be unacquainted with the contents of the invaluable work written in 1656 by Jacinto de la Serna, a native Mexican priest and doctor of theology, who was thrice elected rector of the University of Mexico and was renowned for his erudition and knowledge of the language and antiquities of the Mexicans.

As Serna's *Manual de los Ministros de las Indias*, including a treatise on the idolatries of the Mexicans, has been accessible to all students since 1899, when it was published in the *Anales* of the National Museum of Mexico, and as Professor Seler has quoted Serna's name in his publications, it appears inexplicable that he should ignore the testimony it contains in support of the fact that the Mexicans added 13 days to their 52-year cycle.

The circumstance, recorded by Beristain, that Sigüenza y Gongora actually owned the original manuscript of Serna's great work, which had been written when Sigüenza was but eleven years of age, likewise furnishes proof that instead of originating what Professor Seler designates as "a fantastic theory," the erudite Sigüenza, and, after him, the most learned of Mexican scholars, accepted the following statements of Serna as authoritative:

"The century of these natives consisted of no more than fifty-two years. . . . At the end of these fifty-two years they intercalated thirteen days which did not pertain to any month or year and were designated by no name like all other days. These days were passed over as though they did not exist, and they were not adapted to any month or year whatsoever. These days were held as unfortunate, unlucky, and sad, and those persons who were born on one of them were considered unlucky. During these thirteen days, which constituted one of their weeks, all fires were extinguished throughout the lands subject to the Mexican monarchy. They named the element fire 'Xiuhtecuhtli,' or the Lord of the Year. During all of these days nothing was undertaken, no food which required cooking was partaken of and a general fast was observed. There existed a tradition according to which the world was to come to an end on one of these days, therefore throughout the thirteen days a general silence was observed and all watched during the night because it was thought possible that the next day might never break.

"On the thirteenth day, all persons being on the watch, the high priest lighted the new fire with fire-sticks, at sun-rise, on the summit of the hill of Ixtapalapa, and thence it was distributed throughout the land, with great rejoicing and shouting, and music made by their wooden drums, war drums, clarionets, rattles, and other instruments, the same ceremony being observed in all parts.

"These thirteen days were considered miserable because of the lack of fire, but on the day when the above ceremony was performed they began a new cycle, in such an ingenious manner, that, after the intercalated days had passed without having been designated by any sign or counted by signs like ordinary days, or dedicated to any of their gods, they began the new year and cycle in such a way that, if the preceding cycle had commenced with the sign One Calli, or house, the next cycle began with the sign One Tochtli, or rabbit. . . . And when this cycle ended, the same intercalation of thirteen days and the ceremony of lighting the new fire were observed, and they passed on to the third sign, Acatl, or cane, and then to Tecpatl, or flint. At the close of four cycles, or 208 years, they began again by One Calli. Thus the same combination of sign and number recurred only every four cycles."

In another portion of his work Serna states :

"After each year of 360 days, five days were intercalated, which were also called Nemontemi and were regarded as unfortunate . . . like the thirteen intercalary days of the year-cycle, but with this difference, that whereas the latter constitute a count of the bissextiles which were omitted in the cycle and were not numbered or marked by day-signs, the five days are those which are lacking in the [calendar] year, which did not contain more than 360 days."

The following important statement by Serna proves that a denial, such as made by Motolinia, Torquemada, and the chronicler cited by Professor Scler, that bissextile intercalation was used, does not necessarily constitute a denial that the thirteen-day intercalation was employed :

"And although they had no knowledge of the bissextile year, they attained the same result by means of the thirteen intercalary days added to each cycle. Thus there actually existed an accord between the native years and days with the years of the Church, but a divergence in the months, of which the Mexicans had eighteen." . . . (cap. VII, par. I.)

The above quotations from what is the clearest dissertation on the native calendar in existence, and which was written 27 years

before the Guatemalan chronicle classed by Professor Seler among the "old authorities," suffice to demonstrate the error of the latter's assertion that the 13-day intercalation is "not proven by any record" and is "a fantastic speculation assignable to the learned Jesuit Siguenza."

In my *Preliminary Notes on the Ancient Mexican Calendar System*, published five years before Serna's invaluable work appeared, I maintained that the 13-day intercalation at the end of each 52-year cycle was not only the natural outcome of the ingenious numerical system, but that its use explained and reconciled certain conflicting statements concerning the recorded names of the first days of the years. By means of tables I demonstrated, at that time, how the mere use of the 13-day intercalation caused each successive cycle to begin with the 20-day signs in rotation, the obvious result being the formation of a great cycle consisting of 20 cycles, each of these easily distinguished by the mere fact that it commenced with a different day-sign. Combined with the four year-signs in regular rotation, these day-signs afforded a means of distinguishing each cycle with a different name. It was my opinion then, as it is now, that the calendar system itself furnishes positive evidence that the 13-day intercalation at the end of the 52-year cycle was an all-important factor which was depended on by the ancient calendar makers when they planned their ingenious cyclical system.

It will be for my fellow-students to judge how much the internal evidence furnished by the calendar system itself and by Serna's testimony, which was adopted by the most learned of his countrymen, outweighs Professor Seler's new hypothesis that the Mexicans rectified their calendar by adding 10 days to 42 years.

Let us now examine Professor Seler's equally novel theory that the ancient Mexicans periodically adjusted 55 Venus years with 88 solar years by adding to the 88 years a Mexican year shortened by 4 days.

As by "Mexican year" Professor Seler designates the vague solar year of 365 days, the intercalation he suggests consists of 361 days and is intended to adjust 88 vague solar years to 55 Venus years.

Unlike Señor Paso y Troncoso, whose work he does not mention, but which contains the most painstaking and instructive study of the Venus year in connection with the Mexican calendar that has yet been published, Professor Seler makes no attempt to reconcile his theoretical adjustment with the fixed periods of the native calendar system. Had he more thoroughly tested the adaptabilities of the numerical system he would have found that a periodical adjustment of the count of vague solar years to Venus years could have been made in a manner even more simple than that suggested by Señor Troncoso, but as essentially the natural outcome of the native system itself.

Although I had not intended publishing it in advance of my work on the Mexican Calendar, I here submit a table which forms a part of the reconstruction of the calendar system which I made in 1892, the printed plates of which have since been preserved and exhibited in the Peabody Museum at Cambridge.

This table demonstrates the fact which Señor Troncoso first noted, and which Professor Seler has also recorded, how, owing to the numerical structure of the system, a series of synodic periods of Venus, each consisting of 583.92, or, roughly speaking, 584 days, inevitably produced or formed a cycle which completed itself only at the end of 65 Venus years, a 66th Venus year infallibly beginning on a day of the same sign and number as the first.

An interesting fact, which seems to have escaped Señor Troncoso, but which Professor Seler has observed, is that, throughout the 65-year cycle, the Venus years begin on only five out of the twenty days of the Mexican calendar. This natural result of the system associated a Venus cycle with five special day-signs and divided it into groups of five Venus years, equaling eight vague solar years.

Let us now see how simply the count of Venus years could have been adjusted to the count of vague solar years by merely adhering to the order of the calendar system itself.

Five Venus years, or 5×584 days, contain 2,920 days and are exactly equal to eight vague solar years of 365 days each. Therefore, at regular intervals of eight years the Venus and solar calendars met, with slight divergences—an interesting detail in connection

with the records that a special festival, associated with the planet Venus, was celebrated at intervals of eight years.

The complete Venus cycle of 65 synodic periods equals $2 \times 52 = 104$ vague solar years, as $65 \times 584 = 37,960$ days, and $104 \times 365 = 37,960$ days.

The system which produced the above harmonious results also furnishes the means of rectifying, in an equally harmonious and simple manner, not only the divergences between both counts, but those between the apparent movements of the sun and Venus, and their respective calendars. Notwithstanding Professor Seler's assertions to the contrary, Serna's authority, corroborated by other writers and by the system itself, establishes the fact that a group of thirteen days effectively adjusted the 52-year solar cycle.

Accordingly, a period of $2 \times 52 = 104$ vague solar years, equaling the cycle of 65 Venus years, received two intercalations of thirteen days each, which converted the 104 vague solar years into tropical years of 365.25 days, with a total number of 37,973 days.

On the other hand, at the end of the Venus cycle of 65 synodic periods, calculated as of 584 instead of 583.92 days, the Venus calendar was ahead of astronomical facts. As its progression amounted to about five days, it is obvious that, by simply deducting a five-day group from the end of the Venus cycle, i. e., by beginning the subsequent cycle five days earlier, a most simple and effective rectification of the Venus calendar was possible.

CYCLE OF PLANET VENUS

Consisting of $5 \times 13 = 65$ synodic periods of $583.92 = 584$ days each, and beginning on day 1 Cipactli.

Order of Venus Years.	Name of First Day of Each Year According to Mexican Calendar.	
1st.	Cipactli	1 9 4 12 7 2 10 5 13 8 3 11 6
2nd.	Coatl	13 8 3 11 6 1 9 4 12 7 2 10 5
3rd.	Atl	12 7 2 10 5 13 8 3 11 6 1 9 4
4th.	Acatl	11 6 1 9 4 12 7 2 10 5 13 8 3
5th.	Ollin	10 5 13 8 3 11 6 1 9 4 12 7 2

Note.—Five Venus years are equal to eight vague solar years:

$$\begin{aligned} 5 \times 584 &= 2,920, \text{ and} \\ 8 \times 365 &= 2,920. \end{aligned}$$

Thus the Venus cycle equals $2 \times 52 = 104$ vague solar years, as $65 \times 584 = 37,960$ days, and $104 \times 365 = 37,960$ days.

The deduction of a five-day period from its end would effectively adjust the Venus cycle and cause the three cycles which follow to begin with the following sets of day-signs:

CYCLE II.	CYCLE III.	CYCLE IV.
Cozcaquauhtli	Ozomatli	Ehecatl
Xochitl	Quauhtli	Miquiztli
Cuetzpalin	Quiahuitl	Itzcuintli
Tochtli	Calli	Ocelotl
Malinalli	Mazatl	Tecpatl

I pause here to point out the harmonious perfection of a system which permitted the progression of the Venus calendar and the retrogression of the count of vague solar years to be rectified by the simple deduction of an integral five-day group in one case and the addition of integral thirteen-day groups in the other.

It is interesting to observe, what I am the first to point out, the effect produced by the deduction of a five-day group at the end of each Venus cycle: it causes each of four successive cycles to be associated with a fresh set of five day-signs and starts a great cycle which completes itself only at the conclusion of the four cycles or after the $4 \times 5 = 20$ day-signs have served in turn as initial days, on exactly the same principle that is applied in the great solar cycle.

The great Venus cycle and the lesser cycles it embraces present a resemblance to an inner wheel revolving rapidly from left to right and an outer one turning more slowly in retrogressive motion. The latter is curiously matched by the retrogressive numeration recorded in the accompanying table, in which the 65 Venus years are seen to begin, in succession, on days the numbers of which run backward.

Evolved from the numerical system itself, the great Venus cycle, embracing $4 \times 65 = 260$ Venus years, thus accords perfectly

with the Tonalpoualli, the 260-day period or unit year which constitutes the basis of the system.

The harmonious working of this masterpiece of ingenuity is further demonstrated by the following detail: At the end of $4 \times 65 = 260$ Venus years, unless a different adjustment were made, the following cycle would begin on the days of the first group, but in a different order, the sign Acatl taking the lead, and so on until the $4 \times 5 = 20$ possible combinations were exhausted.

Another remarkable fact, which Señor Troncoso first noted, is that the total sum of intercalary days added to the $4 \times 13 = 52$ vague solar years, multiplied by 20, and forming the great solar cycle of 1,040 years, amounted to 260 days or a complete fundamental unit of the calendar system.

It would appear as though, when they devised the system based on the 260-day period, the calendar-makers must have had in view the simultaneous and ultimate formation of a great solar cycle of $4 \times 13 = 52 \times 20 = 1,040$ years rectified by 20 intercalations of 13 days each, forming a total sum of 260 days, and of a great Venus cycle of $5 \times 13 = 65 \times 4 = 260$ synodic revolutions, rectified by the deduction of 260 groups of five days each, or 1,300 days.

The close association of the five-day group with the Venus calendar, produced by its employment to rectify the apparent progression of the planet, suggests a possible explanation of the peculiarity that, in Maya and Mexican manuscripts, the sign of the planet Venus consists of five dots, which might also designate the groups of five Venus years equaling eight vague solar years.

It is unnecessary to discuss the striking contrast afforded by the simple and harmonious way of rectifying the calendar so clearly indicated by the system itself, and the complicated adjustment suggested by Professor Seler, which are not in harmony with the fixed order of the cyclical system, in which groups of 42 and 88 years and intercalations of 10 or 361 days or deductions of four days are absolutely out of order.

Before presenting the newly gained evidence furnished by an important document which has only just been published in full and which proves the astronomical origin of the 260-day period, I will make passing mention of the lunar count—the Meztlipohualli of

the ancient Mexicans, of which I submitted an experimental reconstruction to the Congress of Americanists at Huelva in 1892.

Fresh light is also thrown on this subject by Serna, who records that "the months were counted [by the Mexicans] like the Hebrews, from one neomenia to another, that is to say, from one appearance of the new moon to another . . . the word for month being the same as moon, thus a month was called one moon. It was by this count that the women counted the months of their pregnancy. . . In Oaxaca they had a count of thirteen months, with thirteen gods, one for each month."

I may here pause to point out that Serna's record that the lunar count was especially used by women in association with a nine-months' period is of particular significance and importance in connection with the 260-day period which, as I have noted elsewhere, accords with the period of human gestation. The view I expressed at Huelva, that the "Nine Lords of the Night" were the nine moons of the lunar year, is corroborated by Serna's statement that each of the thirteen moons of the Oaxaca lunar calendar had its special god. In the experimental reconstruction which I submitted at Huelva, the cycle formed consisted of $4 \times 13 = 52$ lunar years of 265 days each. In pointing out the advantages of the 265- over the 365-day period as a means of cursive registration of dates, I quoted the following opinion, concerning the merits of the 260-day period, expressed to me in a letter by Sir Norman Lockyer:

"The short year of 260 days is magnificent; it was the very finest thing they could have done. The lunation is 29.53 days and nine lunations are equal to 265.7 days. The short year, therefore, plus an epact of five days, equalled nine moons, so this brought the moon right, that is to say, the new moon (or the full moon, it is immaterial) would begin the second short year, third short year, and so on."

An objection to my reconstruction, raised by several fellow-workers, amongst them Dr Daniel G. Brinton, was that we had no documentary evidence to prove that such a lunar count was ever actually employed by the ancient Mexicans.

Serna, however, supplies us with the missing record of the existence of a lunar calendar. He records the names of the Mex-

ican "Nine Lords of the Night" and describes how a nocturnal calendar consisting of a count of nine night periods was employed. A simple verification of his statements concerning this nine-night count not only shows how intimately it was associated with the 260-day period, but furnishes further indications of the connection of the latter with the lunar count.

It is obvious that a 260-day or -night period embraces exactly 29 groups of 9 nights each, and also, approximately, 9 vague lunations of 29 days each.

Serna points out that the 259th night of a count of nine nights, beginning on the sign of the first Lord of the Night, infallibly falls on the sign of the eighth lord, and that, consequently, the 260th night corresponds to the sign of the ninth lord.

An experimental reconstruction of this basis further reveals that the 9×29 night periods contained in the Tonalpoualli would naturally begin on the signs of the Nine Lords of the Night in the following order of rotation:

29 day period No. 1 begins on the sign of the lord 1			
"	2	"	3
"	3	"	5
"	4	"	7
"	5	"	9
"	6	"	2
"	7	"	4
"	8	"	6
"	9	"	8

The experimental addition of the five-day epact¹ which, as Sir Norman Lockyer has pointed out, would so effectively adjust the lunar count, initiates a cycle of 9×9 true lunar years of 265 days each, which begins as follows:

Year 1 on the sign of the lord 1		
2	"	6
3	"	2
4	"	7

¹ The above adjustment of the 260-day period to astronomical facts by means of an epact of five days offers an exact parallel to the method which was actually employed in the case of the solar calendar, in which, as is well known, a five-day epact was added to the native year of 360 days in order to adjust the true solar year.

Year 5 on the sign of the lord	3
6	" 8
7	" 4
8	" 9
9	" 5

On the other hand, as the duration of nine lunations exceeds 265 days by exactly 17 hrs., 36 m., and 27 s., this excess, gradually accumulating, would soon cause a marked divergence in a prolonged count of successive periods of 265 days.

At the end of the $9 \times 9 = 81$ lunar years of 265 nights the retrogression of the lunar calendar would amount to 6 days, 14 hrs., 28 m., and 3 s. It is interesting, moreover, to note that the lunar cycle of $9 \times 9 = 81$ years exceeds in length the 52-year cycle of solar years of 365 days each by 6 years and 295 days; the latter period consisting of one 260-day period and 35 days (i. e., $4 \times 9 - 1$ day).

Postponing further discussion of the 265-day period, I now draw attention to the hitherto inedited treatise on the observation of the planet Venus by the ancient Mexicans, attributed to no less an authority than Friar Motolinia, which has just been published in the City of Mexico by Dr Nicolás León and in Paris by Señor Luis García Pimentel.

The existence of this precious manuscript in the library of the late Joaquín Icazbalceta has long been known to scholars, but it was Señor Troncoso who first published, in 1883, fragmentary quotations from its pages. Since then Señor Alfredo Chavero and Professor Edward Seler have referred to it as a valuable source of information concerning the observation of the planet Venus by the Mexican priesthood.

The extracts printed below suffice to establish that an astronomical origin was assigned to the 260-day period by the Mexicans themselves. A table of the 260-day period accompanies the following text:

"... here is explained the calendar or table of the star named Hesper, or, in the language of the Indians, Hueycitlalin (lit. the Great Star) or Totonametl (lit. the Shining One).

"The table given here can be designated as the calendar of the

Indians of New Spain, which they counted by a star which, in the autumn, begins to appear, toward evening, in the west with a clear and resplendent light. Indeed, those who have good eye-sight and know where to look for it can perceive it from mid-day on.

"This star is that we call Lucifer, etc. . . . As the sun goes lower and the days grow shorter the star seems to rise—thus each day it appears a little higher until the sun seems to reach it and pass it in the summer and spring when it sets with the sun and is visible through its light.

"And in this land the duration of time from the day when it first appears to when after rising on high it loses itself and disappears, amounts to 260 days, which are figured and recorded in said calendar or table. . . .

" . . . the sign cipactli is the first day of the 260 and of all days. . . . This count is not that of the course of the sun or the year, nor is it in respect to [the sun] that it is named and the signs exist, but it is from contemplation of the star. They named this count Tonalpoualli . . . which means the count of the planets or heavenly bodies which illuminate or give light, and by this they did not only signify the planet named Sun. . . . They also name the star Citlaltona, or 'the star of light.' . . .

"Next to the sun they adored and made more sacrifices to this star than to any other celestial or terrestrial creature. The astronomers knew on what day it would appear again in the east after it had lost itself or disappeared in the west, and for this first day they prepared a feast, warfare, and sacrifices. The ruler gave an Indian who was sacrificed at dawn, as soon as the star became visible. . . . In this land the star lingers and rises in the east as many days as in the west—that is to say, for another period of 260 days. Some add thirteen days more, which is one of their weeks.

"They also kept account, like good astrologers, of all of the days when the star was visible. The reason why this star was held in such esteem by the lords and people, and the reason why they *counted the days by this star* and yielded reverence and offered sacrifices to it, was because these deluded natives thought or believed that when one of their principal gods, named Topiltzin or Quetzalcoatl, died and left this world, he transformed himself into that resplendent star. . . ."

While it is obvious that the recorded observations as to the season and the period of visibility of the planet Venus, being necessarily transitory, apply only to one year, the above authoritative statements definitely establish not only that the 260-day period began with the

day Cipactli and was named the "Tonalpoualli" or "count of the celestial shining bodies," but that it was actually employed for the purpose of registering the apparent movements of the planet Venus.

Emphasizing again that the Tonalpoualli more closely corresponds to the duration of nine lunations than to the periods between the superior conjunction and digressions of the planet Venus, which is of 220 and not of 260 days as Motolinia records, I also wish to point out how admirably its numerical system is adapted to the registration of astronomical data in general. A striking instance of this adaptability is obtained if we experimentally register the synodic periods of the planet Mars.

According to Sir Norman Lockyer this planet takes $779.94 = 780$ days to return to the same position with regard to the earth. If we fix on the day 1 Acatl of the Mexican calendar, for instance, as that on which the position of the planet is registered, and count 780 days, we ascertain that the 781st day falls again on the sign 1 Acatl and will continue to do so indefinitely. It can readily be seen how, in this case, a planet would come to be identified with a single day and sign until marked progression called for an adjustment and the adoption of a different sign.

It is of course impossible to enter here into what would necessarily be an extended discussion of the much debated question as to the date and day-sign on which the Mexican solar calendar began.

The publication of Serna's and Motolinia's important documents obliges students of the ancient Mexican calendar, myself included, to revise some of their conclusions and to abandon others which were reached prior to an acquaintance with these works.

The purpose of the present communication will be fulfilled if it directs the attention of American scholars to the important evidence which Professor Seler has ignored, and to the undeniably harmonious results which I have obtained by partly revised reconstructions on the lines indicated by Serna and Motolinia and confirmed by other early authors.⁴

The following résumé of the main features of the reconstructed independent solar, lunar, and Venus year cycles are respectfully submitted to the consideration of my fellow-workers:

I

A count of solar years of $360 + 5 = 365$ days subdivided into groups of 5, 13, and 20 days, forming lesser cycles of $4 \times 13 = 52$ years, each adjusted by an epact consisting of an integral 13-day group, and a great cycle of $20 \times 52 = 1,040$ years, at the end of which the total number of epacts employed for the purpose of rectifying the calendar amounted to $20 \times 13 = 260$ days, or one integral Tonalpoualli.

II

A nocturnal count of lunar years of $260 + 5 = 265$ nights subdivided into 29 groups of 9 nights and embracing 9 lunations, forming a cycle of $9 \times 9 = 81$ lunar years, at the end of which retrogression would amount to 6 days, 14 hrs., 28 m., and 3 s.

It is obvious that *the addition of an integral 13-day group at the end of two lunar cycles* would have effectually adjusted the lunar calendar, a fact which is not only interesting *per se* but also in connection with the method of adjusting the solar calendar.

III

A count of Venus years of 584 days each, subdivided into 5-day groups, forming lesser cycles of $5 \times 13 = 65$ years, each adjusted by the deduction of one integral 5-day group; a great cycle of $4 \times 65 = 260$ years with a total deduction of $4 \times 5 = 20$ days, and a greater cycle of $5 \times 260 = 1,300$ years, with a total deduction of $5 \times 20 = 100$ days.

THE CHAMORRO LANGUAGE OF GUAM—IV

By WILLIAM EDWIN SAFFORD

VIII.—THE VERB—Continued

16. THE VERBAL INFIX *um*.—Transitive verbs with a definite object have inserted before the first vowel of the verb the particle *um* to express the past and present tenses of the indicative mode, providing that the action expressed by the verb has already been referred to or indicated. Thus, if a ship (*modong*) has been sighted and reported, the question is asked, *Hayi lumii i medong?* "Who saw the ship?", inserting the particle *um* before the first vowel of the word *lii* (see). If some one suddenly sights it, however, he says *Hulii i medong!* "I see the ship," in this case prefixing a verbal particle to the verb.¹

The infix *um* is also used with those intransitive verbs which lack the prefix *fan*, or a similar syllable (as *falago*, run; *fatachong*, sit), and it forms the infinite of all transitive verbs as well as of the intransitive verbs indicated.

This use of a verbal infix is a feature of the Chamorro language, separating it from all languages of Polynesia and Melanesia proper. Strangely, however, it is also a characteristic of the languages of the widely remote inhabitants of Madagascar, the Javanese, and the Khmers of Cambodia, as well as of the nearer Philippine archipelago. Examples of the use of verbal infixes in the languages referred to are:

Chamorro,	<i>chumule</i> ,	from the root <i>chule</i> ,	carry ;
Tagalog,	<i>bumasa</i>	from the root <i>basa</i> ,	read ;
Malay,	<i>pumilihan</i> ,	from the root <i>pilih</i> ,	choose ;
Javanese,	<i>humurub</i> ,	from the root <i>hurub</i> ,	flame ;
Khmer,	<i>samlap</i> ,	from the root <i>slap</i> ,	dead.

Of the common origin of the languages of Polynesia, Melanesia, and the Malay archipelago there can be no doubt. Many words

¹ See *American Anthropologist*, vol. 5, p. 310 (p. 22 of reprint), 1903.

common to all bear evidence to this fact in the same way as the words which prove the relationship of the languages of the great Aryan family. These words are not only names of common objects, such as sky, fire, fish, bird, but also the names of a number of economic plants, such as coconut, sugar-cane, yam, and, as we have already seen, the personal pronouns and the numerals. The similarity of the grammatical structure of the Chamorro language to that of the Philippine dialects and of other western idioms shows that the ancestors of the people of Guam did not accompany the ancient Polynesians or Melanesians in their exodus, but remained united with the original stock inhabiting the Malay archipelago and the Philippines, together with the ancestors of the settlers of Madagascar until the evolution of the grammatical features which now are common to these people, and of which not a trace is to be found in the eastern Pacific races. From what has just been said it must not be inferred that the vocabularies of the languages of Guam and the Philippines are closely allied. Outside of the primitive words referred to above, they have little in common.

In the following examples the first list includes verbs conjugated with the infix **um**; the second includes verbs having the intransitive prefix **fan**, or a syllable like it, which are conjugated without the infix **um**. In forming the tenses, the *infinitive* and the *preterite* or *past definite of the indicative* are derived directly from the definite, or urgent imperative; the *present* and *imperfect of the indicative*, which may be compared to the progressive form of the English ('I am laughing', or 'I was laughing'), implying continued action, are derived from the *indefinite*, or *suspended imperative*.¹

A.—*Infinitives with um.*

	ROOT IMPERATIVE.	REDUPLICATED ROOT SUSPENDED IMPERATIVE.	INFINITIVE AND PRETERITE.	PRESENT AND IMPERFECT.
laugh,	<i>chāleg,</i>	<i>chāchāleg,</i>	<i>chumāleg,</i>	<i>chumāchāleg.</i>
weep,	<i>tāngis,</i>	<i>tātāngis,</i>	<i>tumāngis,</i>	<i>tumātāngis.</i>
lie down,	<i>āson,</i>	<i>āason,</i>	<i>umāson,</i>	<i>umāason.</i>
rise,	<i>kahūlo,</i>	<i>kahūhulo,</i>	<i>kumahūlo,</i>	<i>kumahūhulo.</i>
descend,	<i>tūnog,</i>	<i>tūtunog,</i>	<i>tumūnog,</i>	<i>tumūtunog.</i>

¹ The difference between the two forms of imperative is explained under the heading "Reduplication", *American Anthropologist*, vol. 6, p. 114 (p. 66 of reprint), 1904.

go,	<i>hānao,</i>	<i>hāhanao,</i>	<i>humānao,</i>	<i>humāhanao.</i>
carry,	<i>chūle,</i>	<i>chūchule,</i>	<i>chumūle,</i>	<i>chumūchule.</i>
stay,	<i>sāga,</i>	<i>sāsaga,</i>	<i>sumāga,</i>	<i>sumāsaga.</i>
enter,	<i>hālom,</i>	<i>hāhalom,</i>	<i>humālom,</i>	<i>humāhalom.</i>
go out,	<i>hūyong,</i>	<i>hūhuyong,</i>	<i>humūyong,</i>	<i>humūhuyong.</i>
swim,	<i>nāngo,</i>	<i>nānāngo,</i>	<i>numāngo,</i>	<i>numānāngo.</i>
lament,	<i>ūgung,</i>	<i>ūugung,</i>	<i>umūgung,</i>	<i>umūugung.</i>
hide,	<i>atog,</i>	<i>āatog,</i>	<i>umātog,</i>	<i>umāatog.</i>
blaspheme,	<i>chātfino,</i>	<i>chāchatfino,</i>	<i>chumātfino,</i>	<i>chumāchatfino.</i>

B.—Infinitives without *um*.

	ROOT IMPERATIVE.	REPLICATED ROOT SUSPENDED IMPERATIVE.	INFINITIVE AND PRETERITE.	PRESENT AND IMPERFECT.
see (intr.)	<i>fanlī,</i>	<i>fanlīlī,</i>	<i>manlī,</i>	<i>manlīlī.</i>
read (intr.)	<i>fanāitai,</i>	<i>fanānaitai,</i>	<i>manāitai,</i>	<i>mannaitai.</i>
write (intr.)	<i>fanūge,</i>	<i>fanūnuge,</i>	<i>manūge,</i>	<i>manūnuge.</i>
carry (intr.)	<i>fañule,</i>	<i>fañūñule,</i>	<i>mañule,</i>	<i>mañūñule.</i>
sit,	<i>fatāchong,</i>	<i>fatātachong,</i>	<i>matāchong,</i>	<i>matātachong.</i>
run,	<i>falāgo,</i>	<i>falālago,</i>	<i>malāgo,</i>	<i>malālago.</i>
arrive,	<i>fāto,</i>	<i>fāfato,</i>	<i>māto,</i>	<i>māfato.</i>
go on foot,	<i>famōkat,</i>	<i>famōmokat</i>	<i>mamōkat.</i>	<i>mamōmokat.</i>

Examples of the use of verbs with the infix *um* :

<i>Hayi tumataitai i lebbloko ?</i>	Who is reading my book ?
<i>Guaho tumataitai. Tumataitai yō.</i>	I am reading (it).
<i>Hayi kumano i kahet ?</i>	Who ate the orange ?
<i>Si Huan kumano. Kumano si Huan.</i>	John ate (it).
<i>Hayi tumaha i hayuho ?</i>	Who cut my wood ?
<i>Si tata tumaha. Tumaha si tata.</i>	Father cut it.
<i>Hayi tumuge ini na katta ?</i>	Who wrote this letter ?
<i>Tumuge i chēluho.</i>	My brother wrote (it).
<i>Hayi chumāchaleg guenao na guma ?</i>	Who is laughing in that house ?
<i>Chumāchaleg i famaguon.</i>	The children are laughing.

Examples of the use of verbs with the Infinitive :

<i>Malago yō umason.</i>	I wish to lie down.
<i>Munga umason.</i>	You must not lie down.
<i>Munga yō humanao.</i>	I won't go.
<i>Munga gui humalom.</i>	He won't come in.
<i>Munga sumaga si nana.</i>	Mother will not stay.
<i>Siña yō humuyong ?</i>	May I go out ?
<i>Siña hao sumaga giya hame.</i>	You may stay at our house.

Reduplicated Form with Chamo.—With verbs which take *um* in the infinitive, the precative *chamo* causes the reduplication of the accented syllable, as in the present or progressive form. This may be considered as a progressive form of the infinitive:

- Chamo umáson!* Don't lie down! Don't be lying down.
Chamo humáhanao! Don't go! Don't be going. You must not be going.
Chamo humáhalom! Do not enter! Don't be entering.
Chamo sumásaga! Do not stay! You must not be staying.

17. VERBAL PARTICLES.—Verbal particles precede the verb and are united with it enclitically. They indicate person, but they are quite distinct from the personal pronoun. They are used with all verbs in the future, whether transitive or intransitive, but are used in the past and present of transitive verbs only when they have a definitely indicated object and their action has not before been referred to. Following are the verbal particles of the Chamorro language:

PAST AND PRESENT.	FUTURE.	SINGULAR.
hu-	hu-	1st person.
un-	un-	2d person.
ha-	u-	3d person.
DUAL AND PLURAL		
ta-	uta-	1st person inclusive.
in-	in-	1st person exclusive.
en-	en-	2d person.
ha-	uha-	3d person.

As in the form of the verb where the infix *um* is used, the preterite indicative of verbs conjugated with prefixed particles is formed from the definite, or urgent, imperative, and the imperfect and present from the reduplicated form, which is the indefinite or suspended imperative. Examples:

- Huchule i tihongmo gi gima,* I carried your hat to the house.
Hulii i lähen magalahe, I saw the son of the governor.
Huchuchule i niyog siha, I am or was carrying the coconuts.
Hulilii i guihan gi tipo, I see the fish in the well.
Talii i chélumo ni i bachet, We (you and I) saw your brother who is blind.

<i>Hafa enao? Tì hutungo,</i>	What is that? I do not know (it).
<i>Unlii i tātaho gi lāncho,</i>	You saw my father in the ranch.
<i>Ulii i tātamo agupa,</i>	He will see your father tomorrow.
<i>Halii nigab i chēlumo,</i>	He saw your brother yesterday.

In the above examples it will be observed that the verb has a definitely indicated object and that the action of the verb has not before been expressed.

Particles used with the Imperative. — It has already been stated that the definite imperative, second person singular, is the simple root of the verb. The other persons of the imperative are formed from the future very much as in the English expressions 'she shall go,' 'he shall do it,' 'they shall work.' Examples:

<i>Lii i gima!</i>	See the house!
<i>Ulii i gima!</i>	Let him see the house!
<i>Talii i gima!</i>	Let us see the house!
<i>Lii i gima!</i>	See ye the house!
<i>Uhalii i gima!</i>	They shall see the house!

18. THE POSSESSIVE FORM OF THE VERB. — As already indicated, person and number are expressed in certain verbs by means of possessive particles suffixed enclitically to the verb.¹ The preterite or past definite tense is formed directly from the definite imperative, or primitive form of the verb, and the present or imperfect has the reduplicated form. Examples:

<i>Hafa ilēgña,</i>	What did he say? What said he?
<i>Hafa ilēlegña,</i>	What is he saying? What was he saying?
<i>Ilegmame,</i>	We said, we did say.
<i>Ilegmámame,</i>	We are saying, we were saying.

In this form of the verb the reduplication takes place not necessarily in the root of the verb, but in the accented syllable of the new word formed by combining enclitically the possessive suffix with the root. In verbs denoting mental action, as already stated, the effect of reduplicating the verb would be to weaken its meaning; so that with the verb *malago*, for instance, the unreduplicated form is used in the present as well as in the past tense: *Hafa mala-gómo?* What do you wish? or, what did you wish? *Gaoko*, I prefer. *Hinasoko*, I think.

¹ See *Am. Anth.*, vol. 5, p. 513 (p. 30 of reprint), 1903.

The use of this form of the verb may be compared to that of the Polynesian dialects, in which a common form of expression is, 'What is your wishing?'—Hawaiian, *Heaha kou makemake?* Aole ona manao e hele. 'None his wishing to go.' 'He did not wish to go.'

19. THE PASSIVE VOICE. — To express the passive voice, when the agent is singular, the particle *in* must be inserted before the first vowel of the verb. This has the effect of changing the vowel *a* to *ā*, *o* to *e*, and *u* to *i*, as in the formation of abstract nouns. Thus, from *gôte*, seize, we have *ginête*, to be seized by some one.

When the agent of the action is not expressed, or is plural, the passive voice is indicated by prefixing the particle *ma* to the verb. Thus, from *gôte*, we have *magôte*, to be seized by more than one, or simply 'seized,' without expressing the agent.

The present and imperfect tenses are formed by reduplication as in the other forms of the verb; as, *ginête yo nu i lāhe*, I was seized by the man; *ginégôte yo nu i chélumo*, I am (or was) being seized by your brother; *magôte yo nu i lālahe*, I was seized by the men; *magogôte yo uu i mañelumo*, I am (or was) being seized by your brothers.

The passive voice cannot be used if the agent is of the first or the second person, or if the subject of the verb is of the first person and the agent is of the singular or dual number unless the agent is without article, adjective, or preposition. Thus it is proper to translate by the passive voice, 'I was stung by a wasp' (*Inaka yo sasata*), 'We were stung by mosquitos' (*Manmaaka ham ñamo*). But the sentence 'I was stung by that big centipede' must be rendered in Chamorro 'That big centipede stung me'; and 'The berries were picked by me' must be translated 'I picked the berries.' Other examples:

Finanague si Hosè as Pedro,

Joseph was taught by Peter. (Agent singular.)

Mafandaan Hosè Palomo i pale ni i fumague yô,

The priest who taught me was called José Palomo. (Agent not specified.)

Binaba hao as Tata,

Thou wert whipped by Father. (Agent singular.)

Mamofea si Elisao nu megae na famagûon.

Elisha was ridiculed by many boys. (Agent plural.)

Manmaakude hamyo nu i Ye were aided by your-fellow-country-
manachataotaomiyo. men. (Verb and agent plural.)

20. MODE. As we have seen, inflections are made by means of reduplication and by the addition of prefixes, infixes, and suffixes. Though not corresponding to the grammatical structure of the Aryan group of languages, the Chamorro verbs may be considered to have four modes, the imperative, infinitive, indicative, and conditional.

IMPERATIVE MODE

There are two imperatives, the definite or urgent, which is the simple root of the verb, and the indefinite or suspended, which is the reduplicated form of the root. The definite imperative expresses a command which is urgent and is expected to be obeyed immediately, as *Hanao!* Go! The indefinite or suspended imperative expresses a command, request, or exhortation, which is not expected to be obeyed forthwith; as *cháchaleg!* laugh (and the world laughs with you); *bomag*, bathe (as when a doctor advises a patient).¹ The second person of the imperative is the same in the singular and plural. The third person of the imperative is similar to the third person singular and plural of the future, as, *u/ii*, let him see, or he shall see; *uha/ii*, let them see, or they shall see. The first person plural is similar to that of the preterite and present, as, *talii*, let us see. An interesting feature of the Chamorro is the use of an auxiliary with the first person plural of the imperative, recalling the Hebrew form, as, *Nihi talii!* O come let us see! The negative imperative is expressed by the precativ *chamo*, do not, before the reduplicated, or suspended imperative. Examples:

<i>Chamo fatátachong!</i>	Do not sit down!
<i>Chamo kahúhulo!</i>	Do not get up!
<i>Chamo famémokat!</i>	Do not go on foot!
<i>Chamo falálagó!</i>	Do not run!
<i>Chamo falagisásadog!</i>	Don't go-to-the-river!
<i>Chamo famúmuno!</i>	Thou shalt not kill!
<i>Chamo fandádage!</i>	Thou shalt not lie!

¹ It may also be considered in the light of a progressive form of the imperative, as 'be laughing,' 'be bathing'; or as an exhortation to perform an habitual act, as 'laugh and grow fat,' 'bathe frequently.'

If the verb take the infix *um* in the infinitive, the reduplicated form, with this particle before the first vowel (as in the present, or imperfect), follows the precativ; as, *chamo umáason*, do not lie down; *chamo humáhanao*, do not go.

Some imperative phrases follow :

<i>Halom !</i>	Come in !
<i>Chamo kahúhulo !</i>	Do not rise !
<i>Fatáchong !</i>	Sit down !
<i>Fatáchong gi fionho,</i>	Sit in my proximity (near me).
<i>Ginem ini na tuba,</i>	Drink this toddy.
<i>Chamo gumiginem i tiba pago,</i>	Do not drink the toddy now.
<i>Giginem gin homlo hao,</i>	Drink (it) when you are well.
<i>Maila tafanoo chokolate,</i>	Come, let us make some chocolate.
<i>Maila ya unchocho,</i>	Come and you eat.
<i>Nihi tafalag-i-halom-tano,</i>	Come, let-us-go-to-the-woods.
<i>Tafanfi flores,</i>	Let us pick flowers.
<i>Nangga !</i>	Wait !
<i>Ekungog ayu na aga,</i>	Listen to that crow.
<i>Atan enao na sasata,</i>	Look at that wasp.
<i>Adahe !</i>	Take care !
<i>Ta-agang si Luis,</i>	Let us call Louis (transitive).
<i>Ta-fanagang,</i>	Let us call (intransitive).
<i>Pakaká !</i>	Be silent !
<i>Chamo áamam !</i>	Don't tarry !
<i>Gusi magi !</i>	Hurry hither !

INFINITIVE MODE

All transitive verbs form their infinitive by inserting the particle *um* before the first vowel of the primitive root, or definite imperative. Examples :

DEFINITE IMPERATIVE	INFINITIVE
<i>chule</i> , carry ;	<i>chumule</i> , to carry.
<i>nác</i> , give ;	<i>numác</i> , to give.
<i>taitai</i> , read ;	<i>rumaitai</i> , to read.
<i>tuge</i> , write ;	<i>rumuge</i> , to write.
<i>fahan</i> , buy ;	<i>fumahan</i> , to buy.

Some intransitive verbs form their infinitive in the same manner :

<i>chaleg</i> , laugh ;	<i>chumaleg</i> , to laugh.
<i>lañgis</i> , weep ;	<i>fumañgis</i> , to weep.
<i>nañgo</i> , swim ;	<i>numaño</i> , to swim.

All intransitive verbs beginning with *fan* or the syllable *fa* in the imperative, and all transitive verbs with an indefinite object taking *fan* in the imperative, change the prefix to *man* or *ma* in the infinitive :

<i>fañule</i> , carry (intr.) ;	<i>mañule</i> , to carry.
<i>fannae</i> , give (intr.) ;	<i>mannae</i> , to give.
<i>fanaitai</i> , read, or pray ;	<i>manaitai</i> , to read, or pray.
<i>fanuge</i> , write (intr.) ;	<i>manuge</i> , to write.
<i>falago</i> , run ;	<i>malago</i> , to run.
<i>fatachong</i> , sit down ;	<i>matachong</i> , to sit down.
<i>fachocho</i> , work (intr.) ;	<i>machocho</i> , to work.

INDICATIVE MODE

21. FORMATION OF TENSES. — From the Definite or Urgent Imperative, which is the simple root, are formed the Preterite or Past Definite of the Indicative Mode, and the Definite future of all verbs except those having the prefix *fan*, or a similar syllable, in the imperative.

From the Indefinite or Suspended Imperative, which is the reduplicated form of the root, are formed the Imperfect, Present and Indefinite Future. These forms may be considered as like the Progressive form in the English 'I was seeing,' 'I am seeing,' 'I shall be seeing.' The Anterior Pluperfect or Past Perfect of the Indicative is like the preterite, preceded or followed by the verbs *monhayan* and *magpô* ('to have finished'), or by the word *yesta* derived from the Spanish *ya está*, it is done. Examples :

Definite imperative, <i>Lii</i> , See !	Indefinite imperative, <i>Lili</i> , See.
Preterite, <i>Halii</i> , He did see.	Present or imperfect, <i>Halili</i> , He is seeing, he was seeing.
Definite future, <i>Uli</i> , He will see.	Indefinite future, <i>Ulii</i> , He will be seeing.
Anterior or Pluperfect { <i>Monhayan halii</i> , <i>Halii magpô</i> , }	He had seen ; he had finished seeing. ¹

¹ Like the Spanish *acabó [de] ver*.

Past Time. — As in many Oceanic languages, past time is frequently expressed by means of adverbs. Time fully past is indicated by *hagas*, formerly, or the English 'used to'; time recently past by *gine*, translated in English by 'to have just' and in French by *venir de*; time definitely past by *monhan*, which corresponds to the German *schon*; and time already past at some past period by *monhayan* or *magpô*, which may be supposed to correspond to the Spanish *acabar de*, 'to have finished some act in past time.' The reduplicated form of the verb used in connection with past time expresses continuous or progressive action, something happening at the same time that another past event took place; it is therefore sometimes called the "copresent," and is expressed by the "imperfect" of the Latin languages. Examples:

Hagas <i>kapitan hao</i> ,	You were captain (Formerly you were a captain).
Hagas <i>mato yô Manila</i> ,	I have been to Manila (not recently).
Gine <i>hulii si Nana</i> ,	I have just seen Mother (Je viens de voir ma mère).
Gine <i>malañgo yô</i> ,	I have been sick (recently).
Monhan ¹ <i>halagse i chininaña</i>	Already he sewed his shirt yesterday.
<i>nigab</i> ,	
Monhayan <i>hao chumochô nigab</i>	You had finished dining day before
<i>ña, anaë mato si Magalahe</i>	yesterday when the Governor ar-
<i>giya hamyo</i> . ²	rived at your home.

22. PERSON AND NUMBER. — It has been shown under the pronoun that there are two forms for the first person plural, one including the person addressed and the other excluding him. The first may be thought of as 'you and I', the second as 'they and I.'

Transitive verbs with a definite object have no distinct form for indicating the dual number. Intransitive verbs indicate the dual by using the plural pronouns with the singular form of the verb, while they prefix to the verb the plural particle *man*, to indicate that the subject is plural. Thus we have the intransitive verbs:

Singular: <i>Tumunog yô</i> ,	I descended (from <i>tunog</i> , descend).
<i>Manlii yo</i> ,	I saw (from <i>lii</i> , see).

¹ German, *Er hat schon gestern sein Hemd genäht.*

² *Giya hamyo* = French *chez vous*.

Dual :	<i>Tumunog hit,</i>	We descended (thou and I);
	<i>Tumunog ham,</i>	We descended (he and I).
	<i>Manlii hit,</i>	We saw (thou and I) ;
	<i>Manlii ham,</i>	We saw (he and I).
Plural :	<i>Manunog¹ hit,</i>	We descended (ye and I) ;
	<i>Manunog ham,</i>	We descended (they and I).
	<i>Manmanlii hit,</i>	We saw (ye and I) ;
	<i>Manmanlii ham,</i>	We saw (they and I).

Verbs in the passive voice form the plural like intransitive verbs and adjectives :

Singular :	<i>Gin̄te yo,</i>	I was seized (from <i>gôte</i> , agent singular) ;
	<i>Magôte yo,</i>	I was seized (agent plural, or not indicated).
Plural :	<i>Mangin̄te hit,</i>	We were seized (you and I ; agent singular) ;
	<i>Manmagôte hit,</i>	We were seized (you and I ; agent plural or not indicated).

23. FORMS OF THE VERB. — A single verb may assume various forms and be conjugated in various ways, according to the sense in which it is used. Thus it may be transitive with a definite object or intransitive ; used for the first time or used again after its action has been referred to ; passive with a single agent or passive with the agent plural or not indicated ; or it may be causative active or causative passive. Moreover, the verb may be used in its primitive form, which in general expresses some definite or precise exaction, or in a reduplicated form, which in general expresses a continuous progressive, repeated or vague action. Examples with the verb *lii*, see :

Primitive root (definite imperative), *lii*, see (object definite).

Reduplicated root (indefinite imperative), *ilii*, be seeing.

Infinitive (with infix *um*), *lumii*, to see.

Intransitive form, imperative, *Fanlii*. See ! (object indefinite.)

Intransitive form, infinitive, *manlii*, to see.

Passive form with singular agent, *Anii*, seen (by some one).

¹ When the plural prefix is used with words beginning with *t*, this initial letter is eliminated. See *Am. Anth.*, vol. 5, 1903, p. 303 (p. 15 of reprint), for rules governing the modification of initial letters.

Passive form with plural agent, *malii*, seen.

Causative form (with prefix *na*), *nalii*, make see, or 'show' (somebody).

Causative passive form, *namalii*, cause to be seen, 'display' (something).

24. CONJUGATIONS. — Following are given the various conjugations of Chamorro verbs:

The FIRST FORM, in which particles are prefixed to the verb to indicate person and number, is used in the case of transitive verbs with a definite object, when the action of the verb has not before been referred to.

The SECOND FORM, in which the particle *um* is infix into the body of the verb, and person and number are indicated by distinct pronouns, is used with transitive verbs the action of which has already been referred to.

The THIRD FORM, in which the verb is preceded by the intransitive particle *fan*, is used with transitive verbs without a definitely specified object and with verbs used intransitively.

The FOURTH FORM, in which the verb is essentially intransitive and takes the infix *um* in the infinitive, is used where the intransitive prefix *fan* is not used.

The FIFTH FORM, in which the verb has neither the prefix *fan* nor the infix *um*, is used with certain neuter verbs.

The SIXTH FORM, in which possessive pronominal suffixes are used to indicate person and number, may be called the possessive form of conjugation. With certain verbs it is always used in the present and past of the indicative. With other verbs it is generally used only when the sentence is interrogative after the pronoun *hafa*, what. With the precativ *chamo* it is used in the imperative.

The SEVENTH FORM, in which the verb takes the infix *in* or the prefix *ma*, is used with verbs in the passive voice.

The EIGHTH FORM, in which the verb has the prefix *nâ*, is used with causative verbs.

25. FIRST FORM OF CONJUGATION: *Verbal Prefixes*. — This form is used when the verb is transitive with a definitely indicated object and the action has not before been referred to.

IMPERATIVE MODE

DEFINITE

INDEFINITE

SINGULAR

Lii, See (thou)!*Li'ii*, Be seeing.*Ulii*, Let him see!*Uli'ii*, Let him be seeing.

DUAL AND PLURAL

Talii, Let us see!¹*Tali'ii*, Let us be seeing.*Lii*, See (ye)!*Li'ii*, Be ye seeing.*Uha'ii*, Let him see!*Uha'li'ii*, He shall be seeing.

INDICATIVE MODE

PAST DEFINITE, OR PRETERITE TENSE

SINGULAR

Guaho huli i gima, I saw the house, I did see the house.²*Hago unli i gima*, Thou sawest the house, Thou didst see the house.*Guiya hali i gima*, He saw the house, He did see the house.

DUAL AND PLURAL

Hita tali i gima, We saw the house, We did see the house (incl.).*Hame enli i gima*, We saw the house, We did see the house (excl.).*Hamyō inli i gima*, You saw the house, You did see the house.*Siha hali i gima*, They saw the house, They did see the house.

PRESENT AND IMPERFECT

SINGULAR

Guaho hullii i gima-mo, I see your house, I am (or was) seeing your house.*Hago unli'ii i tāsī*, Thou seest (art seeing, or wert seeing) the sea.*Guiya hali'ii i chālan*, He sees (is seeing, or was seeing) the road.

DUAL AND PLURAL

Hita tali'ii i gima-yuus, We (you and I) see (or were seeing) the church.

¹ To express the first person plural or dual of the imperative, the verb is often preceded by the interjection or expletive *niki*, as *Niki tali!* which may be rendered 'O come let us see!'

² In this form the personal pronouns are expressed only when the subject is emphatic. When no confusion is probable the pronoun is omitted.

<i>Hame inlilii i galaide,</i>	We (he or they and I) see (or were seeing) the canoe.
<i>Hamyo inlilii i sãdog,</i>	You see (or were seeing) the river.
<i>Siha halilii i egso,</i>	They see (or were seeing) the hill.

ANTERIOR OR PLUPERFECT

SINGULAR

Monhayan <i>hulii</i> or <i>magpô hulii,</i>	I had finished seeing. ¹
Monhayan <i>unlii</i> or <i>magpô unlii,</i>	Thou hadst finished seeing.
Monhayan <i>halii</i> or <i>magpô halii,</i>	He had finished seeing.

DUAL AND PLURAL

Monhayan <i>talii</i> or <i>magpô talii,</i>	We had finished seeing (incl.).
Monhayan <i>inlli</i> or <i>magpô inlli,</i>	We had finished seeing (excl.).
Monhayan <i>enlii</i> or <i>magpô enlii,</i>	You had finished seeing.
Monhayan <i>halii</i> <i>magpô halii,</i>	They had finished seeing.

DEFINITE

FUTURE TENSE

INDEFINITE OR VAGUE

SINGULAR

<i>Hulii i gima,</i>	I shall see the house ;	<i>hulilii i gima.</i>
<i>Unlii i gima,</i>	Thou wilt see the house ;	<i>unlilii i gima.</i>
<i>Ulii i gima,</i>	He will see the house ;	<i>ulilii i gima.</i>

DUAL AND PLURAL

<i>Utalii i gima,</i>	We shall see the house ;	<i>utalilii i gima.</i>
<i>Inlii i gima,</i>	We shall see the house ;	<i>inlilii i gima.</i>
<i>Enlii i gima,</i>	You will see the house ;	<i>enlilii i gima.</i>
<i>Uhalii i gima,</i>	They will see the house ;	<i>uhalilii i gima.</i>

From the above forms it will be seen that the future resembles the preterite and imperfect tense forms except in the third person singular and plural and the first person plural inclusive, all of which have the prefix *u*. If the subject is emphatic the personal pronouns are used.

26. SECOND FORM OF CONJUGATION: *Verbal Infix um*. — Action of verb already referred to, as in answer to a question, *Hayi lumii i āga?* Who saw the crow?

¹ In the same way the adverb *hagas* (formerly) may be used to express past time ; as *hagas hulii i tãtamo*, I formerly saw your father.

INDICATIVE MODE

PRETERITE OR PAST DEFINITE

SINGULAR

<i>Hayi lumii i äga?</i>	Who saw the crow?
<i>Guaho lumii i äga,</i>	I saw the crow.
<i>Hago lumii i äga,</i>	Thou sawest the crow.
<i>Guiya lumii i äga,</i>	He saw the crow.

DUAL AND PLURAL

<i>Hita lumii i äga,</i>	We (incl.) saw the crow.
<i>Hame lumii i äga,</i>	We (excl.) saw the crow.
<i>Hamyö lumii i äga,</i>	You saw the crow.
<i>Siha lumii i äga,</i>	They saw the crow.

INDICATIVE PRESENT OR PROGRESSIVE

SINGULAR

<i>Hayi lumilii yuhe na modong?</i>	Who sees yonder ship?
<i>Guaho lumilii yuhe na modong,</i>	I see yonder ship.
<i>Hago lumilii yuhe na modong,</i>	Thou seest yonder ship.
<i>Guiya lumilii yuhe na modong,</i>	He sees yonder ship.

DUAL AND PLURAL

<i>Hita lumilii yuhe na modong,</i>	We see yonder ship.
<i>Hame lumilii yuhe na modong,</i>	We see yonder ship.
<i>Hamyö lumilii yuhe na modong,</i>	You see yonder ship.
<i>Siha lumilii yuhe na modong,</i>	They see yonder ship.

FUTURE TENSE

The future tense is identical with that of the preceding form.

27. THIRD FORM OF CONJUGATION : **Intransitive Prefix fan.**—

Object of the verb **indefinite** or lacking.

IMPERATIVE MODE

DEFINITE

SINGULAR

<i>Fanlii</i> , See;	<i>Fanlilii</i> , Be seeing.
<i>Ufanlii</i> , Let him see;	<i>Ufanlilii</i> , Let him be seeing.

DUAL

<i>Tafanlii</i> ; Let us two see;	<i>Tafanlilii</i> , Let us two be seeing.
<i>Fanlii</i> , See ye (two);	<i>Fanlilii</i> , Be ye (two) seeing.
<i>Uhafanlii</i> , Let the two see;	<i>Uhafanlilii</i> , Let the two be seeing.

INDEFINITE

PLURAL

<i>Tafanmanlii</i> , Let us see ;	<i>Tafanmanlilii</i> , Let us be seeing.
<i>Fanmanlii</i> , See ye ;	<i>Fanmanlilii</i> , Be ye seeing.
<i>Ufanmanlii</i> , Let them see ;	<i>Ufanmanlilii</i> , They shall be seeing.

INDICATIVE MODE

PRETERITE OR PAST DEFINITE

SINGULAR

<i>Manlii yò</i> , I saw ;	<i>Manlii yo guihan siha</i> , I saw fishes.
<i>Manlii hao</i> , Thou sawest ;	<i>Manlii hao guma</i> , Thou sawest a house.
<i>Manlii gui</i> , He saw ;	<i>Manlii gui aga</i> , He saw a crow.

DUAL

<i>Manlii hit</i> , We (two) saw (incl.) ;	<i>Manlii hit pution siha</i> , We (two) saw stars.
<i>Manlii ham</i> , We (two) saw (excl.) ;	<i>Manlii ham hanom</i> , We (two) saw water.
<i>Manlii hamyo</i> , You (two) saw ;	<i>Manlii hamyo aniti</i> , You (two) saw a ghost.
<i>Manlii siha</i> , They (two) saw ;	<i>Manlii siha halúo</i> , They (two) saw a shark.

PLURAL

<i>Manmanlii hit</i> , We saw ;	<i>Manmanlii hit modong</i> , We saw a ship.
<i>Manmanlii ham</i> , We saw ;	<i>Manmanlii ham tuba</i> , We saw some toddy.
<i>Manmanlii hamyo</i> , You saw ;	<i>Manmanlii hamyo lulake</i> , You saw some men.
<i>Manmanlii siha</i> , They saw ;	<i>Manmanlii siha mafake</i> , They saw thieves.

PRESENT AND IMPERFECT

SINGULAR

<i>Manlilii yò</i> , I see ;	<i>Manlilii yò megae na pution</i> , I see many stars.
<i>Manlilii hao</i> , thou seest ;	<i>Manlilii hao babue</i> , Thou seest a pig.
<i>Manlilii gui</i> , he sees ;	<i>Manlilii gui manog</i> , He sees a chicken.

DUAL

<i>Manlilii hit</i> ,	We (two) see (incl.) or were seeing.
<i>Manlilii ham</i> ,	We (two) see (excl.) or were seeing.
<i>Manlilii hamyo</i> ,	You (two) see, or were seeing.
<i>Manlilii siha</i> ,	They (two) see, or were seeing.

PLURAL

<i>Manmanlilii hit,</i>	We see, or we were seeing.
<i>Manmanlilii ham,</i>	We see, or we were seeing.
<i>Manmanlilii haymo,</i>	You see, or you were seeing.
<i>Manmanlilii siha,</i>	They see, or they were seeing.

FUTURE TENSE

DEFINITE

INDEFINITE

SINGULAR

<i>Hufanlilii,</i> I shall see ;	<i>Hufanlilii,</i> I shall be seeing.
<i>Ufanlilii,</i> thou wilt see ;	<i>Ufanlilii,</i> Thou wilt be seeing.
<i>Ufanlilii,</i> He will see ;	<i>Ufanlilii,</i> He will be seeing.

DUAL

<i>Utafanlilii,</i> we two shall see ;	<i>Utafanlilii,</i> we two shall be seeing.
<i>Infanlilii,</i> we two shall see ;	<i>Infanlilii,</i> we two shall be seeing.
<i>Enfanlilii,</i> ye two will see ;	<i>Enfanlilii,</i> ye two will be seeing.
<i>Uhafanlilii,</i> they two will see ;	<i>Uhafanlilii,</i> they two will be seeing.

PLURAL

<i>Utafanmanlilii,</i> ¹ we shall see ;	<i>Utafanmanlilii</i> we shall be seeing.
<i>Infanmanlilii,</i> we shall see ;	<i>Infanmanlilii,</i> we shall be seeing.
<i>Enfanmanlilii,</i> ye will see ;	<i>Enfanmanlilii,</i> ye will be seeing.
<i>Uhafanmanlilii,</i> they will see ;	<i>Uhafanmanlilii,</i> they will be seeing.

Verbs Belonging to this Conjugation.—In addition to verbs which are primitively transitive, and which take the intransitive prefix *fan* when their object is wanting or is not specified definitely, there are certain verbs beginning with the syllable *fa* which follow this form of conjugation. Examples :

<i>Fatachong,</i> Sit down !	<i>Falago,</i> Run !
<i>Ufatachong,</i> Let him sit down ;	<i>Ufalago,</i> Let him run (or go).
<i>Tafatachong,</i> Let us (two) sit ;	<i>Tafalago,</i> Let us (two) run.
<i>Tafanmatachong,</i> Let us sit down ;	<i>Tafanmalago,</i> Let us run.
<i>Ufanmatachong,</i> Let them sit down ;	<i>Ufanmalago,</i> let them run.
<i>Matachong yô,</i> I sat down ;	<i>Malago yô,</i> I ran.
<i>Matachong hit,</i> We (two) sat down ;	<i>Malago hit,</i> We (two) ran.
<i>Manmatachong hit,</i> We sat down ;	<i>Manmalago hit,</i> We ran.
<i>Matâtachong yo,</i> I am sitting ;	<i>Malâlagô yô,</i> I am running.

¹ In the plural forms the particle *man* is the intransitive particle preceding the root ; the particle preceding this (*fan* in the future and imperative, and *man* in the past and present) is the plural prefix.

<i>Hufatachong</i> , I shall sit down ;	<i>Hufalago</i> , I shall run.
<i>Ufatachong</i> , He will sit down ;	<i>Ufalago</i> , He will run.
<i>Utafanmatachong</i> , We shall sit ;	<i>Utafanmalago</i> , We shall run.
<i>Chamo fatatatchong</i> , Don't sit ;	<i>Chamo falalago</i> , Don't run.
<i>Siña yò matachong</i> , May I sit ?	<i>Siña yò malago</i> , May I run ?
<i>Siña hufatachong</i> , Is it possible that I shall sit ?	<i>Siña hufalago</i> , Is it possible that I shall run ?
<i>Munga matachong</i> , You must not sit down ;	<i>Munga malago</i> , You must not run.
<i>Munga yò matachong</i> , I do not wish to sit ;	<i>Munga yò malago</i> , I do not wish to run.

28. FOURTH FORM OF CONJUGATION : **Intransitives with Infix um.** — To illustrate this conjugation I shall take the verb *tunog*, descend ; infinitive *tumunog*, to descend.

IMPERATIVE MODE	
DEFINITE	INDEFINITE
	SINGULAR
<i>Tunog</i> , Descend ;	<i>Tutonog</i> , Be descending.
<i>Utunog</i> , Let him descend ;	<i>Utútunog</i> , Let him be descending.
	DUAL
<i>Tatunog</i> , Let us two descend ;	<i>Tatútunog</i> , Let us two be descending.
<i>Tinog</i> , Descend ye two ;	<i>Títinog</i> , Be ye two descending.
<i>Uhatunog</i> , Let the two descend ;	<i>Uhatútunog</i> , Let us two be descending.
	PLURAL
<i>Tafanunog</i> , Let us descend ;	<i>Tafanútunog</i> , Let us be descending.
<i>Fanunog</i> , Descend ye ;	<i>Fanútunog</i> , Be ye descending.
<i>Uhafanunog</i> , Let them descend ;	<i>Uhafanútunog</i> , They shall be descending.

INDICATIVE MODE	
PRETERITE	PRESENT OR IMPERFECT
	SINGULAR
<i>Tumunog yò</i> , I descended ;	<i>Tumútunog yò</i> , I am (or was) descending.
<i>Tumunog hao</i> , Thou descendedst ;	<i>Tumútunog hao</i> , Thou art descending.
<i>Tumunog gui</i> , He descended ;	<i>Tumútunog gui</i> , He is descending.

DUAL

<i>Tumunog hit</i> , We two descended ;	<i>Tumútunog hit</i> , we two are descending.
<i>Tumunog ham</i> , We two descended ;	<i>Tumútunog ham</i> , we two are descending.
<i>Tumunog hamyo</i> , Ye two descended ;	<i>Tumútunog hamyo</i> , Ye two are descending.
<i>Tumunog siha</i> , They two descended ;	<i>Tumútunog siha</i> , They two are descending.

PLURAL

<i>Manunog</i> ¹ <i>hit</i> , We descended ;	<i>Manútunog hit</i> , We are descending.
<i>Manunog ham</i> , We descended ;	<i>Manútunog ham</i> , We are descending.
<i>Manunog hamyo</i> , You descended ;	<i>Manútunog hamyo</i> , You are descending.
<i>Manunog siha</i> , They descended ;	<i>Manútunog siha</i> , They are descending.

FUTURE TENSE

DEFINITE

SINGULAR

INDEFINITE

<i>Hutunog</i> , I shall descend ;	<i>Hutútunog</i> , I shall be descending.
<i>Untunog</i> , Thou wilt descend ;	<i>Untútunog</i> , Thou wilt be descending.
<i>Utunog</i> , He will descend ;	<i>Utútunog</i> , He will be descending.

DUAL

<i>Utatunog</i> , We two shall descend ;	<i>Utatútunog</i> , We two shall be descending.
<i>Intinog</i> , We two shall descend ;	<i>Intítinog</i> , We two shall be descending.
<i>Entinog</i> , Ye two will descend ;	<i>Entítinog</i> , Ye two will be descending.
<i>Uhatunog</i> , They two will descend ;	<i>Uhatútunog</i> , They two will be descending.

PLURAL

<i>Utafanunog</i> , ¹ We shall descend ;	<i>Utafanútunog</i> , We shall be descending.
<i>Infanunog</i> , We shall descend ;	<i>Infanútunog</i> , We shall be descending.
<i>Enfanunog</i> , They will descend ;	<i>Enfanútunog</i> , You will be descending.
<i>Uhafanunog</i> , They will descend ;	<i>Uhafanútunog</i> , They will be descending.

¹ When the plural prefix (*fan* in the future and *man* in the past and present indicative) precedes a root beginning with *t*, this initial letter is eliminated, according to the rule given for the plural of adjectives, vol. 5, 1903, p. 303 (p. 15 of reprint).

29. FIFTH FORM OF CONJUGATION: **Neuter Verbs without Infix.**—Verbs of this kind are conjugated like the preceding, but do not take the infix *um* in the infinitive and past and present of the indicative. As an illustration I shall take the verb *basnak*, fall.

DEFINITE	IMPERATIVE MODE	
	SINGULAR	INDEFINITE
<i>Basnak</i> , Fall ;		<i>Bábasnak</i> , Be falling.
<i>Ubasnak</i> , Let him fall ;		<i>Uhábasnak</i> , Let him be falling.
	DUAL	
<i>Tabasnak</i> , Let us two fall ;		<i>Tabábasnak</i> , Let us two be falling.
<i>Basnak hamyo</i> , Fall ye two ;		<i>Bábasnak hamyo</i> , Be ye (two) falling.
<i>Uhabasnak</i> , Let the two fall ;		<i>Uhábasnak</i> , Let the two be falling.
	PLURAL	
<i>Tafanbasnak</i> , Let us fall ;		<i>Tafanbábasnak</i> , Let us two be falling.
<i>Fanbasnak</i> , Fall ye ;		<i>Fanbábasnak</i> , Be falling.
<i>Uhafanbasnak</i> , Let them fall ;		<i>Uhafanbábasnak</i> , Let them be falling.
INDICATIVE MODE		
PRETERITE	PRESENT AND IMPERFECT	
	SINGULAR	
<i>Basnak yô</i> , I fell ;		<i>Bábasnak yô</i> , I am (or was) falling.
<i>Basnak hao</i> , You fell ;		<i>Bábasnak hao</i> , You are (or were) falling.
<i>Basnak gui</i> , He fell ;		<i>Bábasnak gui</i> , He falls, or was falling.
	DUAL	
<i>Basnak hit</i> , We (two) fell ;		<i>Bábasnak hit</i> , We two are (or were) falling.
<i>Basnak ham</i> , We (two) fell ;		<i>Bábasnak ham</i> , We two are (or were) falling.
<i>Basnak hamyo</i> , You (two) fell ;		<i>Bábasnak hamyo</i> , You fall, or were falling.
<i>Basnak siha</i> , They (two) fell ;		<i>Bábasnak siha</i> , They fall, or were falling.

PLURAL

Manbasnak hit, We fell, or did fall; *Manbábasnak hit*, We fall, or were falling.

Manbasnak ham, We fell, or did fall; *Manbábasnak ham*, We fall, or were falling.

Manbasnak hamyo, You fell; *Manbábasnak hamyo*, You fall, or were falling.

Manbasnak siha, They fell; *Manbábasnak siha*, They fall, or were falling.

The future tenses and the other parts are like those of the preceding verb. In the plural of the future and imperative the syllable *fan* is the plural and not the intransitive particle.

INFINITIVE MODE

SINGULAR AND DUAL

basnak, to fall.

PLURAL

manbasnak, to fall.

30. SIXTH FORM OF CONJUGATION: **Possessive Suffixes.**—This form is used in common forms of expression with certain verbs in the present and past of the indicative mode; it is the usual form of all verbs after the interrogative *hafa*, 'what,' many of which take the infix *in*, as in the case of a derivative noun.

Kano, eat (trans.)

Alog, say (trans.).

IMPERATIVE MODE

DEFINITE

INDEFINITE

DEFINITE

INDEFINITE

SINGULAR

SINGULAR

Kano, *Kákano*, Eat.

Alog, *Áalog*, Say.

Ukano, *Ukakano*, Let him eat.

Ualog, *Uáalog*, Let him say.

DUAL AND PLURAL

DUAL AND PLURAL

Takano, *Takákano*, Let us eat.

Taalog, *Táalog*, Let us say.

Kano, *Kákano*, Eat.

Alog, *Áalog*, Say ye.

Uhakano, *Uhakákano*, Let them eat. *Unhaalog*, *Uhaáalog*, They shall say.

INDICATIVE MODE

PAST DEFINITE OR PRETERITE

SINGULAR

Hafa kinanōho, What did I eat? *Ilegko*, I said, I did say.

Hafa kinanōmo, What did you eat? *Ilegmo*, Thou saidst, thou didst say.

Hafa kinanōña, What did he eat? *Ilegña*, He said, he did say.

DUAL AND PLURAL

- Hafa kinananōta*, What did we eat? *Ilēgta*, We said, we did say.
Hafa kinanomāme, What did we eat? *Ilegmāme*, We said, we did say.
Hafa kinanomiyo, What did you eat? *Ilegmiyo*, You said, you did say.
Hafa kinanōñiha, What did they eat? *Ilegñiha*, They said, they did say.

PRESENT AND IMPERFECT

SINGULAR

- Hafa kinanōnoho*, What am I eating? *Ilēlegko*, He says, he was saying.
Hafa kinanōnomo, What are you eating? *Ilēlegmo*, You say, you were saying.
Hafa kinanōnoñia, What is he eating? *Ilēlegña*, He says, he was saying.

DUAL AND PLURAL

- Hafa kinanōnota*, What are we eating? *Ilēlegta*, We say, we were saying.
Hafa kinanomāmame, What are we eating? *Ilegmāmame*, We say, we were saying.
Hafa kinanomimiyo, What are ye eating? *Ilegmimiyo*, Ye say, ye were saying.
Hafa kinanōñiñiha, What are they eating? *Ilegñiñiha*, They say, they were saying.

FUTURE

SINGULAR

- Hafa hukano*, What shall I eat? *Hualog*, I shall say.
Hafa unkano, What will you eat? *Unalog*, You will say.
Hafa ukano, What will he eat? *Ualog*, He will say.

DUAL AND PLURAL

- Hafa utakano*, What shall we eat? *Utaalog*, We shall say.
Hafa inkāno, What shall we eat? *Inālog*, We shall say.
Hafa enkāno, What will you eat? *Enālog*, You will say.
Hafa uhakano, What will they eat? *Uhaalog*, They will say.

It will be seen in the above examples that the present and imperfect are formed by reduplicating the accented syllable (the penult) of the preterite.

Verbs Belonging to this Conjugation.—There are certain verbs which are used only with possessive suffixes. Among them are *yaho*, I like; *gäoko* or *gāñäko*, I prefer; *hinäsôko*, I think or imagine; *pinêlôko*, I thought, I believed; *châmo*, don't.

Yaho, I like.

PRESENT	PAST SINGULAR	FUTURE
<i>Yaho</i> , I like;	<i>Hagas yaho</i> , I used to like;	<i>Uyaho</i> , I shall like.
<i>Yamo</i> , thou likest;	<i>Hagas yamo</i> , You used to like;	<i>Uyamo</i> , You will like.
<i>Yañä</i> , he likes;	<i>Hagas yañä</i> , He used to like;	<i>Uyañä</i> , He will like.
DUAL AND PLURAL		
<i>Yata</i> , We like;	<i>Hagas yata</i> , We used to like;	<i>Uyata</i> , We shall like.
<i>Yanmame</i> , We like;	<i>Hagas yanmame</i> , We used to like;	<i>Uyanmame</i> , We shall like.
<i>Yanmiyo</i> , You like;	<i>Hagas yanmiyo</i> , You used to like;	<i>Uyanmiyo</i> , You will like.
<i>Yanñiha</i> , They like;	<i>Hagas yanñiha</i> , They used to like;	<i>Uyanñiha</i> , They will like.

Instead of *hagas* for the past, *naya* may be used before the verb or after, and *estaba*, derived from the Spanish, is also used. To denote time recently past *gine* is placed before the verb; as *gine hayo*, I have liked.

Gäoko, or *gāñäko*, I prefer, or like better; and *hinäsôko*, I imagine, or think to be, are conjugated like the preceding. The effect of reduplication would be to weaken the force of the verbs; as, *hinäsôsôko*, I have a faint impression, I am inclined to think.

Pinêlôko, I supposed.

PAST	PRESENT SINGULAR	FUTURE
<i>Pinêlôko</i> , I supposed;	<i>Pinêlôloko</i> , I suppose;	<i>Upinêlôko</i> , I shall suppose.
<i>Pinêlomo</i> , You supposed;	<i>Pinêlôlomo</i> , you suppose;	<i>Upinêlomo</i> , You will suppose.
<i>Pinêloña</i> , He supposed;	<i>Pinêlôloña</i> , He supposes;	<i>Upinêloña</i> , He will suppose.

DUAL AND PLURAL

<i>Pinłota</i> , We supposed ;	<i>Pinłłota</i> , We suppose ;	<i>Upinłota</i> , We shall suppose.
<i>Pinłlonmame</i> , We supposed ;	<i>Pinłlonmāmame</i> , We suppose ;	<i>Upinłlonmame</i> , We shall suppose.
<i>Pinłlonmiyo</i> , You supposed ;	<i>Pinłlonmimiyo</i> , You suppose ;	<i>Upinłlonmiyo</i> , You will suppose.
<i>Pinłlonñiha</i> , They supposed ;	<i>Pinłlonñiñiha</i> , they suppose ;	<i>Upinłlonñiha</i> , They will suppose.

Chāmo, Don't ! Refrain from !

This verb is used chiefly in the direct imperative, second person ; it may, however, be used in all the persons.

SINGULAR

Chāho, Let me not ; let me refrain from.

Chāmo, Do not ; you must not.

Chāñla, Let him not ; let him refrain from.

DUAL AND PLURAL

Chāta, Let us not, do not let us, let us refrain.

Chāmame, Let us not, we must not, let us refrain.

Chāmiyo, Do not, ye must not, refrain.

Chāñiha, Let them not, they must not, let them refrain.

This verb is used only in the definite imperative or after a verb expressing a command, entreaty, or request. When followed by an intransitive verb that does not take the infix *um*, the latter is in the indefinite or suspended imperative, as —

Fatachong, Sit down ;

Chamo fatátachong, Do not sit down.

Famokat, Walk ;

Chamo famómokat, Do not walk.

Falagisádog, Go-to-the-river ;

Chamo falagisásadog, Don't go-to-the-river.

When the verb is one which takes *um* in the infinitive, this infix is inserted before the first vowel of the reduplicated verb, as —

Ason, Lie down ;

Chamo umáason, Don't lie down.

Tunog, Descend ;

Chamo tumútunog, Do not descend.

Saga, Stay ;

Chamo rumásaga, Do not stay, stay not.

<i>Halom</i> , enter ;	<i>Chamo humáhalom</i> , Do not enter.
<i>Chaleg</i> , laugh ;	<i>Chamo chumáchaleg</i> , Do not laugh, refrain from laughing.
<i>Tangis</i> , weep ;	<i>Chamo tumátangis</i> , Do not weep, weep not.

In the dual *chamo* becomes *chamiyo*. It is used with the indefinite imperative of the reduplicated verb with the infix *um* ; as *chamiyo fatitinas*, or *chamiyo fumatitinas*, do not do (that) ; *chamiyo háhanoa*, or *chamiyo humáhanoa*, do not (you two) go. In the plural the governed verb must be in the second person plural of the indefinite imperative ; as, *chamiyo fanháhanoa*, go ye not.

Some further examples of the use of *chamo* follow :

<i>Ina yô ya chaho matôtompô</i> ,	Light me that I may not stumble.
<i>Chaña kumakúhulo</i> , or <i>Chaña kahúhulo</i> ,	Let him not go up.
<i>Chaña fatátachong</i> ,	Let him not sit down ; don't let him be seated.
<i>Ilegña na chaho fatátachong</i> ,	He said that I must not sit down.
<i>Manago nu chata fatátachong</i> ,	He commanded that we (two) must not sit down.
<i>Malágo nu chamame fanmatátachong</i> ,	He wishes that we do not sit down.
<i>Hatago si Magalahe nu chata fanmatátachong</i> ,	The Governor commands that we do not sit down.

31. SEVENTH FORM OF CONJUGATION : *Verb in the Passive Voice*. — If the agent is **singular** and is indicated, the passive voice is formed by infixing the particle *in* before the first vowel of the verb. If the agent is **plural** or is not indicated, the passive voice is formed by prefixing the particle *ma*. For an example I take the verb *gôte*, seize, which becomes *ginête* by the insertion of the particle *in*, the vowel *ô* being modified as already shown under abstract nouns ; and *magôte* by the prefixing of the particle *ma*.

Ginête *To be seized [by some one]*.

INDICATIVE MODE

PRETERITE	PRESENT OR IMPERFECT
	SINGULAR
<i>Ginête yô</i> , I was seized ;	<i>Ginêgêtte yô</i> , I am seized (by some one).

Ginête hao, You were seized ; *Ginêgête hao*, You are being seized.
Ginête gui, He was seized ; *Ginêgête gui*, He is being seized.

DUAL

Ginête hit, We (two) were seized ; *Ginêgête hit*, We (two) are seized.
Ginête ham, We (two) were seized ; *Ginêgête ham*, We (two) are seized.
Ginête hamyo, You (two) were seized ; *Ginêgête hamyo*, You (two) are seized ;
Ginête siha, They (two) were seized ; *Ginêgête siha*, They (two) are seized.

PLURAL

Manginête hit, We were seized ; *Manginêgête hit*, We are seized (by some one).
Manginête ham, We were seized ; *Manginêgête ham*, We are seized (by some one).
Manginête hamyo, You were seized ; *Manginêgête hamyo*, You are seized (by some one).
Manginête siha, They were seized ; *Manginêgête siha*, They are seized (by some one).

FUTURE

This is formed like the future of other verbs ; as, *huginête*, I shall be seized (by some one) ; *uginête i bâka nu i pātgon*, the cow will be seized by the child.

Magôte, *To be seized.*

(Agent plural or not indicated)

INDICATIVE MODE

PRETERITE

SINGULAR

Magôte yô, I was seized ;

Magôgôte, I am seized, or was being seized.

Magôte hao, You were seized ;

Magôgôte, You are seized.

Magôte gui, He was seized ;

Magôgôte gui, He is seized.

DUAL

Magôte hit, We (two) were seized ;
 etc.

Magôgôte hit, We (two) are seized,
 etc.

PLURAL

Manmagôte hit, We were seized ;
 etc.

Manmagôgôte hit, We are being seized, etc.

FUTURE TENSE

The future tense is formed like that of other verbs ; as *humagôte*, I shall be seized ; *utamagôte*, we (two) shall be seized ; *utafanmagôte*, we shall be seized ; *umagôte*, he will be seized. From this is taken the imperative. Thus we have in the Lord's Prayer : *umatuna i naanmo*, thy name shall be hallowed, from *tuna* bless, *matuna* blessed or hallowed ; *umafatinas i pintômo*, thy will shall be done, from *fatinas* do or perform, *mafatinas* to be done or performed.

32. EIGHTH FORM OF CONJUGATION : **Causative Verb with the Prefix *nâ*.** — To illustrate this form I will take the verb *nââpakas*, to whiten, to make white. If the object of this verb is singular the component adjective remains *âpaka*, but if the object is plural, the component adjective takes the plural form *manâpaka*, which, preceded by the particle *nâ*, becomes *fanâpaka*. Thus we say *nââpaka i gima*, whiten the house ; but *nâfanâpaka, i gima siha*, whiten the houses (*faites blanches les maisons*).

IMPERATIVE MODE

OBJECT SINGULAR

SINGULAR

OBJECT PLURAL

Nââpaka, Whiten (the thing) ; *Nâfanâpaka*, Whiten (the things).
Unââpaka, Let him whiten (it) ; *Unâfanâpaka*, Let him whiten (them).

DUAL AND PLURAL

Tanââpaka, Let us whiten (it) ; *Tanâfanâpaka*, Let us whiten (them).
Nââpaka hamyo, Whiten ye (it) ; *Nâfanâpaka hamyo*, Whiten ye (them).
Uhanââpaka, Let them whiten (it) ; *Uhanâfanâpaka*, Let them whiten (them).

INDICATIVE MODE

PRETERITE

Hunââpaka, I whitened (it) ; *Hunâfanâpaka*, I whitened (them).
Unnââpaka, You whitened (it) ; *Unnâfanâpaka*, You whitened (them).
Hanââpaka, He whitened (it) ; *Hanâfanâpaka*, He whitened them.
Tanââpaka, We whitened (it) ; *Tanâfanâpaka*, We whitened (them).

<i>Ennââpaka</i> , We whitened (it) ;	<i>Ennâfanâpaka</i> , we whitened (them).
<i>Innââpaka</i> , You whitened (it) ;	<i>Innââfanâpaka</i> , You whitened (them).
<i>Hanââpaka</i> , They whitened (it) ;	<i>Hanââfanâpaka</i> , They whitened (them).

The present and imperfect tenses may be formed by reduplication, and the future by using the regular future particles. Examples :

Hanâason i patgon, He made the child lie down, he laid the child down.

Unnâchegecheg i nifenmo, You caused your teeth to grit.

Hanâmapuno si Huan, He caused John to be killed.

Hanââbaba si Luis, He made Louis crazy.

Nâlibre yô, Deliver me.

Nâfanlibre ham, Deliver us.

Hanâhohomlo i tataotao, It makes well (cures) the body.

Unârahêge, It will cause to be apart, it will separate (something).

Unâjahuhêge i lûlake yan i famalaoan, It will separate the men and the women.

33. REFLEXIVE VERBS. — These are conjugated like the transitive verbs with a definite object (First form of Conjugation), with the addition of the pronoun following the verb ; as *hubale yô*, I availed myself ; *unbale hao*, thou didst avail thyself ; *habale gui*, he availed himself ; *tabale hit*, we availed ourselves, etc. The present and imperfect are formed by simple reduplication ; as *huhâbale yô*, I am, or was, availing myself. The word *maisâ*, corresponding to the English 'one's self', is also used ; as *faaila*, accuse ; *faaila-maisagui*, to accuse himself.

34. RECIPROCAL VERBS. — These are formed by prefixing to the verb the particle *a*. Thus, from *gôte*, seize, is formed *âgôte*, seize each other. There is no singular. The dual is formed by prefixing the particle *um* to the verb ; the plural is formed by prefixing the particle *fan* in the future and imperative, and *man* in the past and present indicative : *Âgôte*, seize each other ; *umâgôte hit*, we seized each other (dual) ; *manâgôte hit*, we seized one another (plural) ; *taâgôte*, let us seize each other ; *tafanâgôte*, let us seize one another.

35. DEFECTIVE VERBS. — Among the defective verbs of the Chamorro language are *guaha* there is (Fr. *il y a*); *taya*, there is not (Fr. *il n'y a pas*), there is lacking; *gae*, prefixed to a noun, denoting to have; *tae*, prefixed to a noun signifying not to have, to be without; *gaege*, corresponding to the Spanish *estar*, signifying to be in some place; *taegue*, signifying to be absent; *gine*, prefixed to the name of a place or direction, signifying to come from; *falag*, prefixed to the name of a place or direction signifying to go to.

GUAHA. — This verb is used only in the third person; as, *guaha*, there-is; *gine guaha*, there has just been; *hagas guaha*, formerly there-was; *monhan guaha*, there once was (Germ. *es war schon*); *ugua*, there-will-be. When reduplicated it loses in force; as *guaguaha salape*, there-is-a-little money, or there-is-still-a-bit-of money. To denote possession this verb is used with a noun followed by a possessive particle; as, *guaha chiluho*, I have a brother; lit., there-is (a) brother-mine (Spanish, *hay (un) hermano-mio*).

TAYA. — This is the negative of *guaha*. It is used in the same way and expresses the non-existence of an object: *taya tiba*, there-is-no toddy; *taya chiluho*, I have no brother; there-is-no brother-of-me.

GAE. — This is usually combined with the following word, and forms a compound verb; thus *gae-gima* may be considered as an intransitive verb to-have-a-house, to be a house-owner, conjugated, *gae-gima yo*, I have-a-house; *gae-gima hao*, thou hast-a-house, *mangae-gima hit*, we have-a-house, *ugaegima*, let him have-a-house; *fangae-gima hamyo*, may ye have-houses; *tafangae-gima*, let us have-a-house. To express tense, adverbs may be used as in the case of *guaha*. *Gae* may be prefixed to *oyo*, meaning property or possession, and to *ga*, where the object possessed is an animal; as *gae-oyo yo payo*, I possess an umbrella; I have possession [in an] umbrella; *gae-ga hao kabayo*, you possess a horse (you have-possession [in a] horse).

TAE. — This is the negative of *gae* and is used in the same way: *taepayo yo*, I have no umbrella; *taesalape si Tata*, Father has no money; *taegima ham* (dual), we (two) have no house; *manaegima ham* (pl.) we have no house; *taenobiyo hit*, we (thou and I) have no ox; *manaenobiyo hit*, we (ye and I) have no ox; *taemamahlo si*

Pedro an Huan, Peter and John have no shame; *tæañao i palaoan*, the woman is fearless; *manæañao na famalaoan*, they are women who are fearless.

Like *gæ* it is used with *iyó*, denoting property or possession, and *ga* when an animal is spoken of; as, *tæiyó yô payó*, I possess no umbrella; *tæga hao kabayo*, thou ownest no horse.

GÆGE.—This verb signifies to be in a certain place, or 'to be,' and corresponds not to the Spanish *ser*, but to *estar*; as already stated, the Chamorro language has no copulative verb 'to be.' *Gæge* is usually followed by *gi*, signifying 'at' or 'in.' Examples of its use: *gæge yô gi gima*, I am in the house; *gæge hit gi láncho* (dual), we (you and I) are at the ranch; *mangæge hit giya hita*, we (ye and I) are at our home (Fr. *nous sommes chez nous*); *ugæge giya hame agupa*, he will be at our house tomorrow; *utafangæge gi lanchota*, we (ye and I) shall be at our ranch. To express the past time the Chamorros now use the Spanish *estaba*; as *man-estaba hit gi gima*, we were in the house (preterite or past definite), and *manestátaba hit*, we were (being some place when something else happened).

TÆGUE.—This is the reverse of *gæge*, and is conjugated in the same way: *Mano nae gæge i tatamo?* Where (at) is your father? *Tægue guini*, he is not here. *Tægue yô*, I am not present; *man-ægue ham giya hamyo*, we (they and I) are not at your home (Fr. *Nous autres ne sont pas chez vous*). The future is conjugated like all other futures; as *hutægue*, I shall be away; *utaegue lokue si*, *Huan*, John will be absent also; *utafanægue giya hame*, we shall not be at home; *uhafanægue gi sadog*, they will be in the river. The past tenses may be expressed by adverbs; as, *gine tægue yô*, I have just been away; *gine hit manægue*, or *gine manægue hit*, we have just been away (pl.); *gine hit tægue*, we (you and I—dual) have just been absent; *monhan yô tægue*, or *monhan tægue yô*, I have already been away (Germ. *Ich bin schon fort gewesen*).

GINE.—This verb is combined with the name of a place or direction to signify 'come from'; as, *gineespaña yô*, I have come from Spain. In reduplication the accented syllable of the com-

¹ *gi* i combine to form *gi*: *gi iya* form *giya*, at the home of or in possession of (Fr. *chez*); *mano nae gæge*, where at is, becomes *manggi*, where's.

pound word is doubled; as *gineespápaña yô*, I am (or was) coming from Spain; *gine-mano hao*, whence have you come? *ginesadog gui*, he came from the river; *mangineespaña lit*, we came from Spain; *magineespápaña siha*, they are coming from Spain; *uhafangineespaña*, they will come from Spain.

FALAG. — This verb is the reverse of *gine*; it signifies to go to a place or in a certain direction, and is combined in the same way as *gine*. In the present and past indicative it becomes *malag*, just as the plural and intransitive prefixes *fan* change to *man*: *Falagmanila*, go-to-Manila; *tafalagmanila*, let us (two) go-to-Manila; *tafanmalagmanila*, let us (all) go-to-Manila (pl.); *utafanmalagmanila*, we shall go-to-Manila; *malagmanila yô*, I went-to-Manila; *malagmaninila yô*, I am (or was) going-to-Manila; *falagisadog*, go-to-the-river; *malagisadog gui*, he went-to-the-river; *malagisasadog gui*, he is (or was) going-to-the-river; *tafalagihalomtano*, let us (thou and I) go-to-the-woods; *tafanmalagihalomtano*, let us (all) go-to-the-woods; *malaghalomtano gui*, he is going-to-the-woods; *manmalaghalomtano ham*, we (they and I) are going-to-the-woods.

HÉKUÂ. This verb, which signifies 'I do not know,' is used only in the first person singular.

BÊA. — This is also used in the first person singular. It may be translated 'I am going to'; as *bêa hufanaitai*, I am going to pray; I am going to say my prayers. The verb following it is in the future.

HANAO. — This verb, signifying 'to go,' requires before the name of the direction an adverb of place with *gi* (to) if it is an appellative noun, and with or without *gi* if it is a proper noun. When, however, *hanao* is followed by *falag*, the preposition *gi* is not used: *Humanao guato giya hame*, he went thither to our home; *hanao falagisadog*, go, go-to-the-river. It is intransitive and is so conjugated.

DEBE. — This verb, derived from the Spanish, is used with the future, with the Spanish preposition *de*; as *debe de huhanao*, I have to go.

LAMEN. — This signifies 'to be good for'; as, *Haf ulamen i pluma?* What good will the pen be? Of what use is the pen? *Haf unlamen guini?* What use will you be here? Why have you come?

SINA. — This verb, signifying 'it is possible,' 'it is permitted,' 'it can be,' 'it may be,' as a defective impersonal verb governs the future with or without the connective particle *nu*; as *Siña unguasá*, Is it possible for you to whet? Can you whet?

UHO. — This verb, signifying 'take', is used only in the definite imperative, second person singular; as, *uho*, take thou. It may be considered an interjection.

35. VERBS WITH IRREGULAR DUPLICATION (*Guáguato and Mailā*). *Guáguato* is formed by reduplication from the verbal directive *guato* (thither, German *hin*), which is etymologically identified with the Samoan *atu* and the Hawaiian *aku*. It signifies 'to go to' (German, *hingehen*): *Guáguato yō*, I went (thither); *guáguato hit*, we two went (dual); *manguáguato hit*, we went (pl.); *uguáguato*, he will go. The present and imperfect, or copresent, are formed by reduplication, as *guáguaguato yō*, I am or was going (thither).

Mailā, which is slightly irregular in its reduplication, is conjugated very much like an intransitive which forms its infinitive with the infix *um*. It is possible that the form *māmailā* for the infinitive is a corruption of *mumailā*; as it is, it appears to be a reduplication of the primitive form. The conjugation follows:

IMPERATIVE MODE

DEFINITE	INDEFINITE OR SUSPENDED
	SINGULAR
<i>Mailā</i> , Come;	<i>Māmamailā</i> , Be coming; (always) come.
<i>Umamailā</i> , He shall come;	<i>Umāmamailā</i> , Let him come.
	DUAL
<i>Tamāmmailā</i> , Let us (two) come;	<i>Tamāmamailā</i> , Let us (two) be coming.
<i>Mailā, māmailā</i> , Come (ye two);	<i>Māmamailā</i> , be coming (ye two).
<i>Uhamāmmailā</i> , The two shall come;	<i>Uhamāmamailā</i> , Let the two be coming.
	PLURAL
<i>Tafanmāmmailā</i> , Let us come;	<i>Tafanmāmamailā</i> , Let us be coming.
<i>Fanmāmmailā</i> , Come ye;	<i>Fanmāmamailā</i> , Be ye coming.
<i>Uhafanmāmmailā</i> , They shall come;	<i>Uhafanmāmamailā</i> , Let them be coming.

INDICATIVE MODE

PRÆTERITE, OR PAST DEFINITE

PRESENT AND IMPERFECT

SINGULAR

Māmāilā yô, I came or did come ; *Māmāmāilā yô*, I am (or was) coming.
Māmāilā hao, You came or did come ; *Māmāmāilā hao*, You are coming.
Māmāilā gui, He came or did come ; *Māmāmāilā gui*, He is coming.

DUAL

Māmāilā hit, We (two) came, etc. ; *Māmāmāilā hit*, We (two) are (or were) coming, etc.

PLURAL

Manmāmāilā hit, We came, etc. ; *Manmāmāmāilā hit*, We are (or were) coming, etc.

DEFINITE

FUTURE

INDEFINITE

SINGULAR

Humāmāilā, I shall come ; *Humāmāmāilā*, I shall be coming.
Unmāmāilā, You will come ; *Unmāmāmāilā*, You will be coming.
Umāmāilā, He will come ; *Umāmāmāilā*, He will be coming.

DUAL

Utāmāmāilā, We (two) shall come ; *Utāmāmāmāilā*, We (two) shall be coming.
Inmāmāilā, We (two) shall come ; *Inmāmāmāilā*, We (two) shall be coming.
Enmāmāilā, You (two) will come ; *Enmāmāmāilā*, You (two) will be coming.
Uhamāmāilā, They (two) will come ; *Uhamāmāmāilā*, They (two) will be coming.

PLURAL

Utafanmāmāilā, We shall come ; *Utafanmāmāmāilā*, We shall be coming.
Infanmāmāilā, We shall come ; *Infanmāmāmāilā*, We shall be coming.
Enfanmāmāilā, You will come ; *Enfanmāmāmāilā*, You will be coming.
Uhafofanmāmāilā, They will come ; *Uhafofanmāmāmāilā*, They will be coming.

36. DENOMINATIVE VERBS. — These verbs, formed from nouns or adjectives, are conjugated like intransitive verbs without the prefix *fan*. Examples :

Malango, ill, or to-be-ill ;

Umalango, Let him be-ill ;

tafanmalango, Let us be-ill ;

Malango yô, I am-ill ;

Malango hit, We (two) are-ill ;

Manmalango hit, We are-ill ;

Gine malango yô, I have-been-ill ;

Hagas malango yô, I was-ill ;

Humalango, I shall-be-ill ;

Utafanmalango, We shall-be-ill ;

Tata, father, to-be-a-father.

Utata, Let-him-be-a-father.

Tafanata, Let-us-be-fathers.

Tata yô, I am-a-father.

Tata hit, We (two) are-fathers.

Manata hit, We (all) are-fathers.

Tumata yô, I was-a-father.

Hagas tata yô, I was formerly a father.

Hutata yô, I shall-be-a-father.

Utafanata, We shall-be-fathers.

REDUPLICATION. — With denominative verbs, reduplication, instead of expressing the present time, or the imperfect, diminishes the force of the verb ; thus, *malâlango yô* signifies I am-inclined-to-be-ill ; I am not very well. It also expresses continuation, as *malâlango si Magalahe*, the Governor is-still (being)-sick. With verbs derived from nouns it may be considered to express pretense, or as playing the part of some one or something ; as, *tâtata yô*, I am-acting-as-father, I am-fathering (some one) ; *manatata hit*, we are-playing-the-part-of-fathers ; *uhafanatata*, they-will-act-as-fathers (to the children). In the above examples the plural prefix *man* becomes *fan* in the plural of the future and imperative.

ANCIENT PUEBLO AND MEXICAN WATER SYMBOL

By J. WALTER FEWKES

The student of designs on ancient Pueblo pottery cannot fail to recognize two forms of decoration, known as the linear and the conventionalized animal forms. These sometimes grade into each other, but as a rule they can readily be distinguished. Among the problems before the student of our southwestern archeology there is none more important than the discovery of the meaning of these forms of decoration. Areas characterized by special symbols can be determined, and thus the Southwest may be divided into ceramic zones indicative of local centers of art development.

Linear figures on old Pueblo pottery vary but little in different regions of the Pueblo country. Geometrical figures of the same types are found on ceramic vessels from cliff-houses of southern Colorado and of central New Mexico, and they are repeated with startling identity on pottery from the Hopi ruins and from the Gila valley. They occur with little change on the more modern specimens as well as on the ancient, and are not limited to our Southwest but extend into the northern states of Mexico. The fact that these geometrical designs are so widely distributed, as compared with specialized symbols of animals confined to constricted areas, and the evidences of their great age, tell strongly in support of a belief in the former homogeneity of Pueblo art, indicating that the Pueblo culture in the Southwest was more uniform in ancient times than after these local differences had developed in the relatively modern period.

The great multitude of these widely spread linear figures may be classified in a few types for comparative study.

One of the best defined of these types is the straight line encircling a bowl or vase but broken at one or more points. At first glance it might be supposed that this break was an imperfec-

tion or that the potter had failed, without purpose, to connect the extremities of the line; but closer examination and comparison

show that it was intentional. This break had a meaning which will not now be considered.

A similar break occurs in geometrical designs on Pueblo pottery which are more complicated, where curved or spiral lines replace the straight ones. It occurs also in rectangular meanders, so abundant in the ruins within the Zuñi ceramic zone. In examples of spirals the figure consists of two lines or bands, one generally broader than the other, parallel with each other, and with their central ends close together but not joining. The interval between these extremities corresponds to the break in the straight line mentioned above. A similar condition is true of meanders, the many modifications in which may be made out by a little study.



FIG. 10.—Native Mexican picture showing water symbols.

The signification of this type of geometrical decoration on Pueblo pottery has not been satisfactorily determined, but the spiral is generally interpreted by the modern Hopi of Arizona as signifying whirling wind or water. A confirmation of this interpretation, as regards the

latter element, is found in a few old paintings made by a Mexican Indian. This evidence seemed to me so important that I briefly mentioned it in my report on the ruins of the ancient Hopi pueblo of Sikyatki.¹ It deserves more attention than I gave to it at that time, and on this account I have made it the basis of this brief article.

In commemoration of the discovery of America by Columbus the Mexican government published, in 1892, a collection of important codices and Indian pictures accompanied with text by Dr Alfredo Chavero.² Besides the codices, this publication contains a reproduction of the Lienzo de Tlaxcala, a series of pictures by a native artist illustrating the conquest of Mexico by Cortes.

Three plates (17-18, 18 bis) of this series furnish significant information regarding the symbolism of simple and double spiral and rectangular meanders in Mexican pictures. The likeness of these symbols to designs on ancient Pueblo pottery corroborates the Hopi explanation of their meaning. The artist has represented in these plates, two of which are evidently parts of one drawing, canals or water-



FIG. 11.—Design from an old Pueblo vase, showing water symbols.

ways on which are figures of boats with warriors attacking the Spaniards. These canals are covered with rectangular and spiral figures painted in light green, which are evidently symbols of water. The accompanying illustrations (figures 10, 11), which show a section of one of these canals and a design from an old Pueblo vase collected by Dr Walter Hough, bring out clearly the identity of form in these symbols. As there can hardly be a doubt that the Mexican artist intended to represent water by these designs, it may be concluded that the Pueblo potter, unless she was a copy-

¹ *Seventeenth Annual Report of the Bureau of American Ethnology*, p. 569.

² *Antigüedades Mexicanas, publicadas por la Junta Colombina de México*, México, 1892.

ist who used symbols the meaning of which had been lost, had the same thought in mind when she painted identical figures on her pottery. Although it is possible that the same symbol may have had different meanings in the two regions, it is highly improbable that such was the case.



BOOK REVIEWS

Adolescence: Its Psychology and its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion, and Education. By G. STANLEY HALL, PH.D., LL.D., President of Clark University, and Professor of Psychology and Pedagogy. New York: D. Appleton and Company, 1904. 2 vols. xxi, 589; vi, 784 pp. Indexes of Subjects and Names. (Price, \$7.50.)

This is the *opus magnum* of a distinguished psychologist, the leader in the "child study" movement in America, a man of science, who will be remembered as a man of genius. The basal conception of the work is that the mind and the soul of man have had an ontogenetic and a phylogenetic origin and development as surely evolutionary as has been that of the body. The mind and soul, too, are still plastic, and though we can see the end of some of the organs and functions of the body, hardly the beginnings of many of a psychic order are yet to be discerned. With justice the author may claim to set forth a Darwinism,—one of his own students might be permitted to say a *Hallism*,—of the mind, destined to relieve psychology alike from "academic isolation" and from "dishonorable captivity to epistemology." The wide range of the author's survey of his subject may be seen from the titles of his chapters: Growth in height and weight; growth of parts and organs during adolescence; growth of motor power and function; diseases of body and mind; juvenile faults, immoralities and crimes; sexual development: its dangers and hygiene in boys; periodicity; adolescence in literature, biography and history; changes in the senses and the voice; evolution and the feelings and instincts characteristic of a normal adolescence; adolescent love; adolescent feelings toward nature and a new education in science; savage pubic initiations, classical ideals and customs, and church confirmation; the adolescent psychology of conversion; social instincts and institutions; intellectual development and education; adolescent girls and their education; ethnic psychology and pedagogy, or adolescent races and their treatment. Much of the material here accumulated, boiled down and sugared off will be of interest to the anthropologist *von Fach*, although not all the conclusions arrived at will be as valid for him as for the psychologist of the newer order, though he may well rejoice at some of the blows dealt out to the metaphysician and the pseudo-philosopher. To all

real students of man and of the mind of man these volumes must be most suggestive and stimulating. The epigrammatism of the author reveals itself throughout in innumerable brief and pithy statements, alike of his own position and ideas and those of others. A few may be cited here: We must go to school to the folk-soul. The child and the race are each keys to the other. The adolescent stage is the bud of promise for the race. Puberty is not unlike a new birth. The non-volitional movements of earliest infancy and the later childhood are the "bad lands" of the state of man-soul. Play is the purest expression of motor heredity. Alas for the young people who are not different with the other sex than with their own! Men grow old because they stop playing. Puberty is the birthday of imagination. Youth is the age of folly. Crime is cryptogamous. The intoxication habit is polygenetic. There is a kind of reciprocity between life and death. The very definition of precocity involves inversion. Each woman is a more adequate representative of her sex than a man is of his. Ephebic literature should be recognized as a class by itself. Ultra-idealism I hold to be pathological. Psychic is even more upsetting than biological evolution. Soul is life. Our souls are phyletic long before and far more than they are individual. Early adolescence is the infancy of man's higher nature. Psychic adolescence is heralded by all-sided mobilization. Man early became the wanderer and the exterminator *par excellence*. Adolescence is the great revealer of the past of the race. Modesty is at root mode, and woman is its priestess. Reproduction is always sacrificial. Man learns to live by dying and his life is at best a masterly retreat. Religion and love rise and degenerate together. Knowledge at its best is a form of love. Fear, or anticipatory pain, is probably the great educator in both the animal and the human world. Too much adult invasion makes boys artificial. Youth is in the ethical far more than in the spiritual stage. Youth is not only the revealer of the past but of the future. Overaccuracy is atrophy. The baby Latin in the average high school class is a kind of a sanctified relic, the ghost of a ghost. In modern pedagogy there is an increased tyranny of things. The very isolation of student life weakens the sense of reality. Nothing so reinforces optimism as evolution. Man is best adapted to the present; woman is more rooted in the past and the future. To be a true woman means to be yet more mother than wife. The bachelor woman is the very apotheosis of selfishness. The heart and soul of growing childhood is the criterion by which we judge the larger heart and soul of mature womanhood. Our opinion of Indians is too analogous to that of Calvinists concerning the depravity of infants. Conquest will not vivify Asia.

What a few overgrown nations call civilization seems likely to be forced upon the entire world. Race hygiene is yet to be developed. Cross-fertilization seems to be the law of human races. Is there any barbarism that equals that caused by premature and forced civilization, or any fallacy greater than that those are not cultured who can not do or do not know or revere what we do? Does might so make right that the worst in the victor is better than the best in the victim?

The attractive and masterly way in which the rich literature of the subject is treated, the wealth of conclusion and inference, the remarkable skill with which the parallelism between the individual and the race is maintained and interpreted, the inherent optimism that makes light the darkest corners of the man and woman and of men and women, the sympathetic grasp of childhood and savagery, etc., stamp this work unique in the annals of psychology. It is to be hoped that the author will find time and occasion to issue a primer edition, so that the great truths and wise words contained therein may come more within the reach of those beyond whom an expensive book must always lie.

Indexes of names and subjects complete these well-printed volumes. Some misprints, due more to the publisher than to the author, will doubtless be corrected in a future edition.

While the reviewer finds himself in general accord with most of the positions taken, there are several points on which he fails to agree with the author. One of these is the overestimation of the "fighting instinct." The statement on page 217, vol. 1, for example, seems harsh in consideration of the fact that Darwin practically confesses that he was a "milk sop." The virtue in fighting is, probably, like that of classical education, a thing of the age and not of the race. Another point is that the author is apparently not so willing to allow full liberty to woman as he is to man,—absolutely liberal he is in all other respects. In the opinion of the reviewer, evolution limits woman no more than man *per se*, and the restrictions *per virum* are artificial.

ALEXANDER F. CHAMBERLAIN.

The Navajo and His Blanket. By U. S. HOLLISTER. Denver, Colo. [1903.] Roy. 8°, 144 pp., 10 colored plates, 25 figures and plates.

From a mechanical point of view this book is handsomely made. Barring a veritable nightmare (figure 8) bearing the title "Navajos Worshipping the Elements," together with figures 6 and 10, which do not depict what they pretend, the illustrations are in the main admirable, the ten colored plates of Navaho blankets being worthy of high praise. But

here the merit of the book practically ceases, for in content it is one of the most misleading and inaccurate publications on the southwestern tribes that has ever appeared (which is saying a good deal), notwithstanding the author, during his twenty years' residence in the Rocky Mountain country, has had "many opportunities to learn something about the aboriginal people of Colorado, Utah, New Mexico, and Arizona, having frequently visited the wigwams and the wickiups of the Utes and of the Apaches, the adobe villages of the Pueblos, and the hogans of the Navajos." So much excellent ethnologic and archeologic work has been done in the Southwest during the last twenty years, that had the author remained at home and confined his attention to the published results of these researches, his book could not have failed to be more profitable from an educational point of view. As it is, the volume contains so much that is unintentionally, though still inexcusably, untruthful or misleading as to overshadow the little good to be found in it.

Within reasonable limits it would be impossible to point out all the glaringly erroneous statements which Mr Hollister has made; nevertheless, attention should be called to a few of the pitfalls into which he has fallen and into which others might be likely to follow. For example, there is no evidence whatsoever that war songs among the Navaho take precedence over all others, or that legends of war are "the most enduring of any subject with which the Indian has to deal." Contrary to the author's belief, Navaho legend abounds in allusions to the cliff-dwellers, a fact which overthrows his argument concerning the latter people. His unfamiliarity with southwestern archeology is shown by his estimate of the number of rooms represented by a certain ruined pueblo, which he computes at one hundred for each of seven stories, regardless of the fact that the pueblo was terraced, each successive story receding, so that the uppermost story could not have contained more than one-seventh the number of rooms on the first floor. There is no rock in the Navaho country which the Navaho designates "Ship Rock," such a conception being foreign to his very thought. The true Navaho name is *Tsé' bífáí*, from *tse*, 'rock,' *bífáí* 'its wings,' hence "Winged Rock" which has quite another meaning to a people who never saw a ship. (See Matthews, *Navaho Legends*, 119, 120, 235.) And there is only a filament of truth in the many so-called legends to which the author calls attention. After the splendid scientific work of Dr Washington Matthews among the Navaho, there is no excuse for most of the many misstatements concerning Navaho mythology that Mr Hollister's book contains, and students who have spent years in an endeavor to spread the truth about American ethnology have every cause

to regret that such falsities continue to be perpetrated. There is scarcely a line concerning Navaho myth and legend throughout the book that is not either entirely fallacious or grossly misleading.

Proceeding, we learn for the first time, if we are inclined to disregard fact entirely, that the Navaho sweat-house is erected for a single individual, an assertion apparently inspired by figure 6, "A Navajo 'sweat-house'", which in reality belongs to the distant Havasupai of Cataract cañon, Arizona. Navaho sweat-lodges, indeed, are sometimes large enough for half a dozen Indians at a time. The statement that the medicine-men live in the medicine-lodges is untrue, as is of course the assertion that "most authorities agree that the Navajo is not a particularly religious Indian" because he has no public ceremonies — which further shows how little the author has profited by his twenty years of contact with this highly religious and ceremonious people. The further absurd assertion is made that the Navaho's "only conspicuous appliance of worship is the altar in the medicine-lodge"; on the contrary, such an object is foreign to Navaho religion, the fantastic altar paraphernalia which is described evidently having its origin in the fertile imagination of the author's informants.

As one would expect, the only strength which the book possesses lies in its description of the Navaho blanket, yet even this is unsatisfactory. Of the reed fork, that important implement of the Navaho weaver, the author seems to know nothing. The yellow dye, to which he refers as being derived from "rabbit wood," is actually made from *Rumex hymenosepalum*, as Dr Matthews has pointed out; and it is extremely doubtful if Brazil-wood was ever used in New Mexico or Arizona as a dye — at any rate it is unknown to a prominent trader with an experience of thirty years among the Navaho Indians. Gray in blankets was not always effected by the mixture of black and white wool, for the Navaho have gray sheep whose wool is used for this purpose. The author is likewise mistaken in supposing that amole removes the natural oil of the wool, and in presuming that bayeta was last used in 1875, for the reviewer saw it woven into blankets by the Zufis in 1889 and noticed it in at least one Arizona trading store as late as 1897. We find also the statement that in certain old blankets occurs a red which antedates the native red and which may be traced to "the scarlet coat of the infantry" — thus leaving those who are unaware that Mackinaw blankets have long been in use in the Southwest to surmise that the infantry coats are probably a relic of the invasion of New Mexico by the British. As to the symbolism of Navaho blankets, the author is equally at sea, as everyone familiar with Dr Matthews' studies will readily observe.

Mr Hollister presents a new theory of the supposed Spanish origin of the term "Navajo," but untenable, as it is directly opposed to the statements of the early Spaniards themselves. He discusses the marvelous genesis and migration tradition of the Navaho tribe, laboriously recorded by Dr Matthews, as apparently unworthy of consideration, although he does allude to "many mythical stories of their origin." Among these, evidently, is "a vague tradition among them that they came [to this world] by water," in which the author finds evidence to support an Asiatic origin. These foolish traditions, it should be noted, are dismissed as practically unworthy, and the important and far-reaching researches that have been conducted among the Navaho are waved aside with the simple statement that "about the only things we certainly know of their history is their Athapascan origin and that they have been in our Southwest for a long time."

Far astray as the author is in his observations of the Navaho, of whom he might be expected to have some knowledge, his general interpretations of southwestern ethnology and history are even more startling. After all the progress made in American ethnology and archeology during the last quarter century, the author asserts that the cliff dwellers and the mound builders were "certainly far antecedent to our Indians in their occupation of our country." The threadbare theory of the status of Indian woman, excusable half a century ago, is once more resurrected, and readers are again asked to believe that the Indians "are in no sense emotional, and anything like sentiment is entirely foreign to their nature." The time-worn story, "on very good authority," of the finding of corn embedded in lava, which every frontiersman has heard of but no one has ever seen, is again revived; "the grain was calcined by volcanic heat that raised the temperature of the atmosphere above the scorching point, and destroyed all life," we are told. The tale almost equals that of the petrified bird which sang the petrified song. The author presupposes the contemporaneous occupancy of all the now-ruined pueblos in the Southwest by making the assertion that "to-day all the arable land in that [Navaho] country, even if supplied with irrigating ditches wherever water could be conveyed, would not support one-tenth the population that once flourished there."

The Seven Cities of Cibola were "mythical," we are told; and again is repeated, as though it were truth, that marvelous fable of the enslavement by the Spaniards of the Indians of New Mexico, several hundred of whom were smothered in mines which they were compelled to work. We learn that Cabeza de Vaca was the first European to enter New

Mexico, "which he penetrated to its central part"; that Marcos of Niza made an expedition to the Pueblos in 1528; that Oñate built the first church at "San Ildefonso"; and that Taos, Acoma, Zuni, and Moqui are names given to the Pueblos by the Spaniards—all of which mis-statements must tend to make Bandelier feel that to some quarters at least the results of his years of labor have not yet penetrated.

Other of Mr Hollister's conclusions are of absorbing interest. He calls attention to certain parallels between Old and New World culture, but kindly leaves to the reader's decision whether or not they are significant of connection between the Navahos and the Greeks, Hebrews, Hindus, or Babylonians.

There are many poor books relating to the Southwest, but each has its redeeming feature. Of *The Navajo and His Blanket* the best that can be said is that its colored plates are excellent; in text, taken altogether it is worse than worthless.

F. W. HODGE.

Die Abstammung des Menschen und die Bedingungen seiner Entwicklung. Für Naturforscher, Aerzte und gebildete Laien dargestellt von Dr. MORITZ ALSBERG. Mit 24 Abbildungen im Text. Cassel: 1902. Verlag von Th. G. Fischer & Co. 8°, xii, 248 pp.

The various sections of this book, which has been much discussed on the continent of Europe, treat of: The Neanderthal race; the problem of descent; the *Pithecanthropus* and the relation to man of the lower apes and the anthropoids; Australia and the "Urmensch"; climatic influences, isolation and race-formation; intellectual development and intellectual regression; sex differences; inheritance, interbreeding and mixture. Dr Alsberg considers proved the former existence of a "diluvial human race," lower than and essentially different from the present race of man. The Javan *Pithecanthropus* is no direct ancestor of man, but a shoot from a side line. The ancestry of man (as his hand, for example, shows) goes back to a relatively lowly-developed branch of the mammal stem,—this is the chief point of Alsberg's theory. He favors Schoeten-sack's view that the change from the precursor to *man* took place in Australia, whose environmental conditions were most likely to produce such an evolution,—there the particularly human foot had its origin. The migrations of primitive man gave probably the first impulses toward the origins of the oldest race-type. Isolation had also its rôle, and the glacial epoch was likewise of great significance in modifying a creature born of the tropics. Alsberg disagrees with Kollmann's theory of man as a "permanent type." The "Aryans" are a linguistic, not a racial group.

No absolutely pure race-type now exists. The section on the brain and its relation to culture-evolution advocates a close connection theory,—in another edition the author should make use of the material of Hrdlička and Spitzka. Dr Alsberg thinks that "the bounds set by nature" warn us against the "new woman." And he believes, *contra* Weismann, in the inheritance of recently acquired characters. To inbreeding of the brain-cells, producing "culture ganglia," corresponds the intermixture of races and peoples, propagating and spreading the indispensable basis of progress in civilization. But interbreeding is a two-edged sword, and its unskilful use means degeneration instead of perfection.

This little volume deserves a place among the more interesting and valuable literature of the newer evolutionary sort, expressive of some of the more recent turns of Darwinism in Germany.

ALEXANDER F. CHAMBERLAIN.

Catálogo de la Colección de Antigüedades Huavis del Estado de Oaxaca existente en el Museo N. de México, formado por el Profesor de Etnología, DR NICOLÁS LEÓN. México: Imprenta del Museo Nacional, 1904. 55 pp.; map, 1 pl. (physical types).

The list of the Huavi collection in the Mexican National Museum, numbering 91 items (pottery; stone and clay human and animals figures, heads, idols, etc.; stone objects) occupies but a portion of this interesting pamphlet. On pages 16-42 is given linguistic material from Brasseur de Bourbourg, Starr, and Belmar (the vocabulary of the last containing some 1,350 words), and on pages 44-48 a bibliography of 62 titles. Preceding these is an ethnographic sketch of the Huavis with a map of their habitat, extracts from the earlier authorities, etc. The anthropometric data (pages 15-16) are from Starr. The Huavis, who live in four (earlier five) villages on the southern lagoons of the Isthmus of Tehuantepec, a large extent of which region was formerly in their possession, numbered, according to the census of 1895, 1,742 males and 1,706 females, total 3,448. They are chiefly a fisher folk, and among the products of their country is the shell-fish furnishing a much-used purple dye. The name Huavi is said to be of Zapotec origin, and has been spelled Huavi, Huave, Wahi, Huabe, Guavi, Huabi, Juave, etc. Its exact significance is doubtful, though a common interpretation is "rotten through dampness," a nickname, doubtless. Of the Huavi language Brinton (*American Race*, 1891, p. 159) said, the vocabularies of their tongue are too imperfect to permit of the comparison of the tribe with other stocks to which it may have been allied. This condition is

remedied by the vocabulary of Belmar. Dr León prints also (pp. 20-21) the Lord's Prayer in Spanish-Huave, furnished by Dr D. José María Mora, formerly bishop of Tehuantepec, now of Tulancingo. The Huavi numerals merit particular examination. A hasty glance at the new material makes the Huavi retain its position as an original stock.

ALEXANDER F. CHAMBERLAIN.

Massasoit's Town Sowams in Pokanoket. Its History, Legends and Traditions. By VIRGINIA BAKER. Warren, R. I. The Author. 1894. 8°, 43 pp.

This interesting brochure is a brief story of a famous sachem, noted in early New England annals, but of whom little is known, owing to his peaceful life, which is in strong contrast to that of his warlike son, Philip, who is also referred to in this work.

When the Plymouth colonists landed on their rock, in 1620, Massasoit was the chief sachem of the Wampanoags, whose territory lay at the head of Narragansett bay, in what is now Bristol county, Rhode Island. The exact site of his principal village has been the subject of considerable discussion by several writers; but the question does not yet seem to be fully settled, and perhaps never will be decided to the satisfaction of all. Miss Baker's booklet is a further contribution in favor of Warren as the site, but without adding new material or new evidence in support of that locality. Some have located it at the town of Barrington, others at Mount Hope, but the fact is that the whole territory bordering the bay was known as Sowams and that the name originally did not refer to any particular village. In support of this statement, there are some matters that have come before us from a linguistic study of the works of early writers, such as Winslow, Mourt, Morton, Prince, and Smith, which have never been fully explained or noted, although Miss Baker, as well as others, have drawn freely on these authorities for their information.

Let us analyze some of these hints in the light of common reason: Morton tells us that when Samoset, the first native interviewed, came to greet the colonists at Plymouth in the spring of 1621, he spoke of "the great sachem, named Massasoit," an expression in common use by the early writers mentioned, for the two terms are synonymous, i. e., *Massasoit* = *massa* 'great,' *-assst* 'king,' 'ruler,' — a title retained by the colonists without regard to its significance, as has happened in other instances. It was afterward learned that this sachem's true name was *Woosamequin*, or *Ousamequin*, = 'the yellow-feather,' from *ousa* 'yel-

low,' *-mequin* 'a feather'; and so his name always appears in the early deeds.

Imperfect knowledge of the language caused the same trouble with the name *Sowams*, *Sowamset*, or *Sowansett*, the variations in spelling being quite numerous. The colonists were informed that Massasoit's country was at Sowams, which, as the variations show, is the equivalent of *Sowan-es-et*, 'to or at the southwest,' — the direction it lay from the Plymouth settlement, — and so it became a proper name without the application intended by the Indians. I am aware that Trumbull suggested the meaning 'a place of beech-trees,' but there is too much to account for in this derivation. The real name for the village, as related by Winslow and others, was Pacanoket, or Pawkunnawkit, — *Pauqu-un-auk-it*, 'the cleared country,' which describes its appearance, as seen by Dermer and Winslow. The latter, in his first visit, went to Pacanoket, but he says not a word about Sowams. In the records, however, the two names are used synonymously, as "Pacanoket alias Sawamset," etc. Wood (*New England's Prospect*, 1634) places on his map a palisaded village named *Pacanokick*, which is represented as being situated on the eastern side of a neck, a situation that favors Mount Hope more than either Barrington or Warren.

Miss Baker is certainly mistaken in saying that Winslow's first visit, in 1621, was the second visit by a white man, for the locality was visited some years previously by both Dutch and French traders. The Wapanoos are laid down as a tribe, and an anchorage shown in front of their country, corresponding to Mount Hope, on the *Carte-Figurative* of 1616, the tribe having been visited by Hendricks in the "*Onrust*," in 1614.

Miss Baker deserves the thanks of all students of the subject for her researches, and it is hoped that she will continue them until the disputed sites are definitively determined.

WM. WALLACE TOOKER.

Traditions of the Arapaho. Collected under the auspices of the Field Columbian Museum and of the American Museum of Natural History.

By GEORGE A. DORSEY, Curator Department of Anthropology, and ALFRED L. KROEHER, Department of Anthropology, University of California. Chicago, U. S. A., October, 1903. 8°, x, 475 pp.

The tales of the Arapaho possess an especial interest because of the general friendliness of this tribe with all the other tribes of the plains. Their collection of stories is thus likely to be larger than that of almost any other tribe, except perhaps the sedentary village community which has so long resided near Fort Berthold on the Missouri river. Closely

associated from time immemorial with the Cheyenne, the Arapaho were long ago brought into extended and friendly contact with the Missouri river tribes — Mandan, Minitari, and Arikara, — while their alliance with the Sioux covered a very long period and was never seriously interrupted. Besides this, the Arapaho have had close intercourse with the tribes of the south, and even during the period (in the first half of the last century) when the Cheyenne were at bitter war with the allied Kiowa, Comanche, and Apache, there was still frequent intercourse with these tribes by the Arapaho, although their relations with the Cheyenne often obliged them to take part in war journeys — and sometimes to move the whole tribe — against Kiowas, Comanches, and Apaches in a general attack.

The northern section of the tribe, the Atsena — early called "Minutaries of Fort de Prairie," — was long associated on terms of close friendship with the Prairie people — the three tribes of the Blackfeet nation and the Sarsi of the farther north, the story of whose separation from the parent tribe, the Beaver Indians, still remains a vivid tradition. Further, in the implication which is partly traditional but which is expressed also in the common English name Arapaho (Pawnee *ti rāp'* to trade, *ti rāp' a hū* a trader), we have good reason for thinking that among the Arapaho should be found all the tales of the central plains region, together with some from the north and many from west of the mountains, since we know also that the Arapaho were often on friendly terms with the Shoshoni.

The excellent collection of traditions recently published by the Field Columbia Museum under the joint names of Dr G. A. Dorsey and Dr Alfred L. Kroeber confirms such an inference. In them we find a multitude of stories which belong to the Siouan, Caddoan, and Algonquian families, together with many others that possess a currency extending far beyond the plains.

The volume is of considerable size — nearly 500 pages — and contains 146 tales. Of these a considerable number deal with *Ni ha' ça'*, the analogue of the Siouan *Unhktomi*, the Blackfoot *Nāpi*, the Cheyenne *Wihio*, and the Shoshoni *Coyote*. But it must be remembered that with many of the plains tribes there are two individuals called "Old Man" or "White Man," or "Spider," one of whom may be the principal god, while the other is the smart but foolish subject of tales like those given in the first part of this book, for the hero of which the people themselves feel a genuine contempt. Thus, the Blackfeet pray with the utmost reverence to that *Nāpi* who is the Old Man, the Creator, the Sun; but treat with contemptuous ridicule the suggestion that they could pray to the *Nāpi* who is the fool.

It is impossible to comment at length on the tales here given. Many of them in slightly different form are familiar to all students of plains folklore, and the authors of this collection have done exceedingly well to give us all the different variants of each tale that they have been able to collect. Too often the tendency among collectors is to select the best or most interesting of the different forms offered, and to be satisfied with giving that alone.

The story of *Ni ha^a ça^a* and the whirlwind possesses a rather special interest. The center of the whirlwind with the Arapaho appears to be the caterpillar, while with the Cheyenne it is the dragon-fly, and with the Blackfeet the moth-miller. The importance of squatting down when a whirlwind approaches one is recognized by the Blackfeet, but among them this is done by one sex only, and for an entirely different reason from that which influences the Arapaho.

The story numbered 106, dealing with "Big Owl, Owner of Bag," is an interesting and unusual form of obstacle myth. The mother whose boy has been carried away by Big Owl prepares a number of elaborately ornamented articles of clothing, which she carries with her when going to rescue the child. As she flees after having secured him, she drops these articles of clothing one after another, and the bad spirit is obliged to stop and walk about each and to fully count the quills with which it is adorned. He is thus delayed, defeated, and finally killed. The tale has relation, of course, to the sacredness of the quilling work in which skill and success are rewarded, and we may imagine that it belonged originally to the quilling society.

The "Found in Grass" or "Star Boy" tale has many variants and is found all over the plains and elsewhere. The story of the man who had the buffalo wife is also widely distributed, and sometimes this man is made the inventor of the bow and arrows.

Concerning the manner in which the tales are related, it must be said that while some are admirably told and preserve much of their aboriginal flavor, others have largely lost their Indian character. They are not always given with the direct simplicity with which an Indian commonly tells his story.

It is to be regretted also that the word "beef" is constantly used when the flesh of buffalo, elk, deer, and antelope is intended, and that buffalo are often spoken of as "steers."

The volume closes with abstracts of all the tales. It represents a vast amount of hard work and is of great value and high importance to the study of primitive mythology.

GEORGE BIRD GRINNELL

Traditions of the Crows. By S. C. SIMMS, Assistant Curator, Division of Ethnology, Field Columbian Museum. Chicago, 1903. 8°, pp. 281-324.

So little ethnological work on the Crows has been published, that the myths here given are very welcome. They were collected by Mr Simms during the summer of 1903 and come from the second oldest man of the tribe, known as Bull That Goes Hunting.

Many of the tales deal with Old Man Coyote, the analogue of the Algonquian Manabozhu, Napi, or Wihio, the wise foolish hero so often confused with that other Old Man who is the creator. In the traditions before us the origin myth tells us of the Old Man who was the creator, while other myths, Nos. 2 to 16 inclusive, deal with Old Man Coyote, the fool and the fooled. Most of these possess much in common with tales related by other tribes of the northern plains. In No. 10 the wolf teaches Old Man Coyote to make holes in the ice through which buffalo fat should stick up, but Old Man Coyote, slipping and falling on the ice, sticks fast there under the overhanging branches of the buffalo and gooseberry bushes which are still bearing fruit—a mixing up of summer and winter. No. 12 is a form of the familiar story of the southern plains, telling of the young man who had two wives, one of them an elk and another a buffalo. No. 13 deals with the boy who was found and who afterward helped the people to food, working against Old Man Coyote. In the Blackfeet and Cheyenne story his opponent is the raven.

The myth of the girl who reached heaven by following a porcupine up into an ever-growing tree ends differently from the same tale among Algonquians or Caddoans; while the story of Bones Together is closely similar to the Cheyenne tale.

These Crow tales contain elements common to those of all the plains tribes, many of which we may conjecture to have come to the Crows by way of their relatives the Minitari, or from the Gros Ventres of the Prairie (Atsena) with whom they were long allied. In the name of Old Man Coyote, however, we see evidence of Crow association and alliance with the Snakes, for, so far as we know, the name Coyote is applied to the supernatural hero only west of the mountains. In the plains country the Coyote, while universally acknowledged to be "more subtle than any beast of the field," is alternately the companion and the opponent of the mischief-maker.

On the first page of the Origin Myth, page 281, we see that the creator told the first man to make a bucket from the "pouch" of the buffalo—no doubt a typographical error for paunch. It would be inter-

esting to learn just what was intended by the monster described as an alligator by Mr Simms, for we can hardly imagine that the Crows know what an alligator is. It is presumably merely an "under-water" monster.

The collection is a very interesting contribution to our knowledge of a little-known tribe.

GEORGE BIRD GRINNELL.

The Exploration of Jacobs Cavern, McDonald County, Missouri. By CHARLES PEARBODY and W. K. MOOREHEAD. Phillips Academy, Andover, Massachusetts, Department of Archaeology, Bulletin I. Norwood, Mass.: The Norwood Press, 1904. 8°, iv, 29 pp., 11 pl., map.

This publication, the first of what gives promise of being a noteworthy series of memoirs from a recently established but already important archeological museum, gives the result of careful research in Jacobs Cavern and is a satisfactory description of American caves as a whole. The text is elucidated by a plan of the cave floor, laid off in sections of one meter, and by several half-tone plates. It is regretted that the illustrations of the implements unearthed are not of higher grade, for without consulting the text it would be impossible to determine, even approximately, the material of which they are made. The results of the work in Jacobs Cavern is similar to that of American caves generally east of the Mississippi. It was not so rich in material as others have been, and, like every other cave thus far investigated, it failed to give satisfactory evidence of any great age of human occupancy or any evidence at all of the presence therein of the remains of an extinct fauna such as have been found in certain instances in Pennsylvania. In Jacobs Cavern the bones of many wild animals were found, as were evidences of human burial, but the only suggestion of great age thought to have been brought forth was in the shape of certain artifacts and in the discovery of a breccia which the writers appear to think indicated ancient human occupancy. Geologists, however, have demonstrated that this combination of wood ashes and carbonate of lime, called breccia, and often containing artifacts, may form in a comparatively short period. The discovery of this formation, so well known in many of the caves of Europe that have produced evidences of a long period of human occupancy in association with a fauna now entirely extinct, raises the expectation among American archeologists that further investigation may develop a similar period of cave occupancy by man in this country; in fact, this similarity of conditions in the surfaces of American caves with those of Europe and the few feet in depth to which any considerable excavation has been made in

America, appear to promise favorably for future important American discoveries. It is in the caves, if anywhere, that we may look for a determination of the earliest period of human occupancy of this continent for the evolution of artifacts, the direction of the earlier aboriginal migrations, and possibly the origin of the human race itself.

The suggested difference in the shape of the implements found in Jacobs Cavern from those found in its neighborhood may be explained in many ways other than as indicating age. This is emphasized by the finding of pottery, of ground stone implements and of a *minié* ball and the bones of domestic animals. Like puzzles have been met by others. For example, silver-plated copper buttons, a jack-knife, a padlock, and other objects of metal were found by the reviewer at Cavetown, Maryland, in the same horizon as that of the oldest objects unearthed, all of which makes the ultimate solution of the problem one of extreme interest to archeologists.

In America, where the consensus of opinion is directly opposed to the recognition of a paleolithic as distinct from a neolithic age, the use of the term "neolithic implements" is of rather questionable propriety.

JOSEPH D. MCGUIRE.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE.—Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending direct to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages. — EDITOR.]

GENERAL

von Audrian (F.) Virchow als Anthropologe. (Mitt. d. Anthr. Ges. in Wien, 1903, XXXIII, 336-343.) Résumés Virchow's varied anthropological activities and investigations.

— Die XXXIV. allgemeine Versammlung der deutschen Anthropologischen Gesellschaft zu Worms vom 10-13. August. (Stagb. d. Anthr. Ges. in Wien, 1903, 110-113.) Résumés very briefly proceedings and chief papers.

Anthony (M.) Rapport sur le concours du Prix Goddard. (Bull. Soc. d'Anthr. de Paris, 1903, 4^e s., IV, 613-615.) Prize awarded to Dr Huguet for his MS. *La valeur physique générale et l'aptitude au service militaire des indigènes sahariens*, with very honorable mention of Niceforo for his anthropological study of Lausanne school-children.

Edson (E. R.) Swedenborg's vortex-rings and some of their applications in the realm of natural science, with especial reference to the subject of thought. (N. W. Med., Seattle, 1904, II, repr., pp. 1-22, 10 figs.) The author of this curious article believes that "animals are usually possessed of more clairvoyant power than are human beings," that "intellectual light emanates from the sun," etc.

Giuffrida-Ruggeri (V.) Una spiegazione del gergo dei criminali al lume dell'etnografia comparata. (Arch. di Psich., ecc., Torino, 1904, XXV, estr., pp. 1-10.) Author cites existence of secret language at harvest-time (Alfaros of Celebes), of elephant-hunters (Laos), camphor-seekers (Borneo), tin-miners (Malacca), fishermen (Shetland), etc.,

to show that normal individuals, savage and civilized, make use of secret languages, as a defense against spirits (or a means of communication with them), or against society. In like manner criminals. Their jargons have the same defensive, mystic origins.

— Il profilo della pianta del piede nei degenerati nelle razze inferiori. (Ibid., estr., pp. 1-9.) Compares the form of the soles of 23 feet of Italian degenerates studied by the author with those of 40 Wakissi and 47 Wanyamwanga published by Filleborn in his *Anthropologie der Nord Nyassa-Länder* (Berlin, 1902). Dr Giuffrida-Ruggeri believes that the influence of boots and shoes in modifying the form of the foot has been overestimated. The common form of the European foot is not an artificial result but a spontaneous product of evolution, belonging to the higher races.

Féré (M.) Rapport sur le concours du Prix Fauvelle. (Bull. Soc. d'Anthr. de Paris, 1903, 4^e s., IV, 615-616.) Prize awarded to Dr E. Rabaud for his *Contribution à l'étude des lésions, spinales postérieures dans la paralysie générale* (Paris, 1898) and other studies on embryology and teratology.

Götze (A.) Ueber einen Böschungsmesser. (Z. f. Ethn., Berlin, 1904, XXXVI, 115-117, 1 fig.) Describes a new instrument (compass with plumb-line and graduated scale) for use in archeological work.

Kraemer (H.) Die Abstammung des Bernhardiner. (Globus, Brunschwg., 1904, LXXXV, 104-108, 110-122, 171-174, 184-186, 13 figs.) Discusses in detail, historical, archeological, osteologi-

- cal, and philological evidence as to the origin of the St Bernard dog and related types. Dr Kraemer considers that the mastiff was a race introduced by the Roman settlers and from it in the St Bernard region, by reason of Alpine environment, a "regeneration to the old and original type" took place and the St Bernard was evolved. The ancestor of the St Bernard is the Tibetan dog which spread via Asia Minor, and the dog of Vindonissa is a sort of link between the Tibetan and the old Molossus types. The Roman type from which the St Bernard sprang may be that of Vindonissa.
- Lang (A.)** The origins of marriage prohibitions. (Man, Lond., 1903, 179-182.) Reply to critique of author's *Social Origins* at pp. 121-124 of the same journal. Lang maintains that totemism arose when the name was still taken from the mother.
- Lasch (R.)** Die Landwirtschaft der Naturvölker. (Z. f. Socialw., Berlin, 1904, VII, 25-47, 97-115, 190-197, 248-264.) This valuable and well-documented monograph on primitive agriculture, etc., treats of primitive methods of clearing the ground and making it productive, loosening and working the soil, improvement of soil (manuring, artificial irrigation, rotation and fallow, sowing and planting, protection of seed from weeds, injurious animals, etc.), harvest and subsequent proceedings, division of land among primitive agriculturists, methods of work and division of labor, size of crops, their value, disposal, etc. Dr Lasch finds it difficult to say what is the cardinal difference between primitive agriculture and ours. The working of the soil is as intensive with the one as with the other. The stability of place is overestimated for the modern peasantry and underestimated for primitive people. Frequent change does not interfere with high development of methods of work. Higher culture has the combination of agriculture and cattle-breeding, the plow, etc.
- Lewis (A. L.)** Some notes on orientation. (Man, Lond., 1903, 88-91.) General discussion. Propitiousness of cardinal points and the reverse held to be the result of ceremonial turnings and facing, also right and left.
- "The nine stones." (Ibid., 116-117.) Argues that "the nine stones," in rude stone monuments, means "the stones of the nine ceremonies, or nine gods, or it may be of both, or in other words, the holystones."
- McKenzie (K.)** An Italian fable, its sources and its history. (Mod. Philol., Chicago, 1904, I, repr., pp. 1-28.) A thorough-going comparative study of "The Lion and the Man," from a MS. of the fifteenth century, the original of which, the author thinks, was composed in India some time before the eleventh century. Some "Uncle Remus" incidents appear to belong to the cycle of this fable, which is very widespread, and has undergone many variations.
- Myers (C. S.)** Note on a method of radial craniometry. (Man, Lond., 1903, 12-13, 1 fig.) Describes apparatus and the preparation of polyhedral figures from skull measurements.
- Myres (J. L.)** Rudolf Virchow. (Ibid., 1-4, 1 pl.) Appreciative sketch with portrait.
- John Wesley Powell. (Ibid., 23-25, 1 fig.) Brief account of life and scientific labors.
- von Negelein (J.)** Die Stellung des Pferdes in der Kulturgeschichte. (Globus, Brnshwg., 1903, LXXXIV, 345-349.) Contains data additional to those in the author's recent work *Das Pferd im arischen Altertum*. Treats of domestication, use in war, life and qualities under domestication, horse in religion, mythology and folklore, the "white horse" and "black horse," spirit horse, etc. In Prussia in the time of the Orders horses were still beasts of the chase and in use as food. Very ancient is the use of the male horse for battle and riding only, the mare for breeding purposes alone.
- Niewenhius (A. W.)** Kunstperlen und ihre kulturelle Bedeutung. (Int. A. f. Ethnogr., Leiden, 1903, XVI, 136-154, 1 pl.) Interesting historical-ethnographical account of artificial beads and the culture-significance, based on material in the museums of Leiden, particularly from certain tribes of Borneo, the Bahau, Kenya, etc. The glass, faience, and porcelain beads of Borneo come from Singapore (thither from Gablonz in Bo-

hemia, Birmingham, Murano near Venice, — some perhaps also from China). Among these people beads enter into every social and religious ceremony; they are also offered to the spirits and protective genii. Ancient Egypt (Flinders Petrie's find dates from 2800 B. C.) seems to have been the center of the early glass industry, upon which later developed the Phœnician. Stone beads were known to the ancient Egyptians as to the modern Borneans. The spread of beads through the ancient world is attributed to the Phœnicians and they were known to the Swiss lake-dwellers. The beads of culture-races exhibit a remarkable coincidence in form, color, marking, etc. Of the chevron pattern of bead 500 varieties are known in Venice.

Rathgen (F.) and Bowmann (R.) Tränkung von Gipsabgüssen zur Konservierung. (Z. f. Ethn., Berlin, 1904, XXXVI, 163-165.) Notes advantage of baths for plaster casts which do not give watery solutions.

Sanielevici (H.) Le travail de la mastication est la cause de la brachycéphalie. (Bull. Soc. des Sciences de Bucarest, 1903, XII, 390-395.) In brief form this article was noticed in *American Anthropologist*, 1904, N. S., VI, 346.

Schlis (A.) Der Bau vorgeschichtlicher Wohnanlagen. (Mitt. d. Anthr. Ges. in Wien, 1903, XXXIII, 301-320, 14 figs.) Treats of form and variations of human dwellings during the diverse prehistoric periods — choice of site, form and grouping of individual residences, build of individual houses, etc. No dwellings have been found in the old stone or cave-epoch. In the later stone age appear the plain and river villages, and the contracted fortified mountain settlements. The former is represented at Grossgartach (details are given). No regular evolution from the earliest to the latest period is apparent; each period has suited its dwellings to its needs and the tools it possessed. Artistic taste appears in all epochs.

Schmidt (P. W.) W. Wundt's Völkerpsychologie. (Ibid., 361-389.) Critical review of the first volume (on language) of Wundt's *Völkerpsychologie* (Leipzig, 1900).

Sergi (G.) Le illusioni dei sociologi. (Riv. Ital. di Soc., Roma, 1903, VII,

estr., pp. 1-19.) Criticises the view of certain sociologists that human society is "a phenomenon opposed to nature." Such ideas are illusions sprung from the brains of these theorists. Seeks to show that independence from nature in social phenomena, opposition between them and biological phenomena, does not and cannot exist. Individual interest is not opposed to social, for coöperation is a better evolutionary means for survival of self. Justice is not an anti-biological phenomenon. The survival of the weak through justice among men may be compared to mimicry — survival among insects, etc. The human will is not outside the bonds of nature. The rôle of consciousness of voluntary acts and their scope is not large.

Welcker (H.) Die Zugehörigkeit eines Unterkiefers zu einem bestimmten Schädel, nebst Untersuchungen über sehr auffällige, durch Austrocknung und Wiederanfeuchtung bedingte Grössen- und Formveränderungen des Knochens. (A. f. Anthropol., Brnschw., 1902, XXVII, 37-106, 37 figs.) Detailed discussion of the relation of lower jaw to skull, with account of experiments on striking changes in size and form of the bone induced by drying and re-moistening.

Wright (W.) A method to facilitate the recognition of Sergi's skull types. (Man, Lond., 1903, 114-116, 4 figs.) Describes "construction of a simple geometric figure on a photograph of the skull," — to aid the eye and avoid the vagaries of the personal equation.

Zuckerkandl (E.) Zur vergleichenden Anatomie der Gehirnwindungen. Zur Morphologie der Insel. (Stgb. d. Anthr. Ges. in Wien, 1903, 87-88.) Author concludes that the ground-form of the *insula* is to be looked for in arch-forms of this part of the brain in the bear and other carnivora.

EUROPE

Abercromby (J.) Excavations at Meikle, Perthshire, in May, 1903. (Man, Lond., 1903, 119-120.) Describes excavation of two prehistoric sites and objects found. Whether the interments and earthworks are contemporary is uncertain.

Andree (R.) Ueber einen Feuersteinknollen vom Wohlenberge. (Z. f. Ethn.,

- Berlin, 1904, XXXVI, 107-108.) Describes a flint core, used perhaps as a hand-stone.
- Annandale (N.)** Notes on the folklore of the Vestmannaeyjar. (Man, Lond., 1903, 137-139.) Brief notes on sea-goblins, bird-lore (raven, puffin), the skerry priest cairn, the stone boat, rock-spirits, etc.
- Bericht über die im Jahre 1902 in Österreich durchgeführten Arbeiten.** (Stzgb. d. Anthr. Ges. in Wien, 1903, XXXIII, 59-84, 10 figs.) Résumés archeological discoveries in the various parts of Austria during 1902.
- Brandstetter (R.)** Die altschweizerische Dramatik als Quelle für volkskundliche Forschungen. (Schw. A. f. Volksk., Zürich, 1904, VIII, 24-36.) Points out the folklore material to be gleaned from the old Swiss drama: Echoes of old legends and myths, legal customs, plays and amusements, folk food and drinks, figures of speech, oaths, euphemisms, forms of greeting, loan-words, dialect, gestures, etc. The old Swiss drama is a national, indigenous product.
- Brunšmid (J.)** Hrvatske sredovječne starine. (Vjes. hrvats. Arheol. Drust., Zagreb, 1903-4, N. S. VII, 30-97, 51 figs.) Describes Croatian medieval remains, coins, ornaments, rings, bracelets, beads, necklaces, bells, etc.
- Bünker (J. R.)** Die Hafneröfen in Stöob. (Mitt. d. Anthr. Ges. in Wien, 1903, XXXIII, 329-335, 10 figs.) Detailed account of the pottery-kilns of the village of Stöob near Oben Pullendorf in the Alpine region of Ödenburg.
- Casement (R.)** Remarkable wells in the country of Antrim in the year 1683, as described by Richard Dobbs, Esq., of Castle Dobbs. (Man, Lond., 1903, 76-77.) Gives extracts from a MS. intended to form part of an English atlas, part of which only was published.
- Cazalis de Fondouce (M.)** Les cromlechs de la Can de Ceyrac, Gard. (Soc. Préh. de France, 1904, extr., pp. 1-11, 2 figs.) Detailed description of the two large cromlechs of Can de Ceyrac, compared with other similar monuments.
- Celestin (V.)** Grčki i ninski kolonijalni novci nađeni u Osijeku. (Vjes. hrvats. Arheol. Drust., Zagreb, 1903-4, N. S. VII, 15-29.) Lists and describes numerous Greek and Roman colonial coins found at Essek.
- Čermak (K.)** Neolithische Stationen in der Umgebung von Časlau und ihrer Alter. (Stzgb. d. Anthr. Ges. in Wien, 1903, 102-104, 1 fig.) Brief notes on neolithic stations at Drobovitz and somewhat later ones on the Hluboký brook near Časlau.
- Clinch (G.)** On some ancient subterranean chambers discovered at Waddon, near Croyden, Surrey. (Man, Lond., 1903, 20-23, 1 fig.) Describes a very important find. The Waddon chambers resemble in some respects those of Palmella in Portugal (late neolithic) and those of La Tourelle in Brittany. They were probably sepulchral, though no human remains have been discovered. The Waddon chambers copy the ordinary surface hut of neolithic times.
- Cunningham (D. J.)** Cornelius Magrath, the Irish giant. (Ibid., 49-50, 1 pl.) Brief sketch of life, description of skeleton of famous giant (d. 1760.). The skeleton "exhibits in a marked degree all the conditions of an advanced phase of acromegaly."
- Daucourt (A.)** Les sobriquets des villes et villages du Jura bernois. (Schw. A. f. Volksk., Zürich, 1904, VIII, 49-52.) Gives the *blason populaire* (nicknames) for 120 towns and villages of the Bernese Jura. This article ought to interest Andrew Lang in connection with his totem theory.
- Elworthy (F. T.)** On perforated stone amulets. (Man, Lond., 1903, 17-20, 1 pl.) Describes and discusses amulets from various parts of England. Naturally-holed stones have particular virtues. One of their names is "holy (for holed) vlints."
- Evans (E. J.)** Pre-Phenician writing in Crete, and its bearings on the history of the alphabet. (Ibid., 50-55.) Treats of primitive picture-writing and Cretan pictographic script, the linear script of Minōan Knossos, Cretan scripts and "signaries," and the Phenician alphabet. Author identifies the Philistines with "a highly-civilized Aegean race, far advanced in that art of writing." From them ca. 1400 B. C. the Phenicians may have derived their alphabet.

- Folmer (H. C.)** De volkomen overeenstemming in anthropologisch type tuschen de vroegste bewoners langs de Noordzee-kusten met de andere Germaansche stammen iut her Merovingische tijdvak. (Hand. v. d. Nederl. Anthropol. Ver., Den Haag, 1904, 1, 26-32.) Argues upon craniological evidence for the complete identity of the earliest inhabitants of the North Sea coast with the *Reihengräber* type of central Germany, the dolichocephalic Merovingians, etc.
- Fuchs (K.)** Rosengärtchen; das Kronstädter Junifest. (Stzgb. d. Anthr. Ges. in Wien, 1903, 104-106.) Brief account of a folk-festival at Kronstadt in Transylvania. A horseman's festival, dendrophors (youths on horseback with fir-taps), *busegan*-throwing (a sort of club). The festival seems to be the rudiment of a once greater event.
- Ueber Rolande. (Ibid., 106.) Brief note on the "town Roland"—the Roland with naked sword in hand before the door of the town house indicated the exercises there of the *ius gladii*, a right given certain towns by the Hungarian monarchs.
- von Gabnay (F.)** Ungarische Kinderspiele. (Globus, Brnschw., 1904, LXXXV, 42-45, 60-63, 5 figs.) Treats of tops, *pintaga*, catapults, whips, ball-shov-ing, toy-wagons, wind-wheels, and like toys, cross-bows, squirts, whistles, boats, fiddles, bows, hammers, sleds, mortars, cradles, furniture, dishes, implements and utensils, dolls, etc. Also children's games, ball-games. In the Ung valley girls make no dolls. Truancy is frequent here because several school-children have only one jacket in common. At Tschornobolowa hardly any children's toys are to be found. Toys and games differ noticeably with environment.
- Gaidoz (H.)** De l'influence de l'Académie Celtique sur les études de folk-lore. (Rec. de Mém. Soc. d. Antiq. de France, 1904, 135-143.) According to M. Gaidoz the linguistic labors of the Celtic Academy, which held its first session in 1804 and made its exit in 1827, causes a smile today, its archeology is more than archaic, but it will be remembered for its activities in relation to the collection of folklore (the work of its secretary, Johanneau, etc.). Its influence upon Jacob Grimm in particular was considerable. In France the study of folklore
- practically died with the Celtic Academy, to be resurrected more than fifty years later.
- Gebhardt (A.)** Ueber eine neugefundene Höhle auf Island. (Globus, Brnschw., 1903, LXXXIV, 389.) Brief account of a new cave (occupied in the Middle Ages by robbers or exiles) discovered in the Thingvallaveit in the summer of 1903.
- Götze (A.)** Monolithgräber. (Z. f. Ethn., Berlin, 1904, XXXVI, 111-115, 5 figs.) Brief description of three neolithic graves with boulders lying upon the skeletons. This was perhaps due to belief in vampirism. For graves of this sort the author proposed the name *Monolithgräber*.
- Gray (H. St G.)** Relief model of Arbor Low stone circle, Derbyshire. (Man, Lond., 1903, 145-146, 1 pl., 2 figs.) Brief account of construction of mahogany model made in 1902.
- Gray (Rev. J.)** Some Scottish string figures. (Ibid., 117-118, 4 figs.) Describes the bunch of candles, the chair, the pair of trousers, the crown, the leashing of Lochiel's dog (or tying dog's feet).
- Hingston (Margaret A.)** "The candles" string figure in Somerset. (Ibid., 147.) Brief description of the string-figure to the story of the man who stole candles, as current some forty years ago.
- Hofiler (F.)** Antikne bronsane posude iz Hrvatske i Slavonije u narodnom muzeju u Zagrebu. (Vjes. hrvats. Arheol. Društ., Zagreb, 1903-4, N. S., VII, 98-133, 13 figs.) Describes ancient bronze vessels, casseroles, Roman cyathi, amphora, etc., in the Zagreb Museum.
- Klaatsch (H.)** Fossile Knochen aus der Heinrichshöhle bei Sundwig. (Z. f. Ethn., Berlin, 1904, XXXVI, 117-119.) Describes bones of cave-bear, etc., from the Heinrich cave near Hönnetal, — no human remains have yet been discovered here.
- Kralic (Vj.)** "Castrum antiquum paganorum" kod Kasine u gori Zagrebackoj. (Vesj. hrvats. Arheol. Društ., 1903-4, N. S., VII, 10-14.) Treats of the ancient "heathen castle" near Kašina in the Zagreb mountains, mentioned by the medieval chroniclers, etc.

— "Indagines" i "portae" u Hrvatskoj i Slavoniji. (Ibid., 1-9.) Treats briefly of the *indagines*, hedged moats, with their *portae* (gates cut through), a species of fortification common on the borders of Croatia and Slavonia under the Arpad régime.

Kosler (Hr). Ein eigentümliches Hügelgrab aus der Bronzezeit. (Z. f. Ethn., Berlin, 1904, XXXVI, 108-112, 1 fig.) Detailed description of a mound grave in the park of Castle Kramichstein, with a double circle of wooden piles. Possibly a "house-like" burial-place.

Kulka (Dr). Ueberblick über die Vorgeschichte Öster.-Schlesiens. (Stagb. d. Anthr. Ges. in Wien, 1903, 90-95.) Résumés data concerning prehistory of Austrian Silesia. Man was present here apparently not before the latter part of the neolithic culture-period. The chief "station" is Kreuzendorf.

Künstlichen (Die). Höhlen Mitteleuropas, ein ungelöstes Rätsel. (Globus, Braunschwg., 1903, LXXXIV, 349-352, 7 figs.) Résumés Karner's *Künstliche Höhlen aus alter Zeit* (Wien, 1903). Numerous theories as to the origin and use of these artificial holes (the peasantry use them for storage purpose) in the *löss* regions of Austria, Moravia, and adjoining Bavaria, have been put forth. Karner looks upon them as "cult-places" of a prehistoric people. They may have been rather temporary dwellings or refuges.

Lejeune (C.). La religion à l'âge du renne. (Bull. Soc. d'Anthr. de Paris, 1903, 5^e s., IV, 628-632.) Discusses a recent article by Reinach. Author concludes that the men of Chelles and Montier were not devoid of religion.

Lewis (A. L.). Stone circles in Derbyshire. (Man, Lond., 1903, 133-126, 2 figs.) Describes Arborlow, the "Wet Withins," and the "Nine Ladies" on Stanton Moor. These do not seem to have been primarily sepulchral.

Lüdtke (W.). Bretchenweberei in Karthago. (Z. f. Ethn., Berlin, 1904, XXXVI, 106-107, 2 figs.) Compares perforated bone plates found at Carthage by Delattre with Swedish weaving boards and suggests like use.

Lustig (Die). Trichtergruben (Mardellen) vom Zobtenberge in Schlesien. (Globus, Braunschwg., 1904, LXXXV, 85-89,

4 figs.) Résumés briefly data concerning *mardellen* (the corresponding term in English seems to be *pen-pits*) and describes particularly those of the Zobtenberg and their contents—stone-plates, unfinished mortar-stones, pots, sherds, etc. These pits (of which 5000 are said to exist in the Lorraine forests alone) are probably the work-places of handmill-stone makers belonging to the late Slavonic epoch or early middle ages.

M. (E.). Sprichwörter der Oberlausitzer Wenden. (Ibid., 1903, LXXXIV, 353-357.) Gives 557 proverbs of the Wends of Upper Lausatia, concerning man in his social relations (1-246), human properties and qualities in relation to animate and inanimate nature. (1-311.)

Mehlis (C.). Neolithische und spätzeitliche Silex- und Kieselware. (Ibid., 361-362, 8 figs.) Brief account of neolithic flint and later quartz implements found together in the Hassloch wood, near Neustadt. Evidently a La Tène population was still using stone implements for certain purposes.

Meier (S.). Wettersegen (Schw. A. f. Volksk., Zürich, 1904, VII, 47-49.) Gives text of a weather-charm in family use in the Frei- und Kellersamt.

Meyer (Hr). Der Bürgereid der alten Chersoneser. (Globus, Braunschwg., 1904, LXXXV, 32-34.) Gives, after Latyschew, the (German) text of the Greek inscription found in 1890-1891 at old Cherson in the Crimea, containing the citizens' oath dating from perhaps the first half of the third (or end of fourth) century, B. C. Among the evils invoked in case of breaking the oath is that "the women bear no beautiful children."

Morgenländische Götterdarstellungen in Europa. (Ibid., 45-46.) Résumés a lecture by Dr Blinkenberg. The bronze hands found in various places in central Europe are thought to represent the Phrygian Zeus Sabazios.

Olshausen (O.) und Rathgen (F.). Untersuchungen über baltischen Bernstein (Succinit) und andere fossile bernsteinähnliche Harze. (Z. f. Ethn., Berlin, 1904, XXXVI, 153-163.) Résumés results of investigations of Helm and Aweng, Klebs, Conwentz, etc., and gives results of numerous experiments as to the melting-point of many varieties of amber and amber-like resins.

Pratorius (C.) Note on an old Welsh gorse-cutter. (Man, Lond., 1903, 186, 1 fig.) Describes a *cyrth ethin*, or "knocker of gorse," in use in Anglesey some fifty years ago.

Reid (E.) Note on the paleolithic gravel of Savernake Forest, Wiltshire. (Ibid., 55-57.) The Knowle gravel is contemporaneous with the Southampton water, Bournemouth and Avon Valley deposits. Occurrence of water holes determined the sites of camping grounds in the bare and dry chalk downs.

Rutot (A.) Les découvertes de Krapina, Croatie. Les trouvailles paléolithiques de Krems. Découvertes de poignards Chelliens à Mesvin, près de Mons. Découverte de crânes paléolithiques en Angleterre. (Bull. Soc. d'Anthr. de Bruxelles, 1903-4, XXII, extr., pp. 1-8.) Résumé and critique of article of Dr K. Gorjanovič-Kramberger (See *American Anthropologist*, 1902, N. S., IV, 160). Rutot considers Krapina to belong to the Montaigne type (upper Quaternary). The "station" of Krems he considers intermediate between the Eburian and the Magdalenian. Rutot thinks that a hiatus comprising all the lower and middle Quaternary lies between the Pithecanthropus of Java and the Neanderthal-Spy-Krapina type. Some of the ancient skulls recently discovered in England may help to bridge this gulf.

— Le premier instrument paléolithique rencontré in situ aux environs de Bruxelles. Nouvelles observations dans la plaine maritime Belge. Trouvailles dans la tourbe de l'époque moderne, à Bruxelles. (Ibid., extr., pp. 1-8.) Describes the finding of a fragment of a hatchet of the Achulean type at Etterbeek. The nearest previous find of Achulean implements was at Soignies, 36 kilom. farther off. While at Ostend M. Rutot examined the medieval relics uncovered by the sea on the Belgian coast and now in the Royal Museum of the Decorative Arts. Notes the find of human sacrum and three flints in the peat of the rue des Chartreux, Brussels. The peat of the maritime plain and of the valley-bottoms contains remains of the neolithic, bronze, iron, and Belgic-Roman periods.

— Communication préliminaire relative à la pointe moustérienne et à la taille du silex. Sur un peson néolithique. Nou-

velles découvertes à Soignies. Note préliminaire sur les silex paléolithiques de la vallée du Nil. (Ibid., 1902-1903, XXI, extr., pp. 1-7.) M. Rutot holds that the implement called "pointe moustérienne" is no characteristic of any period, and what is termed "taille du silex" is most frequently only a result of its use. Describes stone weight (possibly originally a muller), of the Robenhaut period, near the river Haine. At Soignies a mammoth-tusk was found in the Hainaut quarry. The last note relates to Dr G. Schweinfurth's materials.

— Esquisse d'une comparaison des couches pliocènes et quaternaires de la Belgique avec celles du sud-est de l'Angleterre. (Bull. Soc. Belge de Géol., Bruxelles, 1903, XVII, 57-101.) Interesting comparative study, with table, of the Pliocene and Quaternary strata of Belgium and S. E. England. M. Rutot finds a place in his scheme for the "colitis."

Schmidt (H.) Die spätneolithischen Ansiedelungen mit bemalter Keramik am oberen Laufe des Altflusses. (Z. f. Ethn., Berlin, 1904, XXXVI, 145-146.) Author agrees with Teutsch that the clay stamps with patterns found by the latter near Kronstadt were used for body-tattooing. The painted pottery is not, as Teutsch thought, a barbarous imitation of Mycenaean vase-painting (indeed the latter is later in time), but rather has to do with Aegean culture.

Schnippel (Hr) Prähistorische Brettchenweberei. (Ibid., 137-138, 1 fig.) Note on use of weaving-board by Russian peasant women of Suprasl near Bialystok (Grodno).

Schoener (Hr) Die Insel Gotland. (Globus, Brunschwg., 1904, LXXXV, 112-115, 8 figs.) Describes briefly ruins, fortifications, etc. The name *Wibsy* indicates the former existence there of a heathen place of sacrifice (*vi*).

Schoetensack (O.) Zur Nephritfrage. (Z. f. Ethn., Berlin, 1904, XXXVI, 141-143.) Brief description of three nephrite implements from a pile-dwelling in the lake of Zug. Their origin is probably from the glacial debris of the central Alps.

Tetzner (F.) Die Kroaten. (Globus, Brunschwg., 1904, LXXXV, 21-26, 38-42, 12 figs.) Ethnological sketch: Culture, house and yard and related things (plans

are given), clothing and ornament, customs and usages (birth, marriage, death and burial, friendship, "Wahlschwester"), folklore and folk-literature, etc. The archbishop of Djakowo has been a sort of Mæcenas. Belief in witches, the *mora* and the *vukodlak* or grave vampire is on the wane, but that in the *vilas* and *tudjenice* (Parcae) seems to have taken on a new lease of life. Croatian folk-literature is rich in proverbs, legends, and songs.

Tobler (A.) Der Volkstanz im Appenzellerlande. (Schw. A. f. Volksk., Zürich, 1904, VIII, 1-24.) Historical and descriptive account, with musical notes, of the folk-dances of Appenzell—"the people are passionate dancers." The dance was often the subject of governmental restriction and even prohibition.

— (G.) Gedichte aus der Zeit des Berner Oberländer-Aufstandes des Jahres 1814. (Ibid., 37-47.) Gives texts, with explanatory notes of 5 historical songs from a MS. of 1815-1816, dealing with the insurrection of 1814.

Vollgraff (C. W.) De opgravingen te Argos. (Hand. v. d. Nederl. Anthr. Ver., Den Haag, 1904, I, 2-14.) Résumés results of excavations at Argos in 1902-1903. Complete study of this ancient and important place will reveal the nature and condition of a Hellenic city, as well as the development of Argive art.

Wenden (Die) in Sachsen. (Globus, Brunschwg., 1904, LXXXV, 126-127.) Résumés the government statistics of 1900. In 1849 the Saxon Wends were 26 per cent. of the total population, in 1900 only 16 per cent. The German language and the schools are factors here. There are at present only 7 "pure Wend-speaking" villages in Saxony—28,727 have Wendish as their mother-tongue, and there are 18,282 bilinguals.

Wilke (Dr.) Archäologische Parallelen aus dem Kaukasus und den unteren Donauländern. (Z. f. Ethn., Berlin, 1904, XXXVI, 39-104, 120 figs.) In this important monograph the author treats of the relations of the ancient culture of the Caucasus with that of the lower Danube region: Fibulae, spirals, buttons, needles of various types, finger-rings, ear-rings, arm-rings and bands,

neck-rings, pendant ornaments of several sorts, bronze tubes, spiral tubes, *pin-cettes*, amber, weapons and implements, sickle-shaped saws, arrow-heads, spears, daggers and swords, ornamentation, symbols, *Émail en champfret*, plastic art, antimony, dolmens, craniology, etc. The author holds that these numerous and remarkable parallels are to be explained by immigration (of a people already acquainted with metal) from the Danube region to the north Caucasus.

Zindel-Kressig (A.) Reime und Redensarten aus Sargans. (Schw. A. f. Volksk., Zürich, 1904, VIII, 57-60.) Cites counting-out rhymes, dance-songs, lullabies, children's songs, calls for domestic animals, idiomatic expression, folk and children's sayings.

AFRICA

Atgier (H.) Les Maures d'Afrique. Origine ethnique du mot "Maure" et ses diverses significations successives. (Bull. Soc. d'Anthr. de Paris, 1903, V^e s., IV, 619-623.) Discusses the name *Maure* ("Moor") and its derivatives and cognates in various European tongues. Derives it from Greek *Μαυρος* (Μαύρος)—Mauritania having designated a land of blacks, just as Nigritia does now. The term, Moor was first applied to the pre-Berber population. See *Block*.

B. (H.) Aus dem Süden Deutsch-Südwest Afrikas. (Globus, Brunschwg., 1904, LXXXV, 7-11, 5 figs.) Describes briefly Keetsmanshoop and its population.

Balfour (H.) "Thunderbolt" celts from Benin. (Man, Lond., 1903, 182-183, 3 figs.) Describes a bronze celt, imitative of stone celts, which are regarded as "thunder bolts," "lightning stones," etc. Also two little bronze models of celts, semi-conventional symbols of the real article. See *Dwyer*.

Beddoes (H.) Hausa notes. (J. Afric. Soc. Lond., 1903, 451-453.) Replies to 25 queries regarding property-inheritance, funeral-customs, family, judges—"big men," axes, slavery, etc., by a Hausa interpreter.

Bent (Mrs M. V. A.) The monoliths of Aksum. (Rec. of Past, Wash., 1904, III, 35-42, 11 figs.) Describes these monoliths visited by Mr. and Mrs Bent

in 1892-3. They are of religious purport and had sacrificial altars below them. Their style indicates Greek upon Sabean art before our era. Aksum was of old a very sacred place.

Bertholon (Dr.) and Myres (J. L.) Note on the modern pot fabrics of Tunis. (Man, Lond., 1903, 86-88, 5 figs.) Describes briefly the various types of hand-made and wheel-made pottery. On the island of Gerba there were in 1902, chiefly in two villages, 129 potteries (formerly 144). The Kabyle type seems confined to Kabylia, the other regions of North Africa having each its local type of pottery.

Bloch (A.) Étymologie et définitions diverses du nom de Maure. (Bull. Soc. d'Anthr. de Paris, 1903, 7^e s., IV, 624-728.) Discusses Phœnician, Greek, African, and Arab etymologies. Bloch favors deriving the name from Greek *Μαῖνος*, "black," the word having originally signified a negro. See *Atger*.

Blyden (E. W.) West Africa before Europe. (J. Afric. Soc., Lond., 1903, 359-374.) Treats of the moral and religious questions connected with British West Africa. The development of Africa and the African must be "on educational and industrial lines, conducted 'in a scientific spirit.'" To make Mohammedans better Mohammedans, not to convert them, is best.

Boas (F.) What the negro has done in Africa. (Eth. Rec., N. Y., 1904, v, 104-109.) Treats of the negro's ancient and noteworthy skill in metallurgy, the legal trend of his mind, commercial ability, power of organization, power of assimilating foreign culture. The remarkable kingdoms of Ghana and Songhai are referred to; also the Lunda empire. The author concludes that the achievements of the negro in Africa show that the race is capable of social and political progress, and that in America it will produce, as it has done in Africa, its great men.

Brower (C. De W.) The beetle that influenced a nation. (Rec. of Past, Wash., 1904, III, 73-79, 2 figs.) Treats of the Egyptian scarab, whose use as a sacred emblem dates back to perhaps 5000 B. C. On them the earliest decorative art appears. They bear an immense variety of devices and inscriptions. They

were buried with the dead as emblems of life.

Chadwick (H.) The African Training Institute, Colwyn Bay. (J. Afric. Soc., Lond., 1903-4, 104-106, 1 pl.) Treats chiefly of the education of Charlie Stewart, an ex-slave, now a missionary.

Christy (C.) Sleeping sickness. (Ibid., 1903-4, 1-11, 4 pl.) Discusses nature and distribution of this disease, which, until 1891 was known only "in certain parts of West Africa, mainly on the Congo, and amongst African slaves shipped to the West Indies during the first half of last century." So far no European has contracted it, but tsetse fly may turn out to be the conveyor of the trypanosoma of "sleeping sickness."

Dalton (O. M.) Note on an unusually fine bronze figure from Benin. (Man, Lond., 1903, 185, 1 fig.) Describes bronze figure of a retainer, of fine workmanship.

David (J.) Ueber die Pygmäen am oberen Ituri. (Globus, Braunschwg., 1904, LXXXV, 117-119.) Describes briefly the pygmies of the Upper Ituri, — the author has been five months in the midst of the pygmy country, — Wambutti, Wabira, etc. Many of these pygmies have been "Bangwanized," or influenced by the semi-Arabized Bangwans (negro slaves). These "little Beduins of the woods" are much feared by their neighbors. These dwarfs use less ornament, embellishment and disbellishment, the more primitive they are. Their culture is the simplest. A Wambutti chief measured 1405 mm.

Dehérain (H.) Les Hereros. (R. gén. d. Sci., Paris, 1904, XV, 113.) Brief ethnographic notes on habitat, type, culture, habits, etc. The Hereros live on sour milk. Their culture bears everywhere the marks of the cattle-raiser, even their dances and funeral rites. An extreme individual has developed from pastoral life.

Dwyer (P. M.) On the thunderstones of Nigeria. (Man, Lond., 1903, 183-184.) Résumés religion of Shonga, the god of thunder and lightning and his wife Oya (the river Niger.) The *aturu*, or thunderstones, which are objects of worship, are ancient ax-heads or celts, said to come from Shonga. Their actual provenance is unknown. See *Balfour*.

Engelhardt (Ph.) Eine Reise durch das Land der Mweleund Esum, Kamerun. (Globus, Brunschwg., 1904, LXXXV, 1-6, 73-76, map, 9 figs.) Contains notes on the natives and chiefs of Mwele and Esum—dress, dwellings, slavery, etc. These negroes have a sort of telephone drum language.

F. (B.) Nord-Nigeria. (Ibid., 140-143, 8 figs.) Contains notes on the Fulas, their towns, etc.

Garstang (J.) Excavations at Beni-Hasan, 1902-3. (Man, Lond., 1903, 97-98, 129-130, 2 pl.) Gives brief account of tombs and contents belonging to a necropolis of the Middle Empire (2,000 B. C.)—in all 492 tombs were examined, largely those of officials and retainers of the princes buried in the rock tombs of the upper gallery. The boats from several of the tombs are interesting, also a "man with a hoe." A series of models from the tomb of a chief physician represents the whole process of brewing. This Beni-Hasan find is a valuable one. The tomb of Antef, a courtier, is particularly described.

Gates (E. A.) Soudanese dolls. (Ibid., 41-42, 3 figs.) Brief accounts of dolls (of Nile mud, native gum and sticks) from Khartum.

Gentz (Leut.) Die Mischlinge in Deutsch-Südwestafrika. (Globus, Brunschwg., 1903, LXXXIV, 336-337, 1 fig.) Brief notes on "the Bastard-native," and other half-breeds—the former are descendants of Boers and Hottentot women. They often perpetuate only the bad qualities of both sides. They are very fond of music—a specimen melody is given.

— Beiträge zur Kenntnis der südwest-afrikanische Völkerschaften, III. (Ibid., 1904, LXXXV, 80-82, 5 figs.) Treats of the Hereros—houses, weapons, musical instruments (bow in particular). Notes used by Hottentots of the mineral *burmeister* as a medicament.

— Der Herero-Aufstand in Deutsch-Südwestafrika. (Ibid., 133-134, 2 figs.) The uprising was probably supported, if not stirred up, by the Ovambos.

Gibson (A. E. M.) Slavery in Western Africa. (J. Afric. Soc., Lond., 1903-4, 17-52.) General discussion of volun-

tary and enforced servitude in various parts of West Africa. Author thinks that "voluntary and hereditary slavery might well be permitted to continue." The social fabric of Africa is based on domestic slavery.

Hall (H. R.) Note on the early use of iron in Egypt. (Man, Lond., 1903, 147-149, 1 fig.) Shows that iron, as Petrie's recent discovery settles, was known to the Egyptians as early as the fourth dynasty (3700 B. C.) and after, though its use was by no means common till toward the end of the "new empire," its use becoming more or less general during the nineteenth dynasty. The oldest literary mention of iron, *ba-n-pet*, goes back to 1300 B. C.

— Caphtor and Casluhim. (Ibid., 162-164.) Author seeks to show that Egyptian *Keftar* is a Ptolemaic transcription of Hebrew *Caphtor*, the ancient equivalent being the *Keftiu* of the eighteenth dynasty, while the Ptolemaic *Kastuhet* may be a corruption of the ancient Egyptian equivalent of *Castukim*.

Hobley (C. W.) Notes concerning the Eloboro of Mau, British East Africa. (Ibid., 33-35.) Treats of type, family, food, hunting, fire-making, language—a vocabulary of some 100 words is given. By use of the Nandi language on the part of many natives their own tongue is on the way to extinction.

Hudson (A.) The missionary in West Africa. (J. Afric. Soc., Lond., 1903, 454-455.) Thinks Timne-Mendi rising of 1898 was intended to stamp out the missionary and all his works.

Johnson (H. H.) Presidential address. The work of the African Society. (Ibid., 349-358.) Treats generally of Africa and things African—diseases, races and languages, etc.

Joyce (T. A.) Note on a carved door and three fetish staves from northern Nigeria. (Man, Lond., 1903, 177-179, 1 pl., 2 figs.) Describes a carved wooden door (some of the figures are Europeans), the design of which resembles the castings from Benin; three carved wooden fetish staves, a chief's axe, etc. The door and staves are from the town of Akarè.

— On a ceremonial mask and dress from the Upper Zambezi, now in the British Museum. (Ibid., 75, 1 fig.) Describes

a *chisaluké* (fool) mask used by the Valovale in their boy-initiation ceremonies—it is supposed to be the dress of a resurrected spirit.

Karutz (A.) Weitere afrikanische Hörnermasken. (Int. A. f. Ethnogr., Leiden, 1903, xvi, 121-127, 1 pl., 1 fig.) Describes African horned masks from the Sankuru river (Congo State), from Kuango, Kongo, Kamerun, Loango coast, now in the museum at Lübeck. Dr. Karutz finds in this new material confirmation of his theory of the origin of the horns of these masks from antelope horn trophies. The faces of the masks are human (negro) and afford no ground for animalistic views as to the origin of these masks.

Keller (I.) Knowledge and theories of astronomy on the part of the Isubu natives of the western slopes of the Cameroon mountains, in German West Africa. (J. Afric. Soc., Lond., 1903-4, 59-91, 2 pl.) Notes on beliefs, etc., concerning day-star, moon, etc. Translated from *Deutsche Kolonialzeitung* by Miss M. Huber. The drawings are by a native.

Klose (H.) Industrie und Gewerbe in Togo. (Globus, Brnschw., 1904, lxxxv, 70-73, 89-93.) Treats of iron-working (swords, spears, arrowheads, etc.), spinning and weaving, pottery, wood-work and carving, carpentry, leather-work and tanning, basketry, rope, soap and beer making, barbering, tailoring, shoemaking, etc. The Bassari and the Kabre are notable weaponsmiths; outliers of the Mohammedan Sudan are found also in Togo. Spinning is a house-industry of women, weaving belongs to the men. In Nkonya great pots are used for "granaries." In wood-work appear the beginnings of sculpture. Women make soap out of palm-oil and banana-ashes.

Marokkanische (Das) Heer. (Ibid., 1903, lxxxiv, 337-339, 2 figs.) Gives briefly the composition of the Moroccan army.

Martin (E. F.) Notes on the ethnology of Nigeria. (Man, Lond., 1903, 82-86.) Brief notes on the Kukurukus, Igara, Lokoja (the commercial center of northern Nigeria) and its people, the canoe population (Kedda and Kokanda), the Hausa, the Fulah, etc. Except the Hausa the native of the Niger is "not a noted

trader." The Fulahs are the ruling Mohammedan power in northern Nigeria. The Hausa is the great trader of the Sudan.

— Notes on some native objects from northern Nigeria. (Ibid., 150-151.) Describes briefly coat of mail, horse-collar, ostrich leather slippers (worn by chiefs), lamps, "poker work," grass-work (hats, mats, baskets), etc.

Molinier (L.) Croyances superstitieuses chez les Babemba. (J. Afric. Soc., Lond., 1903-4, 74-82.) Treats of religious system (god, spirits, prayers, etc.), beliefs and practices relating to accidents, disease, death, witchcraft, poison-tests and ordeals for discovering guilt, auguries good and bad, diverse superstitions (lions, wer-lions, evil spirits, comets). All incidents of life are the work of the *mpashi*, or spirits.

Myres (J. L.) A Tunisian ghost-house. (Man, Lond., 1903, 57-58, 2 figs.) Describes a ghost-house at Enfidu. The type is pre-Roman with subsequent Roman additions, Mohammedan modification into the cupola-crowned chapel of Arab Africa, etc. Modern Mohammedan custom has caused it to cease being the actual house of the dead. An excellent example of how "the dwellings of the dead recapitulate the characters of those of the living."

Perregaux (W.) A few notes on Kwahu (Quahoe), a territory in the Gold Coast Colony, West Africa. (J. Afric. Soc., Lond., 1903, 444-450.) Historical account, according to chiefs, with popular version of events.

Plea (A.) for the scientific study of the native laws and customs of South Africa. (Man, Lond., 1903, 70-74.) Memorial and correspondence between the Anthropological Institute and the Secretary for the Colonies on this matter.

Quilliam (A.) A chapter in the history of Sierra Leone. (Ibid., 1903-4, 83-99.) Author, who is a Mohammedan, discusses Protestant missionaries' relation to Islam in Sierra Leone, etc., the disabilities of its adherents, etc. Remedies are proposed.

Raum (J.) Ueber angebliche Götzen am Kilimandscharo, nebst Bemerkungen über die Religion der Wadschagga und die Bantuneger überhaupt. (Globus,

Brnschw., 1904, LXXXV, 101-105.) Author criticises Thomé's attribution of generally worshiped *idols* to the Wad-jaga, no East African Bantu people possessing such. The god-idea of the Bantu is the deified spirit of the primitive ancestor. The southern and eastern Bantu tribes have no priests, only shamans, sorcerers, rain-makers, prophets, whose power is all the greater. Bantu religion is half ancestor-cult, half witchcraft.

Rogozinski (S.) Characteristic features of the Bantu dialect "Bakwiri," used in the Cameroon mountains, compared with some other related dialects. (J. Afric. Soc., Lond., 1903, 400-415.) Translated by Miss A. Biggs. Based on three years' study *in loco*. Phonetics, singular and plural prefixes, alliteration, contraction, past tense, descriptive elements, compound words, onomatopoeia, borrowed words, proper names, color words, reckoning of time, interjections, gestures, are considered.

Soirées (Les) littéraires des Babemba. (Ibid., 62-73.) Written by the French Fathers of the Awemba mission of N. E. Rhodesia. Gives French text of the adventures of "Rabbit" (rabbit [i. e. hare] and fox [jackal]; rabbit, elephant and hippopotamus; rabbit and lion; rabbit and two lions; rabbit and elephant hunters).

Todd (J. L.) Note on stone circles in Gambia. (Man, Lond., 1903, 164-166, 3 figs.) Describes circles at Kununko, Manna, Maka, etc., The present natives attribute them to "the olden people." The Mohammedan blacks sometimes use them as praying places, but often "have no compunction in planting their crops near and around them."

Vivian (W.) The missionary in West Africa. (J. Afric. Soc., Lond., 1903-4, 100-103.) Critique of article of Hudson (q. v.). The Mendi rising was due to the Protectorate and the hut-tax.

Warner (L. C.) A recent discovery in Egypt and the care of antiquities. (Rec. of Past, Wash., 1904, III, 116-117, 1 fig.) Note on a supposed statue of Sen-nofer, wife and child, perhaps 3,400 years old and of marked artistic value. The statue was found in connection with the restoration of the fallen columns of the Hypostyle Hall at Karnak.

Watt (J.) Notes on the Old Calahar district of southern Nigeria. (Man, Lond., 1903, 103-105.) Brief notes on farming, fishing, hunting, trade, houses, canoes, etc. The Efik are the chief people. Fresh fish, apparently, are not eaten, only dried. The tombs are often models of houses; some very elaborate. The dead bodies are thrown into the bush. The canoe men paddle to time set by a boy on a hollow piece of wood with two hard-wood sticks.

Werner (Miss A.) Note on clicks, in the Bantu languages. (J. Afric. Soc., Lond., 1903, 416-424.) Lists and discusses click-words. Holds that "the clicks which occur in Xosa, in Zulu, and to a limited extent in Sesuto, have been borrowed from the Hottentots." Endeavors to discover in Mañanja the analogues to Zulu click-words. An "editorial note" appended to this article discusses the symbols in use in European dictionaries, etc., to represent clicks.

ASIA

Annandale (N.) Notes on the popular religion of the Patani Malays. (Man, Lond., 1903, 27-28.) Notes on the non-material elements in man according to native belief: *Nyama* (life-breath), *semangat* (directing spirit), *ru* (what goes out of man when asleep), *hadi* (wickedness or devilry in man), *jinn puteh* (Mahommed's parrots, — one in the liver of every Mahommedan, to prevent him being wicked). The highest type of magicians do not die, but "live on in the words and in the dreams of men."

— A magical ceremony for the cure of a sick person among the Malays of Upper Perak. (Ibid., 100-103, 1 fig.) Describes the treatment by a *bémer*, or "medicine man," of a girl sick through being eaten by a witch's familiar. The latter was ultimately tied to the roots of a *Ficus* tree.

Bartels (P.) Ueber ein Os premaxillo-cipitale, Sergi (Os basioticum, Albrecht) an einem Chinesenschädel. (Z. f. Ethn., Berlin, 1904, XXXVI, 147-152, 2 figs.) Description with cranial measurements of skull of young Chinese with os premaxillo-cipitale. References to literature of this rare phenomenon.

— Die Sojoten. (Globus, Brnschw., 1904, LXXXV, 127.) Résumés a recent

- account of D. A. Klemenz. The Sojotes or Uranchai of the Upper Yenesei valley between the Tannuola and the Sajani mountains are Buddhists with underlying shamanism. The Russian trade relations began in the last quarter of the last century.
- Duckworth** (W. L. H.) Note on a skull labeled "Semang-Schädel ♂." "Bukit-Sapi," Upper Perak, 1902; now in the Museum of the Royal College of Surgeons. (Man, Lond., 1903, 34-37.) Detailed description with measurements (index 85). Probably an example of the brachycephalic negro type.
- Englische** (Die) Einfallspforte nach Tibet. Globus, Brnshwg., 1904, LXXXV, 122-125, 6 figs.) The illustrations are of ethnologic interest.
- Foy** (W.) Ueber alte Bronzetrömmeln aus Südostasien. (Mitt. d. Anthr. Ges. in Wien, 1903, XXXIII, 390-409.) Discusses types of southeastern Asiatic bronze drums, with particular reference to F. Heger's two volume work *Alle Metalltrömmeln aus Südostasien* (Leipzig, 1902). Foy does not agree with Heger's classification and looks to the Kamboja-desa as the home of the oldest type. See van Hoëvell, *Schmelts, von Rothorn*.
- Ghosal** (Mrs J.) The Taj Mahal, India. (Rec. of Past, Wash., 1904, III, 47-49, 2 figs.) Brief general description of the "crown of the world," and wonder of Agra.
- Gray** (J.) Measurements of the coronation contingent. (Man, Lond., 1903, 65-70, 2 figs., tables.) Gives results of measurements (stature, length, and breadth of head) of 266 members of the Indian coronation contingent, representing races of the N. W. frontier, great plain (Aryan), Himalayan, eastern Deccan, western and central Deccan. The resemblance of the Himalayan (Gurka, etc.) and Tamil heads leads the author to think that the Aryan invasion was wedge-like. Influence of Aryan on Dravidian and vice versa is seen in head-form.
- Hartland** (E. S.) Two Japanese "Boku-to," or emblems of the medical profession. (Ibid., 81-82, 1 pl.) Describes briefly the *boku-to*, or wooden swords, which doctors as pacific gentlemen used to wear—are not common now.
- Hughes-Buller** (R.) Notes on some tribes of Baluchistan. (Ibid., 119.) The tribes mentioned are Afghans (whose old home is on the slopes of the Takht-e-Suleman), Baluch, Bruhais, Jats and Jäts (one camelmen, the other cultivators), Loris of two kinds, Méds, etc. The author observes that he has recently obtained "a copy of the book on which the religion of the Dakis or Zikris is founded."
- Leder** (H.) Ueber den Buddhismus in Tibet. (Stzgb. d. Anthr. Ges. in Wien, 1903, 95-98.) Treats of origin and development of Buddhism in Tibet,—ninetieths of all modern Buddhists have had their religion more or less shaped for them in Tibet, particularly by the monk Tsonkhapa (XVI. century). The spread of Buddhism in China is considered. There priesthood, temple and sculpture go back to Buddhistic influences.
- Müller** (F. W. K.) Ethnologische Objekte aus Japan. (Z. f. Ethn., Berlin, 1904, XXXVI, 144-145.) Lists, with brief descriptions, 26 objects (images, pottery, models of boats, ornaments, stone implements, etc.) presented to the Berlin Museum für Völkerkunde, and four others purchased.
- Myres** (J. L.) An archaic bronze tripod from southern Persia. (Man, Lond., 1903, 39-40, 1 fig.) Describes a specimen, "reminiscent of the bronze age technique," and post-Achaemenid in origin through bearing traces of pre-Achaemenid symbolism.
- Oppert** (G.) Buddha und die Frauen. (Globus, Brnshwg., 1904, LXXXIV, 357-358.) Critical résumé of M. Schreiber's *Buddha und die Frauen* (Tübingen, 1903). In order to reach the dignity of a Buddha, woman, a lower being, must be born again as a man. Buddhism has a lower ideal of woman by far than the Old Testament.
- Quick** (R.) Diya-holmana, or Singhalese hydraulic scare crow. (Man, Lond., 1903, 136-137, 2 figs.) Describes briefly an ingenious and effective hydraulic noise-making scare crow from Kandy, Ceylon.
- Read** (C. H.) Note on a collection of gold objects found in Sarawak, in the possession of His Highness the Rajah of Sarawak. (Man, Lond., 1903, 4-6, 8 figs.) Describes briefly inscribed and uninscribed finger-rings, ear ornaments,

neck-chain, penannular rings, pendants, beads, etc. Most of these objects are of Javanese origin.

Redlich (R.) Vom Drachen zu Babel. (Globus, Brunschwg., 1903, LXXXIV, 364-371, 384-388, 6 figs.) Treats of the Babylonian Zodiac with which is connected the ancient Greek astrology, the dragon and his eleven helpers, the pandemonium of hell, orient and occident, death and redemption. The dragon of Istator is the primeval water snake Tiamat, and represents the changing year, its relation to Mithraism and Christianity is briefly discussed.

von Rosthorn (A.) Ueber südchinesische Bronzeplatten. (Stzgb. d. Anthr. Ges. in Wien, 1903, 107-110.) Résumés the studies of Hsie Ch'i-k'un, who in his *Yue-hi chin, shih-lie* (1801), treated of the bronze kettle-drums of the province of Kwangsi of which he was governor. Kwangsi and Yunnan are to be looked upon (with de Groot) as the home of these drums. See *van Houtwell* (Indonesia), *Foy* (Asia), *Schmelto* (Indonesia).

White (G. E.) The cavate dwellings of Cappadocia. (Rec. of Past, Wash., 1904, III, 67-73, 7 figs.) These cavate dwellings "represent the Christian religion, the Greek language and the Byzantine government." Some may have been in their beginning primitive, but most of them seem to have been completed and occupied by the early monks of the orthodox Eastern Church. The frescoes represent Bible and other religious scenes. Many forms of the cross occur. The position of the thumb in figures making the sign of the cross also varies.

Winter (A. C.) Die Mondmythe der Jakuten. (Globus, Brunschwg., 1903, LXXXIV, 383-384.) Gives, after Owtschinnikow, the (German) texts of two brief myths (one an amplification of the other) of the metamorphosis of an orphan maiden into the maiden in the moon from the Yakuts. Any one can see her with her shoulder-yoke and pails of water.

INDONESIA, AUSTRALASIA, POLYNESIA, ETC.

Alsberg (M.) Die ältesten Spuren des Menschen in Australien. (Ibid., 1904, LXXXV, 108-112, 1 fig.) The author

discusses the Warrambool stone with human (?) impress, the artefacts of Buninyong, the human teeth of the Welling-ton Caves (N. S. W.), etc., considering the last "indubitable evidence for the existence of man in Australia, either during the later Tertiary or during the transition between that period and the diluvium." The Warrambool stone may also be genuine. Dr Alsberg also thinks possible the existence in the 17th century even of a dwarf race ("Mullas") in Australia.

Balfour (H.) On the method employed by the natives of N. W. Australia in the manufacture of glass spear-heads. (Man, Lond., 1903, 65, 1 pl.) Describes use of water-worn pebble and piece of bone in breaking off and flaking glass (from bottles, telegraph insulators, etc.) by Australian natives. There is a striking contrast between the simplicity of the tools and the effectiveness of the results.

Breitenstein (H.) Die Malaier auf Sumatra. (Stzgb. d. Anthr. Ges. in Wien, 1903, 114-123.) Treats briefly of the Malays in general (physical characters, feelings and their expression, animism and Islam, clothing and ornament, *sirik*-chewing, weapons, dwellings) and in particular the Malays of Menangkabau, the Achinese, the Battak, the Lampongs, the Nias, Enganese, etc. The Menangkabau Malays call Alexander the Great, Iskander Drul Karnasem, their progenitor. Under their official Islam lies the old heathen animism. The coast Achinese have mixed their blood much with the Dutch. Their metal art is noteworthy; also their oral poetry. The culture of the Battaks is relatively high. The Lampongs seem more kin to the Sandanese.

Codrington (R. H.) On the stability of unwritten languages. (Man, Lond., 1903, 25-26.) From comparison of the Spanish data of 1567 concerning the languages of the natives of the Solomon islands and the missionary data of 1863-1871, the author concludes that "so far, then, as a short vocabulary is a test, it is plain that the Solomon Islands' languages have not undergone much change in 300 years." The present distribution of the dialects confirms this view.

Doherty (D. H.) Paper on the conditions in the Philippines. (58th Congr., 2d Sess. Senate Doc. No. 170, pp. 1-

- 20.) Gives results of three months' travel and study in the Philippines. Treats of economic, education, religion, race, character, capability, aspirations, public morality, administration of law, political problem. Author concludes that, while the Filipino possesses faults and vices, "he averages up, if not as high as the Anglo-Saxon, at least as high as the majority of civilized races." Practically all the Filipinos desire independence, and a formal statement by the United States is needed.
- Edge-Partington (J.)** Notes on the weapons of the Dalleburia tribe, Queensland, lately presented to the British Museum by Mr Robert Christison. (*Man*, Lond., 1903, 37-38.) Describes wooden clubs, spears, woomera, boomerangs, stone tomahawks and daggers. In close conflict "a black fought with a *bidboo* (stone dagger) in each hand with a reserve one between his teeth."
- Maori scroll-patterns. (*Ibid.*, 40-41.) Résumés article by E. Tregear in the *Journal of the Polynesian Society*, vol. x., on the origin of these patterns from a lizard-form.
- Food trough from Rubiana, New Georgia. (*Ibid.*, 161-162, 1 pl.) Describes carved wooden food trough from the head-hunters of the Rubiana lagoon. Used for cannibal feasts.
- A New Zealand flageolet. (*Ibid.*, 186, 1 fig.) Describes briefly a *putorino*, or Maori wooden flute, now of rare occurrence.
- Finsch (O.)** Papua-Töpferei. Aus dem Wiegenalter der Keramik. (*Globus*, Brnschw., 1903, LXXXIV, 329-334, 5 figs.) Describes raw material, treatment, various stages of manufacture (water-pots, cooking vessels, etc.), firing, ornamentation (with bamboo stick), trade, at the emporiums of Port Moresby and Tschas in New Guinea. Pottery is here woman's work and the pottery trade demands peace for a time at least. The author holds that the prehistoric pottery of Europe was made by women.
- Hazen (G. A. J.)** Eine "wajangbeber" Vorstellung in Jogjakarta. (*Int. A. f. Ethnogr.*, Leiden, 1903, XVII, 128-135, 2 pl.) Brief account of a representation, in September, 1902, at Jogjakarta, in Java, of the only *wajang beber*, or picture-play current in that region—the illustrations are photographic. The *wajang beber* was once well known over all Java, but for more than a century it has been subordinate to other *wajang*. In this distant corner of Jogjakarta the *wajang beber* has been preserved in an ancient and primitive form.
- van Hoëvell (Baron G. W. W. C.)** Mitteilungen über die Kesseltrommel zu Bontobangun, Insel Saleyer. (*Ibid.*, 155-157, 2 pl., 2 figs.) New description of the kettle-drum dug up on the island of Saleyer in 1861,—the surface has a 16-rayed not a 24-rayed star. These drums are probably of Annamese or south Chinese origin. See *Schmeltz*.
- Kerplus (Dr.)** Ueber ein Australiergehirn nebst Bemerkungen über einige Negergehirn. (Oberst. Arbeiten, IX, 18 ff.) Description of brain of Australian aborigine (weight, est., 1368 gr.). Only departure from normal type of convolution in right occipital. Author thinks brain approaches simian type.
- Krämer (A.)** Wechselbeziehungen ethnographischer und geographischer Forschung, nebst einigen Bemerkungen zur Kartographie der Südsee. (*Globus*, Brnschw., 1903, LXXXIV, 362-364.) Replies to criticisms of his recent work *Die Samoainseln*. Notes importance of knowledge of situations of native villages, their names (Stieler's atlas has many incorrect), tribal appellations, etc.
- Mathews (R. H.)** Das Kilmalinggeri, eine Eingeborenensprache von Neu-Süd-Wales. (*Mitt. d. Anthr. Ges. in Wien*, 1903, XXXIII, 321-328.) Phonetics, grammatical sketch, vocabulary of 300 words. The Kilmalinggeri possess important and imposing initiation ceremonies and a secret language in connection therewith.
- Language, organization and initiation ceremonies of the Kogai tribes, Queensland. (*Z. f. Ethn.*, Berlin, 1904, XXXVI, 28-39.) Grammatical sketch, vocabulary of 335 words, with brief notes on mystic language taught novitiates in the bush, phratry, and *bara* or puberty ceremony.
- Myres (J. L.)** On an ornament of unknown use and a quartzite knife from Moreton bay, Queensland. (*Man*, Lond., 1903, 33, 1 pl.) The ornament, probably a charm, consists of eight small skin bags, possibly *scraps* of animals.

Rascher (M.) Eine Reise quer durch die Gazelle-Halbinsel, Neupommern. (Globus, Brunschwig, 1904, LXXXV, 136-140.) Contains notes on the south-eastern Bainings, a people with a great wanderlust.

Reed (W. A.) The Negritos of the Philippines. (So. Wkman., Hampton, 1904, XXIII, 272-279, 5 figs.) Brief account of names, physical characters, clothing and ornament, fire-making (by rubbing sticks, in less than a minute), weapons, food, agriculture (in Zambales), hunting, sickness, marriage (polygamy permitted), music and dancing. The number of Negritos is "probably 20,000," the most of whom are in Luzon. They do not bathe (it would "make them more susceptible to cold") and suffer from skin diseases. They smoke with the lighted end of the cigar in the mouth. Spirits are "appeased." Their morals are better than those of the Filipinos.

Schmeltz (J. D. E.) Einige vergleichende Bemerkungen über die Kesseltrommel von Saleyer. (Int. A. f. Ethnogr., Leiden, 1903, XVI, 158-161.) Discussion and comparison of Heger's, Ribbe's and van Hoëvell's accounts and descriptions, drawings, and plates of the Saleyer drum. Some points about the ornamentation, age, etc., of this relic are still doubtful. See *van Hoëvell*.

Seidel (H.) Palau und die Karolinen auf den deutschen Admiralitätskarten von 1903. (Globus, Brunschwig, 1904, LXXXV, 11-15.) Critique of the latest German admiralty maps of the Pelew and Caroline islands.

Thilenius (G.) Dr A. Krämer's Werk "Die Samoa-Inseln." (Ibid., 53-59, 6 figs.) Résumés the ethnological contents (physical characters, clothing and ornament, birth, childhood, puberty, daily life, industries, cultivation, medicine, dwellings, boat-building, colors and dyes, song and dance, war, etc.) of Krämer's *Die Samoa-Inseln* (Stuttgart, 2 vols., 1902-1903), a very valuable and interesting work. The political constitution of Samoa, Dr Krämer thinks, is rather recent, i. e., about 500 years old. A unity of Samoan mythology exists.

AMERICA

Ambrosetti (J. B.) Antigüedad del Nuevo Mundo. (Rev. de Der., Hist. y

Letr., Buenos Aires, 1903, extr., pp. 1-16.) Critique of Dr Latouche-Treville's article *L'Antiquité du Nouveau Monde L'Amérique avant Colomb*, published in the *Ancienne Revue des Revues*, vol. XLIV. Dr Ambrosetti résumés American ethnological and archeological investigations from 1836 to the present time to show the injustice of Dr Latouche-Treville's statements and his very limited knowledge of his subject.

— Cabeza humana preparada según el procedimiento de los Indios Jivaros, del Ecuador. (An. d. Mus. Nac. de Buenos Aires, 1903, IX, 519-523, 1 pl.) Describes the head of a *chino*, a Christian peon, not a trophy of war, but prepared by the Jivaros, after their ancient manner of preservation, for commercial purposes. The zeal of collectors had stimulated this traffic. In the Museo de la Plata there are two fine specimens of Indian heads treated in the Jivaro fashion.

Bandelier (A. F.) On the relative antiquity of ancient Peruvian burials. (Bull. Am. Mus. Nat. Hist., N. Y., 1904, XX, 217-226.) From documentary and archeological evidence, etc., the author shows that long after the coming of the Spaniards the Indians not only buried their dead, as often as they could, according to primitive custom, but exhumed and reburied in like manner those of their fellows who had been buried with Christian rites. As late as the middle of the seventeenth century the cloth over the bodies and the vessels buried with them were periodically renewed. Artificial deformation of skulls continued almost as long. Hence many burials that seem so are not really pre-conquistatorial, though the manner of burial is.

Baum (H. M.) Pending legislation for the protection of antiquities on the public domain. (Rec. of Past, Wash., 1904, III, 99-116, 143-154, 3 figs.) Gives copy of H. R. Bill 13349, 58th Congress, 2d session, with expressions of opinion from educational and scientific institutions, learned societies, etc. Also account of proceedings in Congress.

Breton (Adele C.) Some Mexican portrait clay figures. (Man, Lond., 1903, 130-131, 6 figs.) Describes mound near Eratzlan (Jalisco) and the clay figures and other objects found therein. These

portrait-figures seem to have been placed round a tumulus, "probably representing members of the deceased's household."

Bushnell (D. I.) The Cahokia and surrounding mound groups. (Papers Peab. Mus., Cambridge, 1904, III, 1-20, 5 pl., map, 7 figs.) Author's description and illustrations are intended to show the mounds as they were in pre-European times and as they are now. The Cahokia mound is "the largest prehistoric monument of the Mississippi valley." The mounds in Forest Park, St. Louis, and a group near Long Lake, Illinois, also described. A catlinite pipe from a mound near Cahokia, obtained in 1879, is a very interesting specimen. The Cahokia and Tamaroa Indians inhabited part of this region, but it cannot be said that these mounds were their work.

Doraey (G. A.) Traditions of the Osage. (Field Col. Mus., Anthr. Ser., Chicago, 1904, VII, 1-60.) Gives English texts (with abstracts) of forty animal tales, hero-legends and other stories, obtained by the author in 1901-1903 from the Osage of N. E. Oklahoma. The chief figures are buffalo, rabbit, wolf, skunk, raccoon, turtle, mountain-lion, grasshopper, etc. The boy-hero also appears. Other figures are the rolling head, the water baby, the old woman. The story of "the rabbit and the picture" is a variant of the "tar baby" type. In another tale a black man is being washed white.

Duty (The) of the United States government to investigate the ethnology and archeology of the aboriginal American races. (Rec. of Past, Wash., 1904, III, 19-28.) Treats of work of Bureau of American Ethnology, past and prospective, and the labors of Major Powell.

Fewkes (J. W.) A cluster of Arizona ruins which should be preserved. (Ibid., 3-10, 14 figs.) Describes the Pueblo ruins near the black falls on Little Colorado river, of Hopi origin. See *American Anthropologist*, N. S. vol. II, 1900.

Flom (G. F.) The gender of English loan-nouns in Norse dialects in America: a contribution to the study of the development of grammatical gender. (J. Engl. & Germ. Philol., Bloomington, Ind., 1903, V, repr., pp. 1-31.) Discusses theories of origin of grammatical gender

(author accepts the pronominal theory of Wheeler) and particularly the gender of 475 English loan-nouns in the Norse dialects as spoken and written in America, and the causes which have brought about the preponderance of masculines. Dr. Flom thinks that the Jutish dialect of Danish and modern English illustrate the origin and method of denoting gender in the demonstrative pronoun alone.

Förstemann (E.) Ueber die Lage der Ahaus bei den Mayas. (Z. f. Ethn., Berlin, 1904, XXXVI, 138-141.) Agrees with Seler as to equivalence of Ahaus and Katun, but doubts whether such equivalence holds for all time and for the whole Maya region.

Gibbs (M.) Prehistoric hammers of Michigan. (Atl. Slope Nat., Narberth, Pa., 1903, 1, 34.) Notes that "sledges," while common north of the 46th parallel, are absent from many sections of southern Michigan.

Hall (R. D.) Boys: Indian and White. (So. Wkcn., Hampton, 1903, XXIII, 269-272.) Indian boy is more tractable, fears authority and "outsiders" more, has stronger propensity to imitate, is a close observer, more susceptible to influences of his environment, has absolute confidence in those in authority (hence jokes are dangerous), does not so easily submit to control, has greater aversion to force, is rather wilful than obstinate, lacks determination, has much stronger imagination and less intellectual capacity, is fonder of narcotics, less given to secret vices, more gregarious.

Hamy (E. T.) Les voyages du naturaliste Ch. Alex. Lesueur dans l'Amérique du Nord, 1815-1837. (J. de la Soc. d. Amér. de Paris, 1904, V, 1-111, 17 pl., 14 figs.) This well-edited account, with bibliography, of Lesueur's travels contains notes on mounds at New Harmony (65-68), the bone-banks of the Wabash (74-76), etc.

Hauthal (Hr) Die Bedeutung der Funde in der Grypotheriumhöhle bei Ultima Esperanza (Südwestpatagonien) in anthropologischer Beziehung. (Z. f. Ethn., Berlin, 1904, XXXVI, 119-134.) Author describes the cave and his investigations, discusses the views of Nordenskiöld, Nehring, etc., and expresses the opinion that the deposit of excreta and the deposit containing human relics occurred

contemporaneously. All the data point, he thinks, to long-continued contemporaneous dwelling of man and the glyptotherium in this cave—the animal in a semi-domesticated condition, perhaps. An interesting discussion followed this paper.

Hepner (H. E.) The Huichol Indians of Mexico. (So. Wkman., Hampton, 1904, xxiii, 280-286, 5 figs.) Based on Lumholtz's works. Notes on habitat, physical characters, dress and ornament, agriculture, "rain making," mythology, ceremonies, hunting.

Herrmann (W.) Auftreten des Mongolenflecks bei den Maya-Indianern. (Z. f. Ethn., Berlin, 1904, xxxvi, 137.) Brief notice of Starr's discovery. See *American Anthropologist*, 1903, N. S., v, 578.

von Ihering (H.) El hombre prehistórico del Brasil. (Historia, Buenos Aires, 1903, repr., pp. 1-12, 1 pl.) Treats of man of the caverns of Minas Gerais and of the *sambaquis*—of the physical anthropology of the mound-builders of the island of Marajó nothing is known. The crania of Lagoa Santa are like those of the modern Botocudos. The cranium of the *sambaquis* of Cidreira, which Koseritz described in 1874, belongs to the same race. Dr von Ihering holds that in southern Brazil, in prehistoric times, as today, both brachycephalic and dolichocephalic types were represented. In *The Anthropology of the State of S. Paulo, Brazil* (S. Paulo, 1904, pp. 22), written for the St. Louis Exposition, Dr von Ihering treats briefly of the existing tribes (Guaranis, Cayuás, Caingangs, Chavantes), historical traditions, archeology, etc. In the prehistoric period there "already existed in the south of Brazil, two families of Indians, whose descendants are even now found in the country." The author believes in the contemporaneity of man and the extinct mammals of Lagoa Santa.

Joyce T. A.) On a silver vase from an ancient Peruvian burial ground, now in the British Museum. (Man, Lond., 1903, 99-100, 1 fig.) Brief description of human head vase from a Peruvian burial ground, "brought from the Pacific by Capt. Henry Byam-Martin, 1848." Squier mentions this type of vase and another specimen is in the Trocadero Museum, Paris.

— Two ancient stone masks from Mexico. (Ibid., 113-114, 1 pl.) Brief notes on a mask belonging to the Christy collection and another also in the British Museum. The first is probably from Oaxaca, the other from some Mixtec locality.

ten Kate (H.) Neueste Publikationen von R. Lehmann-Nitsche. (Globus, Brn-schw., 1904, lxxxv, 96.) Résumés articles on *Tipos de cráneos y cráneos de razas* and *Hallazgos antropológicos de la caverna Markatsch Aiken*. See *American Anthropologist*, 1904, N. S., vi, 185-188.

Krebs (W.) Das Deutschtum in den Vereinigten Staaten von Nordamerika. (Ibid., 143-144.) Résumés a recent work by Professor Julius Goebel, on the Germans and German influence in the United States.

Kroeber (A. L.) The Arapaho. III. Ceremonial organization. (Bull. Am. Mus. Nat. Hist., N. Y., 1904, xviii, 151-230, 5 pl., 25 figs.) This valuable monograph describes, from personal observation, the *háyoo-wu* of the Arapaho, which "consists of a form of the widely spread sun-dance and of a series of men's ceremonies graded by age, and a single but analogous ceremony for women." The sun dance and the age-ceremonies have fundamental differences as well as certain similarities of detail. Membership is limited only by age, and the basis of organization is tribal, not supernatural. The old war-life of the plains is reflected in these ceremonies.

Little (C. J.) The Chickasawba mound, Mississippi valley. (Rec. of Past, Wash., 1904, iii, 117-122, 4 figs.) Brief description of mound on Pemiscot bayou, Arkansas, and contents (graves, skeletons, pottery, images, pipes, pieces of shell, cooking vessels, water jars, etc.). No implements of war, except two buckhorn spearpoints, were discovered. Some of the objects have pictographs on them. The skulls are "extremely large," with flat frontal bones.

Lloyd (J. U.) When did the American mammoth and mastodon become extinct? (Ibid., 43-46.) Author was reared close to the celebrated Kentucky Big Bone Springs valley and argues for the credibility of the Indian legend "about that section of Kentucky, a short time

before the white man entered the land, a herd of those mighty beasts was to be found."

Mills (W. C.) Explorations of the Gartner mound and village site. (Ohio Arch. & Hist. Quart., 1904, XIII, repr. 65 pp., 70 figs.) Detailed account of the exploration of an important mound and village site in Ross county, Ohio, and the remains (skeletons, animal bones, refuse heaps of ashes and bivalves, stone and bone implements, shell and bone ornaments, pottery, etc.). Evidences of cremation and food-cooking are thought to be present. A good article. See *American Anthropologist*, 1904, N. S. VI, 341-342.

Muller (H. P. N.) The Mitla ruins and the Mexican natives. (Hand. v. d. Nederl. Anthr. Ver., Den Haag, 1904, I, 14-25, 3 figs.) Treats of the four groups of ruins, which the author attributes to the Mayas, "who have given the peculiar civilization by means of the Zapotecs to the Aztecs and the other Nahuatl tribes." The stone heads of serpents, animals, human beings, etc., are perhaps Nahuatl. Dr Muller was impressed by "the occurrence of strong Japanese and Egyptian types (physical)" in northern and central Mexico, and also by the resemblance of figures in drawings and sculptures of natives in the whole of Mexico to Buddha-ornaments in southern and eastern Asia.

Peabody (C.) Exploration of mounds, Coahoma county, Mississippi. (Papers Peab. Mus. Amer. Arch. and Eth., Cambridge, 1904, III, 23-63, 17 pl., tables.) Treats of Dorr mound, Edwards mound (158 burials), etc., objects found.—the human bones are considered by Dr W. C. Farabee on pp. 52-54. The skulls seem to resemble those from the burial mounds in the St Francis river region of Arkansas, especially in artificial deformation. Both full-length and "bundle" burials occurred. Some of the pottery decorations suggest Mycenaean and the animal forms are interesting. Chipped and polished stone implements, bone articles, beads of several sorts, etc., were found. The finding of the turquoise pendant in the Dorr mound suggests trade relations (through the white man in early times) with the Pueblos. The presence in the Edwards mound of beads of glass and brass, a

brass bell and other brass objects, indicate white contact. This is "a typical Indian mound of a later period placed within a typical village site." The surface finds are rich. The greater number of "bundle" burials are below "critical level," most of the pottery and manufactured articles above it. There is a paucity of worked shell. These mounds date probably from after 1541.

— Notes on Negro music. (So. Wkman., Hampton, 1904, XXXII, 305-309.) Reprinted from the *Journal of American Folk-Lore*.

Philippi (R. A.) Ueber die Nationalität der Südamerikaner, besonders der Chilenen. (Globus, Brunschwig, 1904, LXXXV, 126.) The northern part of Chile, during the Inca conquest, saw much intermingling of races. The handful of Spaniards who entered Chile with Almagro and Valdivia had but one woman with them. Among the officers of Valdivia was a German, named Lisperger. He married a cacique's daughter and it was said every family of prominence in Santiago had old Tala-gante's blood in its veins. This intermingling is still going on. Full blood Indians are becoming rarer and rarer and exist only in the interior.

Rotzcl (W. E.) The smoking of red-willow bark by the American aborigines. (Atl. Slope Nat., Narberth, Pa., 1903, I, 34-35.) Cites evidence of J. A. Loring, J. R. Barton, and Dr R. W. Shufeldt, to show that American Indians (Crees, Stonies, Chippewa, Sioux) have smoked or do now smoke red-willow bark. See *American Anthropologist*, 1903, N. S., V, p. 170.

Simms (S. C.) Traditions of the Crows. (Field Col. Mus., Anthropol. Ser., 1903, II, 277-324.) Gives English versions of origin myth, 15 stories of "old man Coyote," 10 other legends (with abstracts of all), collected in 1902 from the Absarokee Indians of Montana. The origin myth has the Algonquian diving episode. Many of the animal myths are of the Rocky Mountains cycle; some of considerable interest for the comparative folklorist. See *Am. Anthropologist*, this number, under Book Reviews.

Smith (H. I.) A costumed human figure from Tumpico, Washington. (Bull. Am. Mus. Nat. Hist., N. Y., 1904, XX,

195-203, 3 pl., 3 figs.) Describes a remarkable object found in a child's grave, antedating the advent of the whites in this part of the country. The figure, carved on a piece of antler, presents in dress and ornamentation some resemblances to those of the Plains tribes as well as to paintings by Indians of the Yakima valley, antler fragments from Umatilla, a Dakota quill-flattener, etc.

— Shell-heaps of the Lower Fraser river, British Columbia. (Rec. of Past, Wash., 1904, III, 79-90, 5 figs.) Résumé from the author's monograph, *Shell-Heaps of the Lower Fraser River*, published by the American Museum of Natural History in 1903.

Spender (H. F.) The education of the Indians of Canada. (J. African. Soc., Lond., 1903, 425-432.) General dis-

cussion based on visit to Manitoba, with critique of Government policy. Advocates the "scattered home" system in place of the "barrack-schools," and state-control of all schools.

Voth (H. R.) The Oraibi Oáqóí ceremony. (Field Col. Mus., Anthr. Ser., 1903, VI, 1-46, 28 pl.) Well illustrated account of the nine-day ceremony of the Oáqóí, one of the three women's fraternities of Oraibi, the youngest and largest religious order in that pueblo, and of the preliminary rites. The native texts of many songs are given. The Oáqóí is celebrated every odd year (the last in 1903). The first day is of unusual importance. Any worry, sorrow, or anger disqualifies a Hopi, as a rule, from participating in a ceremony, and contentions and quarrels interfere with its efficacy.

ANTHROPOLOGIC MISCELLANEA

Anthropology and Education. — As a student and teacher of education, the writer has often been impressed by the extreme difficulty of making accessible to elementary students the data of anthropology necessary to the scientific study of education. Educational philosophy postulates a theory of cultural development in the race which is epitomized in the life-history of the individual, and on this establishes a system of practice, drawing largely on primitive culture for material for instruction and basing the course of study in the elementary school on the theory of cultural evolution.

Now, it would appear that the students of pedagogy stand ready to determine the limitations of the data of anthropology in the service of education and to make the wisest possible application thereof in educational practice. The National Society for the Scientific Study of Education was organized a few years ago. The writer, who was among the first to seek the benefits of membership in this organization, inferred the movement to be a declaration that students of education proposed to apply the methods of science to the investigation of pedagogical problems, to institute a closer study of the data of the sciences on which a science of education must be founded, in their relation to pedagogy, and to encourage scientific accuracy in the use of material furnished by the sciences in educational theory and practice. The papers brought forth by this movement have been an important contribution to the literature of pedagogy. Every student of education acknowledges their value. It may be questioned whether or not the assumption of the writer relative to the purpose of the Society was correct, for an examination of the titles presented before the Society up to date does not disclose any line of investigation undertaken which would not properly come within the domain of some previously existing department of the National Educational Association. This must not be interpreted as a criticism of the National Society for the Scientific Study of Education. It has moved along its line of least resistance. It cannot enter the province of a contributory science for original research, nor create a literature therein. It can only utilize the accepted data of such sciences in the scientific investigation of educational problems.

Now, it seems to me that scientific pedagogy must derive a more im-

portant mass of its data from the science of man than from any other, particularly from that side which we call culture history. To culture history we must go for the verification of a great body of educational theory; but an examination of a number of much-used text-books on pedagogy, produced in recent years, will hardly convince anthropologists that the data of anthropology are being correctly stated or correctly applied in pedagogy. And to primitive culture we must go for a vast amount of the material for instruction used in elementary education. Teachers are drawing continually on culture history for this material, but an examination of the matter selected, as embodied in many elementary books used in the public schools, will convince anthropologists that it is not their best nor most authentic material which is finding its way into the public schools.

The difficulty seems to lie in the existing state of anthropological science. It would be difficult to find ten anthropologists who would agree on what anthropology is on close definition. There is pressing need for a text-book on anthropology. This branch of science does not possess in its literature any great, up-to-date text-book. Some one must do for anthropology what Dana did for geology, James for psychology, Giddings for sociology.

Again, there is need for some great treasury of culture history. The student of education who is in need of facts and criticisms in Greek sculpture or ceramics, finds in Furtwängler or Overbeck great authoritative treatises. It would be a great service to education if the treasures of primitive American arts and industries, archeology, mythology, and folklore were made equally accessible, and by the same profound, critical study made available for the use of students from other fields.

In short, anthropology should enrich the course of study of every public school in the land, and the greatest line of progress now open to the science is in this direction. To this end the science needs closer definition by the masters, and its literature must be brought to a state that will place it in closer relations with education, through the schools of pedagogy, normal schools, and teachers' institutes. A joint meeting of the two national societies during the session of the American Association for the Advancement of Science might contribute to the progress of both.

EDGAR L. HEWETT.

Archeological Institute of America.—At a meeting of the Council of the Archæological Institute of America, held May 14, in New York City, the following action of interest to American archeologists was taken :

(1) A committee was created on the preservation of the remains of Indian antiquity. This committee is expected to have at least one member from each society of the Institute. The President and the Secretary of the Institute will be the chairman and the secretary of this committee. (2) The Committee on American Archeology was requested to consider and report on an enlargement of its membership, in view of the probable extension of its work, and to recommend some enterprise in its field to the council at its next meeting. (3) The chairman of the Committee on American Archeology (Mr C. P. Bowditch) was made a member *ex officio* of the executive committee. (4) The affiliated societies in the West were urged to take an active part in devising and obtaining the adoption of measures for the preservation of ancient monuments. (5) The sum of \$300 was placed at the disposal of the chairman of the Committee on American Archeology for his use in procuring information with regard to the remains of Indian antiquity.

The following officers of the Institute were elected: President, Professor Seymour; Vice Presidents, Mr C. P. Bowditch, President D. C. Gilman, Mr Edward Robinson, Professor F. B. Tarbell, and President B. I. Wheeler. Professor Mitchell Carroll was elected a member of the Executive Committee, to serve for three years.

Dr Uhle's Researches in Peru.—Reports have been received from Dr Max Uhle, who sailed last November for Peru to carry on archeological explorations for the Department of Anthropology of the University of California through the generosity of Mrs Phoebe A. Hearst, and has since then excavated at the famous site of Ancon, near Lima. On his previous two years' trip for the University, Dr Uhle's chief explorations were on the coast of northern and southern Peru, in the vicinity of Trujillo and of Ica. His present excavations at Ancon were mainly at three points within the "necropolis," and on a level slope to the south, behind the modern town of Ancon. The explorations were in continuation of his previous lines of archeological investigation in Peru, as summarized in a recent paper in the *American Anthropologist* (N. S., IV, 753-759). At a point near the northern end of the enclosure forming the necropolis, not far from the lime-kilns shown on the map of Reiss and Stübner, objects of a late date down to the beginning of the Inca period, the pottery being of the Chancay type, were found. Burials excavated in the eastern part of the enclosure were generally older, of what may be called the middle periods of Peruvian culture. Excavations in the southern part of the necropolis, in the vicinity of the present Indian fishing village and the hill with large mill-stones, brought to light finds of various

age, some of the burials, as shown by their continuation under and beyond deposits of a later age of considerable depth, and by the character of the objects in the graves, being of a very early period.

The soil of the evenly sloping hillsides south of and outside the necropolis, though giving no superficial indication of being other than a natural formation, was found for a considerable area to be a refuse deposit three or four yards deep. Two trenches of some length were dug in this deposit. No mummies were found, but in the lower depths there were a few skeletons. The quantity of artifacts was small; they revealed, however, a new type of culture, evident especially in the pottery. Not a single object showing the characteristics of the ware of this peculiar culture was found at any other spot at Ancon, nor, in fact, so far as known, anywhere in Peru; and to complement this circumstance, not a specimen with the characteristics of any of the various cultures represented in the necropolis occurred in these southern hillside deposits. The age of these deposits, unless their culture should hereafter be found in association with remains of a known period, can therefore be determined only by the apparent absolute age of the finds and by the internal evidence of the objects. The style of the remains, which Dr Uhle describes as showing a certain freedom and development toward artistic greatness, approaches in some respects that of the pottery characterizing the early or "golden" period of Ica established by him on his last Peruvian trip and of which his collections for the University of California contain abundant illustration. This Ica period Dr Uhle is inclined to regard as contemporaneous with the period of Tiahuanaco or antecedent to it. The newly found Ancon ware differs, however, from the early Ica ware in being ornamented by incision instead of by painting, and on the whole represents a very distinct culture which is almost certainly of considerable antiquity.

Dr Taguchi's Brain-weight.—In response to a further inquiry concerning the brain of the Japanese anatomist, Kazuyoski Taguchi, the following communication was received from K. Yamagawa, president of the Imperial University of Tokio:

"In reply to your favor of May 9th, 1904, I am sorry to say that the figure for the weight of brain in the last information, sent to you through Miss Gardener about the postmortem examination of the late Professor Taguchi, was found to be wrong. It seems to me that the weight of his brain was put down as 1,920 instead of 1,520, which is the right figure, by mistake when it was copied from the original record. I apologize," etc.

The corrected figure places Taguchi's brain in the thirtieth place among

those of men notable in the professions, arts, and sciences, instead of in the second place, as first reported. See *American Anthropologist*, N. S., vol. v, 1903, pp. 595-596; vol. vi, 1904, p. 366.

EDWARD ANTHONY SPITZKA.

Dr Walter Hough, of the United States National Museum, has recently returned from an exploring trip in New Mexico and Arizona, bringing with him a collection of ancient pueblo, cliff, and cave material gathered principally on upper San Francisco river. Dr Hough started from Socorro, New Mexico, and crossed the country to Holbrook, Arizona, a distance of about 280 miles, visiting ruins at Magdalena, Datil, the upper Tulerosa river, Old Fort Tulerosa reserve, and near Luna, in New Mexico, and on Blue river in Arizona. One of the objects of this two months' reconnoissance was to locate and trace the lines of north and south migration into the basin of the Little Colorado and to learn more of the forebears of the people who inhabited the now-ruined pueblos explored by Dr J. Walter Fewkes and the Museum-Gates Expedition within the Colorado drainage. Much was learned during the trip regarding the distribution of several cultures. Extensive excavations were made in a group of ruins seven miles from Luna, New Mexico, on the Spur Ranch of Montague Stevens, Esq. These ruins proved to be exceedingly interesting for the reason that they occupy the margin of a fertile, enclosed valley which was once the bottom of a lake, and because they represent a rude and perhaps indigenous culture fostered in this favorable enclave. There is evidence also that an earlier culture, characterized by large, semi-subterranean, circular houses, was supplanted by that of a people who built rectangular stone pueblos. Two of the deeper excavations yielded fragmentary human bones and unchipped flint flakes in apparently undisturbed gravel, and a more extended research in this locality may furnish results of value in the study of early man in America. Numerous plans of the ruins were drawn and a fair collection obtained. A group of cliff-houses on Rita Blanca yielded, on exploration, many specimens illustrating the domestic life of their former inhabitants. A large ceremonial cave was also investigated and many ancient offerings of extreme importance were collected therefrom.

Study of Megalithic Monuments. — The greater part of the discoveries made during many years among the megalithic monuments of Morbihan, France, have proved that, although already explored, these monuments still contain archeological treasures. The excavations in the tumulus of Saint-Michel show that it contains many monuments besides

the principal crypt. It is therefore probable that other crypts are contained in the numerous tumuli of the Carnac region, thus rendering their complete scientific exploration of high importance. A committee on excavations has been formed at Carnac for this purpose, under the distinguished direction of M. d'Ault du Mesnil, president of the Commission of Megalithic Monuments of France and of Algeria, to which all are invited to send an annual contribution. Signatures and subscriptions are received at the Musée James Miln, Carnac (Morbihan), or by M. d'Ault du Mesnil, 228, Rue du Faubourg Saint-Honoré, Paris.

Congenital Digital Malformation in Negroes. — Dr D. S. Lamb, for Dr H. M. Smith, recently read before the Anthropological Society of Washington a brief paper on congenital digital malformation in a family of Virginia negroes. The malformation extended through three generations and the affected persons showed no other anatomical peculiarities.

The father had but two phalanges on each finger of each hand; the thumbs were normal, the nature of the nails is said to have been the same as in the next case. There was no indication that a similar malformation occurred in his parents or other relatives.

Second Generation: This man had five children, the eldest of whom was the only one to show malformation, which was just like that of her father, the thumbs being normal. There was a small nail on each index finger, but none on the others. This woman had nine children, six girls and three boys, of whom the six elder ones were malformed, but the three younger children were not.

Third Generation: In this generation six persons were affected. First, a girl; both hands; one phalanx absent from each finger; terminal phalanx of ring fingers rudimentary; ends of fingers clubbed; thumbs normal; small nails on index and middle fingers. Second, a girl; both hands; one phalanx absent from each finger; terminal phalanx of ring, middle, and little fingers rudimentary; thumbs normal; small nail on each index finger. Third, a girl; both hands; one phalanx absent from each finger; right hand rudimentary; terminal phalanx of index and little finger; thumbs normal; small nails on index and middle fingers of each hand; on ring finger of left the nail was shaped like a carpet-tack; right index, and middle and left index, middle, and ring fingers abnormally broad. Fourth and fifth, boys, and sixth, a girl, had hands like the third case except for slight differences in the nails.

Fourth Generation: Thus far the children of the fourth generation do not show malformation of fingers.

Dr Smith personally verified the information herein given in three of the cases and received a written statement in regard to the remaining five.

In discussing the paper Dr Lamb mentioned, as bearing on the hereditary transmission of malformations, that he knew of a woman who had what dentists call "underhung jaw," that is, the lower front teeth projected in front of the upper front teeth, instead of the reverse, which is normal. This woman's parents, as well as all of her brothers and sisters, had the same malformation.

Peabody Museum Researches. — The report of the operations of the Peabody Museum of American Archaeology and Ethnology at Cambridge for the year 1902-03, submitted by its curator, Prof. F. W. Putnam, has recently been published. The report shows the usual increase in the collections of archeological and ethnological materials and in the facilities for displaying them, as well as in the usefulness of the Museum along the lines for which it was founded. Work in the field has been conducted by Mr Theobert Maler and Mr A. M. Tozzer in Central America and Mexico, Mr E. H. Thompson in Yucatan, Messrs M. R. Harrington and A. S. Parker in New York state, and Mr D. I. Bushnell Jr. in Missouri. The results of Mr Maler's latest explorations in Usumacinta valley were published, it will be recalled, in part III of volume II of the *Memoirs* of the Museum in 1903. Mr Thompson's archeological studies at Xul, Tzulá, and Chacmultun will be embodied in a report to be published by the Museum during the present year, accompanied with illustrations in color of several mural paintings. Mr Tozzer's researches have been in connection with the Maya-Quiche language as spoken by the Lacandones of Chiapas and the upper Usumacinta valley, whose dialect varies but slightly from that of the Mayas, while in their life and customs Mr Tozzer finds in the latter a striking instance of the effect of Spanish contact. Under the auspices of the Museum a grave, attributed to the Erie tribe, was explored by Messrs Harrington and Parker on the Cattaraugus reservation, New York, and several skeletons, a fine lot of pottery vessels, also characteristic pipes, stone and bone implements, ornaments, and many other objects were recovered. Some of the results of Mr Bushnell's excavations in Missouri were presented in a paper published in the last number of the *Anthropologist*. Professor Putnam acknowledges many gifts to the Museum during the year, and pays generous tribute to the work of the late Frank Russell and Howard B. Wilson, notices of whom appeared in these pages at the time of their unfortunate deaths.

Hopi Pottery Fired with Coal. — That the pottery of the Hopi Indians of Arizona, in prehistoric and probably early historic times, was fired by means of coal, has already been pointed out by Doctor Fewkes, who says: "There is evidence that the ancient people of Tusayan used coal for fuel, seams of which underlie their pueblos, but in course of time this substance has fallen into disuse, so that it is unknown as a fuel today. . . . This change probably took place at the introduction of sheep, whose dried droppings are now used in firing pottery." (Smithsonian Report for 1895, p. 580; see also p. 574.) The evidence to which Doctor Fewkes refers is doubtless the occurrence of cinder heaps on the rocky ledges about the East Mesa, especially below Walpi pueblo, which could scarcely have originated in any other way. To this may be added the testimony of the pottery itself, for the ancient ware is far better in quality than that made during more recent times, although we may assume that the same materials have always been available, and the same methods, save that of the firing, practiced. In further support of the evidence that coal was used as fuel by the Hopi, I wish to direct attention to a statement by Fray Agustin de Vetancurt, in his *Cronica de la Provincia del Santo Evangelio de Mexico*, 1697 (reprinted, Mexico, 1871, p. 321). Speaking of the mission of San Bernardino de Ahuatobi (Awatobi) among the Hopi, Fray Agustin says: "Hay piedra pomez en cantidad, y piedras que sirven de carbon; aunque el humo es nocivo por fuerte." ("There is pumice stone in quantity, and stones which serve for coal, but the smoke is noxious in its strength.") Bituminous coal is still found in quantity in the Hopi country, and steps have been taken in recent years to develop the deposits. It is reasonable to suppose that the Indians would soon have discovered its adaptability in pottery firing, especially as they had nothing, so far as known, before the coming of the Spaniards and the introduction of flocks and herds, that could have served their purpose so well.

It may be added that the use of coal by the Pueblos was apparently confined to pottery firing, and was not used for heating or for cooking. There was good reason for this. In pre-Spanish times the pueblo dwellings were not provided with chimneys, the hatchway in the roof serving the double purpose of entrance and smoke-hole, hence the use of coal, with its noxious fumes, would have been impracticable in such ill-ventilated houses, but could readily have been employed out-doors, where pottery is always fired. So far as I am aware, no coal ashes have ever been found in the fire-pits of pueblo dwellings.

It is interesting also to note that no Coal clan exists among any of

the Pueblo tribes, but Firewood clans are to be found among the Hopi, San Juan, Santa Clara, and San Ildefonso Indians, and the Hano people once had a Firewood clan also.

F. W. HODGE.

Professor Frederick Starr, of the University of Chicago, has wisely taken advantage of the facilities offered by the Louisiana Purchase Exposition at St. Louis, with its splendid ethnological collections and gatherings of primitive peoples, by forming a Louisiana Purchase Exposition class in ethnology. The work of the class began on September 1. Students in the University of Chicago, desirous of receiving credit for the course, presented their matriculation cards at the time of registering. Students from other institutions or outsiders, taking the course and passing the examination, will be given a certificate to that effect. For the full course the fee was \$12.00; for full work for one week, \$5.00; for the exercises of one day, \$1.00; for single exercises, 35 or 50 cents. Following is a calendar of the lectures, visits, and demonstrations:

CALENDAR OF 9:00 AND 10:00 O'CLOCK LECTURES AND 11:00 O'CLOCK VISITS AND DEMONSTRATIONS.

Sept.	9:00 a. m.	10:00 a. m.	11:00 a. m.
1	The Tribes of the N. W. Coast.	Social Organization; Totem Poles.	Kwakiutl and Clahoquaht.
2	Southern Athapascans.	The Study of Games.	Navaho and Apache.
3	The Pueblos of Today.	Religion of the Pueblos.	Pueblos; also Pimas and Maricopas.
5	The Cliff Dwellers.	Archeological Theories.	The Cliff Dwellers. (Pike.)
6	The Sioux and Relatives.	Sign Language and Gesturing.	The Indian Congress. (Pike.)
7	The Cocopas and Desert Tribes.	Bodily Modifications.	The Cocopa Settlement.
8	South American Indians.	The Origin of the American Indian.	The Patagonians.
9	The Eskimo.	Adaptation to Environment.	Eskimo Village. (Pike.)
10	Pygmy Problems.	Cannibalism.	Batwa and other Africans.
12	Ainu of Japan.	Physical Characters of Race.	Ainu Group.
13	The Negritos.	Fire-making.	The Negrito Village.
14	The Igorots.	Head-hunting and Kindred Customs.	The Igorot Village.
15	The Visayans and Tagala.	The Peoples of the Philippines.	The Visayan Village.
16	The Moros.	Music and Musical Instruments.	The Moro Villages.
17	The Japanese.	Art Industries.	Japanese Commission Grounds; Varied Industries Exhibit.
19	The Chinese.	The Evolution of Writing.	Varied Industries Exhibit.
20	The Aztecs of Ancient Mexico.	Native American Sculpture and Architecture.	U. S. National Museum Exhibit.
21	The Indians of Southern Mexico.	The Exposition's Department of Anthropology.	The Anthropological Building.

The Department of Anthropology of the University of California, instituted in 1901 in order to organize and coördinate the numerous archeological and ethnological researches supported in behalf of the University by Mrs Phoebe A. Hearst, is under the direction of an executive committee consisting of Prof. F. W. Putnam, chairman; Prof. J. C. Merriam, secretary; President Wheeler, and Mrs Hearst. The Department is devoted primarily to research and the formation of a museum. The courses of instruction which follow are offered chiefly as training for anthropologists; in addition, public lectures on anthropological subjects are given from time to time.

General Introduction to Anthropology: The Indians of California, Dr Kroeber. Athapascans of the Pacific Coast, Mr P. E. Goddard. Geological History of Man, Assistant Professor Merriam. North American Ethnology, Dr Kroeber. Experimental Phonetics, Mr Goddard. North American Languages, Dr Kroeber. North American Archeology, Dr Kroeber. The History of Art in Greece, Dr Emerson. Seminary Exercises in Classical Archeology, Dr Emerson. Advanced Work in Ethnology, Dr Kroeber. Advanced Work in Primitive Languages, Dr Kroeber.

Full information will be furnished prospective anthropologists and others on application to the Secretary of the Department at Berkeley, California.

MR VOLNEY W. FOSTER, of Chicago, who died suddenly in that city on August 15th, was a delegate from the United States to the International Conference of American Republics held at the City of Mexico in 1901-02. As hitherto announced in these pages, the Conference recommended the appointment of an International Archeological Commission, of which Mr Foster became a member on the part of the United States through appointment by the President, and later a representative on behalf of the government of Peru.

AT THE CAMBRIDGE MEETING of the British Association for the Advancement of Science, which adjourned August 24, the following grants were made for anthropological research: Age of stone circles, £40; Anthropometric investigations, £10; Excavations on Roman sites in Great Britain, £10; Excavations in Crete, £75 and unexpended balance; Anthropometry of native Egyptian troops, £10; Glastonbury lake village, balance in hand; Anthropological teaching, balance in hand.

DR FRIEDRICH RATZEL, professor of geography in the University of Leipzig, who died August 9th, will be remembered by students of Ameri-

can ethnology chiefly by his authorship of *Völkerkunde*, first published in 1885-88, revised and reprinted in 1894-95, and translated into English by A. J. Butler and published under the title *The History of Mankind* in 1896-98.

THE EIGHTEENTH SESSION of the Congress of the Archeological and Historical Federation of Belgium was held at Mons, July 30-August 6.

DR GEORG THILENIUS, professor of anthropology at Breslau, has been appointed director of the Hamburg Museum of Ethnology.

THE UNIVERSITY OF FREIBERG has conferred an honorary doctorate on the anthropologist, Otto Ammon of Karlsruhe.

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PREHISTORIC CULTURE OF CUBA

By J. WALTER FEWKES

INTRODUCTION

Although the early Spanish writers ascribed to Cuba a large aboriginal population, they recorded very little regarding racial differences of natives in different parts of the island. The majority, considering the inhabitants as homogeneous in culture, paid little attention to variations in language or to diversity in mode of life, while later authors, who are few in number, have added little to earlier accounts. Archeological investigations, to which we must now look for more light on this subject, have thus far been limited, and our museums are very poor in prehistoric Cuban objects. Few specimens are known to have been found in the province of Pinar del Rio, or the western end of the island, and local collectors are unanimous in saying that all the aboriginal objects they possess came from the eastern extremity. This limitation is significant, especially when we consider that Yucatan, where the natives attained high culture, is such a short distance from the western end of Cuba, and that it was from the Cubans that the Spaniards first heard of the highly developed Indians of Mexico. The present paper, based on studies and collections made during a brief visit to Cuba in 1904, suggests an explanation for this paucity of prehistoric objects and the limitation of the localities from which those known have been obtained.

A study of the available evidence, both documentary and archeological, shows that the aboriginal culture of Cuba differed in different parts of the island. Some of the inhabitants reached a

comparatively high degree of culture development, others were rude savages; the former had polished stone implements and knew how to make the fertile soil yield their food supply, but the latter were naked cave-dwellers who gathered for food roots or tropical fruits that grow spontaneously in the rich soil of the island. There were also fishermen, who subsisted on a natural supply of the products of the sea when their habitat made it possible; contact with people of higher culture had raised them somewhat above the dwellers in the mountains to whom they were related.

Columbus commented on the resemblance of the aborigines of Cuba to those of the Bahamas, regarding them the same in language and customs; but this supposed identification was true only in a very general way. The diary of the first voyage of the discoverer, as found in the writings of Las Casas, affords no direct evidence of a more primitive race in Cuba, although it suggests the theory that such a people existed.

Historians do not agree as to the first landfall of Columbus in Cuba, but no one doubts that it was somewhere on the northern shore of what is now Santiago province. At whatever point he landed, he found the natives living in houses, making use of hammocks of cotton and palm fibers, and possessing stone idols and carved wooden masks. Columbus learned from them of a ruler, whom he called king, of a country to the south, which was rich in gold. Nothing is said in his diary of the natives to the west of the landfall, but he sailed westward a few leagues along the northern shore without finding people worthy of special mention. Later, turning back, he rounded Cape Maysi and examined a section of the southern coast, but was not attracted farther toward the west. On this side of Cuba he again heard of the wealth of the Indians of the south. The implication is that the people of eastern Cuba knew the Haytians and recognized that their culture was superior to that of the western end of their own island. They held out no inducement to Columbus to extend his explorations westward, as we might suspect they would have done had there been a superior race in that end of the island.

The great Genoese returned to Cuba on his second voyage, and explored the entire southern shore. Bernaldez, to whom we owe

an account of this visit, scarcely mentions the Indians in this part of the island, although he describes the Jamaicans in some detail, regarding them a highly developed race. Many native fishermen were seen along the shore, but they were evidently lower in development than the Jamaicans, whose canoes (according to Bernaldez) were painted, better made, and more luxuriantly ornamented than those of the Cubans.

Numerous references might be quoted from the writings of those who followed Columbus, showing that the prehistoric customs and languages of the natives of the eastern and western ends of the island were not the same. In the judgment of many of the Spanish conquerors, among whom Diego Velazquez may especially be mentioned, the natives of Cuba were more susceptible to Christianity than the other West Indians, but they say that this docility was not true of all the Cubans, some being less tractable than others. The extreme western end of Cuba was said to have been inhabited by barbarous Indians similar to those living in Guacayarima,¹ the province at the western end of Hayti. The Spanish writers declare that these natives could not speak; by which is probably meant that their language was different from that of any other Indians of these islands. Bachiller y Morales says that the Guanahatebeyes (Guanacahibes), who lived in the interior of Cuba, were savages who did not treat with the other Indians. He adds that they lived in caves, which they left only to go fishing, and quotes from older writers² that there were other Indians called Zibüneyes, a tribe that included the inhabitants of the islands off the northern and southern coasts, called the Gardens of the King and Queen, who were enslaved by the other natives.

According to La Torre³ the Indians of Cuba form one of the natural groups of the Tainos and are generally known by the name Siboneyes. They inhabit, he says, the whole island and have the same customs, although in certain parts of Cuba there are backward tribes, as the Guanacabibes of Cape San Antonio. The

¹ A town on the island of Trinidad, where survivors of the Indians still live, is called Arima. There is another Trinidad village called Naparima.

² *Cuba Primitiva*, p. 280.

³ *Manual & Guía para los exámenes de los Maestros y Maestras*, p. 45.

original authority for these statements is found in the Muñoz Collection, and reads as follows:¹

"Lo mismo podrá hacerse con los indios de los Jardines del Rey é de la Reina, que son muchos islotes de indios que no suelen comer sino pescado solo. E éstos se les durá menos trabajo, pues no están acostumbrados sino á pescar, lo mismo se entiende para unos indios al Cabo de Cuba, los cuales son salvajes que en ninguna cosa tratan con los de la Isla, ni tienen casas, sino están en cuevas continuo, sino es cuando salen á pescar; Guanahatabeyes otros hay que se llaman Cibuneyes, que los indios de la misma Isla tienen por sirvientes é casi son así todos los de los jardines."

Diego Velazquez, the conqueror, wrote² to the King of Spain, in 1514, that there were two provinces in the western part of Cuba and that one of these was called Guaniquanico, the other Guanahatabibes. The latter was situated at the western extremity, where the natives lived as savages, having neither houses nor farms, subsisting on game captured in the mountains, or on turtles and fishes. Pedro Martir de Angleria says that the inhabitants of the Haytian province of Guacayarima, to which these Indians are said to have been allied, lived in caves and subsisted on forest fruits.

Gomara³ mentions the fact that the inhabitants of different parts of Cuba have different languages, and says that both men and women wear little clothing. He thus writes of a peculiar custom which they practised in their nuptials:

"Si el Novio es Cacique todos los Caciques combidados duermen con la Novia, primero que no el; si mercador, los mercaderes; i si labrador, el Señor o algun Sacerdote."

HISTORICAL

The earliest contribution to the archeology of Cuba we owe to Sr Andrés Poey, who in 1855 read before the American Ethnological Society a paper entitled "Cuban Antiquities: A Brief Description of some Relics Found in the Island of Cuba." Although Brinton⁴ says this paper was not published in English, Sr J. Q.

¹ Vol. LXV. See also Ferrer, *Naturalista y Civilización de Cuba*, vol. II, p. 142.

² *Documentos inéditos del Archivo de Indias*, vol. XI, pp. 224, 225.

³ *Historia*, chap. 51, p. 41.

⁴ *The Archeology of Cuba*, *American Archaeologist*, vol. 2, No. 10, October, 1898.



IDOL OF CORAL ROCK FROM CUEVA DE BORUGÁ, BARACOA, CUBA. (Santiago Museum.)

Garcia, in 1855, edited what he calls a Spanish translation of it in the fourth volume of his *Revista de la Habana*.

The figures accompanying this article include two stone images, a few clay heads copied from Charlevoix,¹ and a stone pestle taken from Walton.² The stone images are from Cuba, but the pestle and the clay heads came from Santo Domingo. The images more especially concern us in this article. One of these, called an idol, is made of a hard stone of reddish color, highly polished, with a head cut on one end. Poey believes it was originally covered with a varnish which has been worn off in exposed places. He is probably right in this conclusion, for remains of a resinous substance which once covered some of the three-pointed stone idols from Porto Rico still adhere to several specimens. This so-called idol has the general form of a celt, although it differs in details from the ceremonial celts which have thus far been described as from the West Indies. It is now in the Archeological Museum at Madrid. There is no doubt that the other image, described and figured both by Poey and Ferrer,³ is an idol. The former likens its attitude to that of a dog resting on his hind parts, the forelegs crossed over the abdominal region. This specimen is now in the University of Havana, to which institution it was presented by Ferrer.

The form of this idol is different from that of idols from Santo Domingo and Porto Rico, but its technique indicates an equally high development in stone working.

In a brief article of four pages, Brinton, "without aiming at completeness," gives a review of the labors and results of students of the archeology of Cuba. He calls attention to some of the contributions of Poey, Ferrer, Garcia, Pi y Margall, and others, and shows that the archeology of Cuba "has not been wholly neglected by intelligent Cubans, although it is true that there has been little

¹ *L'Histoire de l'Île Espagnole ou de S. Domingue*, Paris, 1730.

² *Present State of the Spanish Colonies, Including a Particular Account of Hispaniola*, London, 1810. Mr Walton finds in these pestles evidences among the Haytiens of phallic worship like that of the Hindoos, and Poey devotes considerable space in his articles to a discussion of this theory, which he supports. The comparisons of this pestle to the *yoni* and *lingam* appear to me to be strained, especially when we examine a series of these objects, some of which represent birds and other animals.

³ *Congreso Internacional de Americanistas*, Fourth session, Madrid, 1882, p. 245.

serious investigation of the remains." He considers that "the most promising localities for research would seem to be the extreme eastern and western provinces, Santiago and Pinar del Rio. In the caves of the latter we should, if anywhere, find traces of the Mayan culture."¹

According to Brinton,² Señor Garcia gives in "one of the numbers of the *Revista de la Habana*" an illustration of what is called a *duchi*, which is the common term in Cuba for the figures of stone or clay attributed to the aborigines. This particular *duchi* was a stone ring, with eyes and ears of gold, and was supposed to have been the seat or throne of a chief, but probably was a stone collar. I have not been able to find this illustration in the *Revista de la Habana*, although I have examined and copied Garcia's two articles which he claims to be translations of Poey's paper read before the American Ethnological Society, which I have not seen.

Brinton's suggestion that this *duchi* was a stone collar does not appeal strongly to me, for the term *duchi*, *duho*, or *dujo* was given by the West Indians to native seats or stools in the form of animals with eyes and ears of gold.³

According to Bachiller y Morales,⁴ D. Tomás Pío Betancourt, in his *Historia de Puerto Principe*, says that D. Pedro de Parrado y Pardo, in a book on the genealogy of families of Bayamo, written in 1775, gave the name *duho* to one of these seats, in possession of Doña Concepcion Guerra, that formerly belonged to the Cacique of Bayamo.

I am unaware that the following statement by Brinton⁵ has ever been verified: "I have also learned," he writes, "of a locality, which I will not now further specify, in central Cuba, a river valley, along which, from time to time, one meets grim faces carved from the natural rock, and sometimes monolithic statues, the work of the aborigines and believed to represent the guardian spirits of

¹ Brinton says that according to Ferrer there are caves along the Rio Cuyaguatega, in Pinar del Rio, in which the aborigines interred their dead.

² Op. cit.

³ So far as known, stone collars and three-pointed idols, which characterize Porto Rican aboriginal culture, have not been found in Cuba.

⁴ *Cuba Primitiva*, p. 268.

⁵ *Archæology of Cuba*.



1. Stone with Face from Nipe Bay. (Smithsonian Collection.)



2. Idol or Pestle from Loma del Cayuco. (Santiago Museum.)

the river. This locality I hope to have visited by a competent person this winter." A verification of these statements and a description of these supposed "monolithic statues," with figures of the same, would be an important contribution to Cuban archeology. It would also be interesting to know whether the river valley where they are reputed to have been found was in the eastern or the western provinces of the island.

At the Madrid session of the International Congress of Americanists, in 1881,¹ Señor Rodríguez-Férrer read a paper in support of the theory that there was evidence of the existence, in prehistoric times, of Cuban aborigines different from those discovered by Columbus. The thesis is defended mainly by facts drawn from crania found in caves, but the two archeological specimens which he elsewhere describes and figures are also brought to the support of this theory. There is nothing to show that this cave people differed in any respect from those to whom early writers allude as living in the central and western parts of the island. All the evidence appears to support the theory that some of the natives of Cuba lived in caves at the time of the discovery, and the conclusion is natural that they were the lineal descendants of the oldest race, which they resembled in bodily and cultural characters.

Señor Rodríguez-Férrer, in his valuable work,² referring to the letter of Las Casas and to other evidence published in the *Documentos Inéditos del Archivo de Indias* (vol. VIII, p. 34), points out certain differences in the culture of the natives in different parts of the island, which are practically the same as those indicated by archeology.

An important addition to our knowledge of Cuban archeology was made by Don Eusebio Jiménez,³ who in October, 1850, excavated some mounds in the central part of the eastern end of the island. According to J. de J. Q. García these important remains were found on the farm of D. Francisco Rodríguez, nearly five miles southwest of Morón. Various utensils and objects made of hard wood, stone, and burnt clay were recovered from these

¹ *Congreso Internacional de Americanistas: Actas de la Cuarta Reunion*, Madrid, 1881, vol. 1, pp. 224-267.

² *Naturaleza y Civilización de la grandiosa Isla de Cuba, Parte Segunda—Civilización*, Madrid, 1887, pp. 142-144.

³ See *El Periódico de Puerto Príncipe*, and *Fare Industrial diario de la Marina*.

mounds. The description which Garcia gives of the excavations leaves no doubt that these mounds, called *caney*s, were aboriginal burial places, and they suggest the existence in the neighborhood of one of those dance places called *cercados de los Indios*, or *juegos de bola*, which occur in Santo Domingo and Porto Rico. One of the best known of these aboriginal inclosures in Cuba is the so-called Pueblo Viejo, situated in the eastern end of the island, near Cape Maysi. Although this inclosure has been described by several writers, no one has yet called attention to its resemblance to the dance inclosures of the neighboring islands.

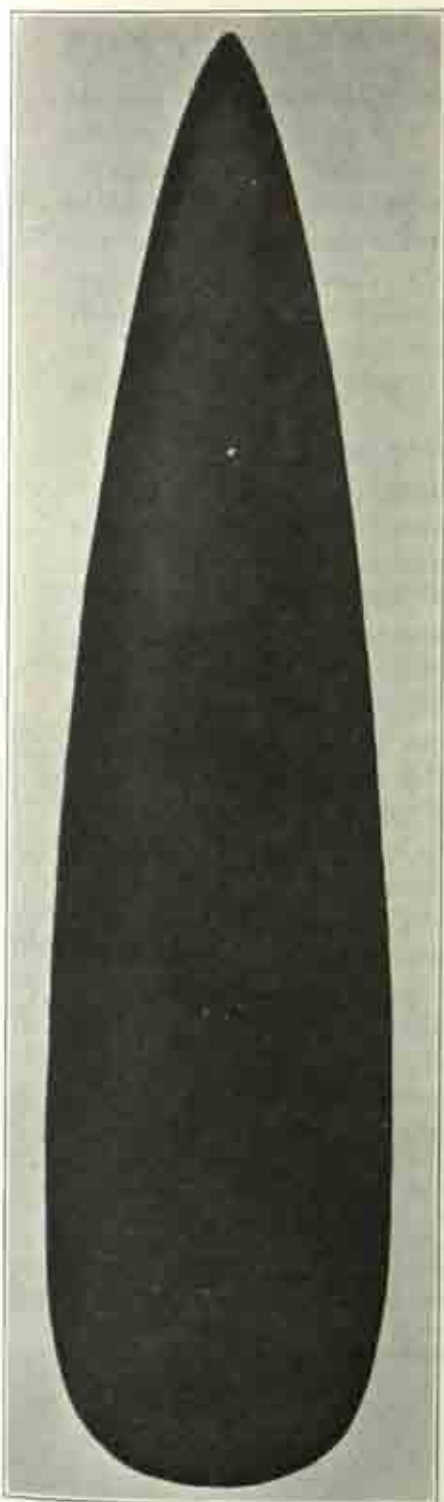
It is evident, from the contents of the numerous caves that have been excavated by Dr Montané and others in Santiago and Puerto Principe provinces, that cave men lived in those provinces after the introduction of a higher culture from the neighboring islands.

Although there is considerable literature on the somatology of the Cuban Indians, especially on crania found in caves, a consideration of this subject is foreign to the scope of the present article, which is devoted mainly to the consideration of evidences of the existence of a high and a low culture in Cuba at the time of its discovery. The crania found embedded in calcareous rock in caves near Cape Maysi and elsewhere on the eastern end of the island have been amply described by anatomists, and are highly instructive in a consideration of the antiquity of man in Cuba, but I am not yet ready to express myself fully on their significance. The natural inference would be that these skulls support the theory of ancient cave man in Cuba, of whom the Guanahatabeyes were the survivors in the fifteenth century; but West Indian caves were used as burial places after the discovery, and no one has yet satisfactorily shown any great difference in the crania embedded in rock from those found under usual conditions in the caves.¹

Dr Enrique Gomez Planos, in his valuable work on prehistoric Cuba,² mentions several caves on the island from which human remains and pottery have been taken, and gives an interesting ré-

¹For an account of these remains see *Anales de la Real Academia de Ciencias*, vol. XXVII, Habana, 1890.

²*Prehistoria de la Isla de Cuba*, *Anales de la Real Academia de Ciencias*, vol. XXXVII, 37, Habana, August-December, 1900.



1. Petaloid Celt. (Santiago Museum.)



2. Stone Idol. (University Museum, Havana.)



3. Ceremonial Celt. (Santiago Museum.)

sumé of Cuban archeology without adding much that is new to the subject.

Another work containing considerable material on Cuban ethnology is that of Bachiller y Morales,¹ a most valuable compilation, but very carelessly edited. It contains much information in regard to the aborigines of the Greater Antilles, but the title *Cuba Primitiva* is somewhat misleading, for while it contains chapters on the subject of primitive Cuba, the larger part of the book deals with Hayti and Porto Rico.

ARCHEOLOGICAL OBJECTS

The distribution of polished stone objects in Cuba may be said to confirm the historical accounts of a difference in culture between the inhabitants of the eastern and those of the western provinces. Those of Santiago resemble objects from Hayti and Porto Rico, but no similar implements are found in Pinar del Rio at the western end of the island.

There are two collections of Indian objects in Havana which contain objects of interest to the archeologist. One of these, the smaller, is in the museum of the Academia de Ciencias, on Calle de Cuba; the other is in the university near Vedado, a suburb of the city. Both collections are under the directorship of Dr Luis Montané, who has conducted excavations in several caves of the island and has in preparation a memoir on the subject. The collection at the university is particularly rich in crania from caves, and contains several interesting objects, descriptions and figures of which have not been published. Dr Montané has kindly shown me many photographs and charts illustrating his explorations, and has courteously permitted me to photograph some of the more striking objects, including a stone collar from Porto Rico.² The

¹ *Cuba Primitiva: Origen, Lengua, Tradiciones e Historia de los Indios de las Antillas Mayores y las Lucayas*, 2d edition, 1883. In his paper on the *Archæology of Cuba* (1898) Brinton thus refers to this valuable book, fifteen years after its publication: "The announcement of it, which is before me, dated 'Havana, 1881,' states that it will discuss the antiquities of the island, and the traditions and languages of its early inhabitants. Whether it was published or not I have not learned."

² The idol presented by Señor Ferrer, figured in plate XIX, 2, is historically the most interesting in this collection.

majority of the archeological specimens came from the eastern end of the island and closely resemble in technique those from Porto Rico. Among the objects seen in these two collections are ten petaloid celts in the Academy museum and about double that number at the University. One of those in the latter collection has a stone handle like those obtained by me in 1903 in Santo Domingo. There is also a celt with a face cut on one side—evidently a ceremonial celt like one in Archbishop Meriño's collection. This likewise is a product of Tainan culture, as is the stone pestle with a well-fashioned head on the end of the handle.

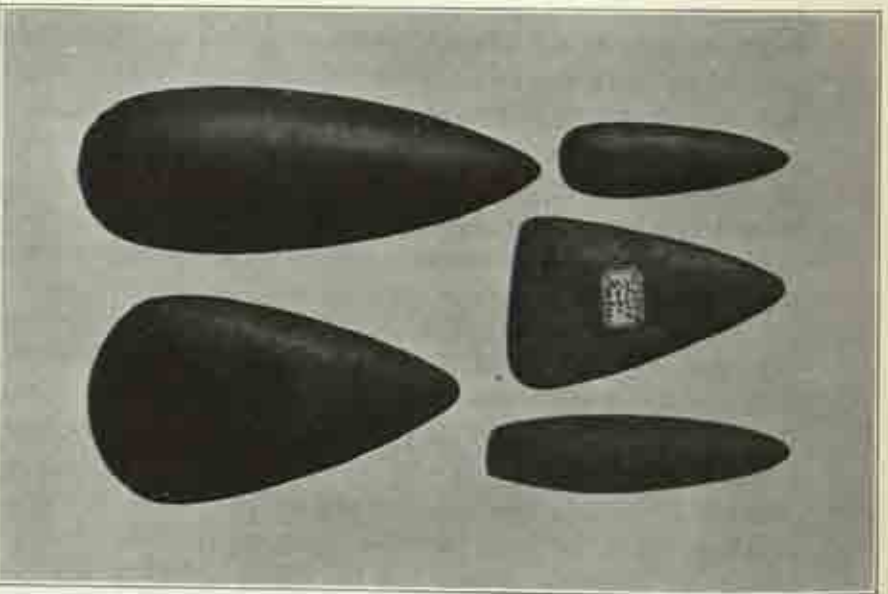
The three choicest specimens in Dr Montané's collection are a wooden idol, a stone turtle, and a shell with a face cut on one side. The wooden idol has a perforation, as if for attachment to a staff, and may have been used in ceremonial dances like those of the Salivas and other Orinoco tribes described by Gumilla.¹ The turtle of stone recalls one of wood collected by Ober in a cave in St Vincent in 1878 and now in the Smithsonian collection, but, unlike it, the latter is not perforated for attachment. An account of these objects in the University museum, with localities and figures, would increase our knowledge of the archeology of Cuba.

In the Santiago museum were two idols made of coral rock, one of which, according to the label, is from Cueva de Boruga, near Baracoa, the other (plate XVIII, 2), which is smaller, from the Loma del Catuco, Gibara. The former was lent to Prof. W J McGee, Ethnologist-in-charge of the Bureau of American Ethnology, by Señor Quesada in 1900, at which time Mr DeLancey Gill made front and profile photographs of the specimen, which are reproduced in plate XVII. This idol represents a seated figure, with elbows on the knees and hands to the breast. Its whole appearance is different from that of any West Indian idol that I have ever seen.²

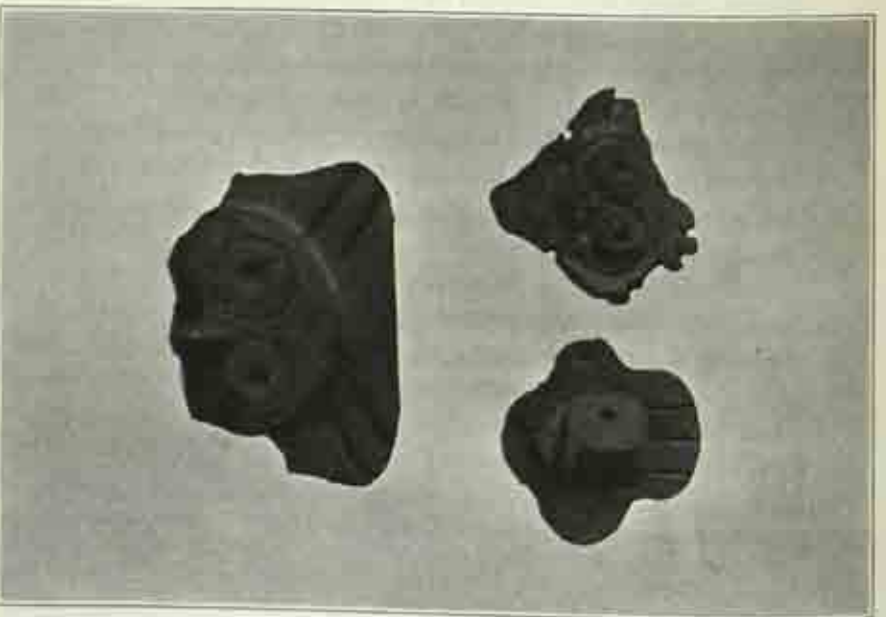
The smaller idol, also of coral rock, shows the septa of individual coral animals scattered over the surface, and has the form

¹ *El Orinoco, ilustrado y defendido*, Madrid, 1745.

² The exceptional form of this idol, when compared with those from Santo Domingo and Porto Rico, may lead some archeologists to doubt its authenticity. The form of the mouth, however, is almost identical with that of the head of a pestle from Santo Domingo, and the attitude recalls that of the wooden idol in the University museum at Havana.



1. Pearloid Celts



2. Fragments of Pottery from Nipe Bay.

CELTS AND POTTERY OBJECTS FROM CUBA. (Smithsonian Collection.)

of a pestle, the arms being obscurely indicated and the legs being replaced by a base upon which it stands.

The idol figured in plate XIX, 2, is the same as that elsewhere mentioned as presented to the University museum by Señor Ferrer and figured by him and by Sr Andrés Poey.

The ceremonial celt figured in plate XIX, 3, also in the Santiago museum, has a rude head cut on one end and arms carved in low relief on the sides. This specimen is said to have been found at the Indian town of El Caney; it belongs to the same type as the ceremonial celt described and figured by Poey, Ferrer, and others. Its general character allies it to stone products of the Tainan culture of Santo Domingo and Porto Rico.

The celts collected by me in Cuba have the same forms as those from the other West Indian islands, and are known to the country people by the same name, *piedras de rayo*, or thunder-bolts. They are petaloid in form, smoothly polished, and without grooves for hafting. As in Porto Rico, there is considerable folklore in Cuba connected with these implements. Twenty petaloid celts were collected in the neighborhood of Santiago at El Cristo, El Caney, and the outskirts of the city. A few of these are figured in plate XX, 1.

While in Santiago I purchased a small collection of Indian objects from Nipe bay, on the northern coast of Cuba, which includes petaloid celts, fragments of pottery, a shell implement, and other aboriginal objects. Among the last is a water-worn stone on which is cut in outline (more like a pictograph than in relief) a human face with mouth, eyes, and what might have been intended for a nose (plate XVIII, 1). The specimen is unique in form, and although not flattened on one side, in certain particulars it reminds one of the so-called stone masks of the ancient Porto Ricans. The chief characteristics of this outlined face are the oblique eyes and the three curved lines extending from their lower ends to the incised line which borders the face. Its use and significance are unknown to me, nor am I familiar with any similar specimen from the other West Indian islands. It will be observed that this and the following specimens came from the eastern end of Cuba and can be referred to the Tainan culture.

In character the pottery from Cuba is practically the same as that

from Porto Rico. The collection made by me consists wholly of fragments of clay heads from bowls or vases. The specimens figured in plate xx, 2, were obtained from Nipe bay on the northern coast, but I have seen almost identical fragments from Pueblo Viejo,¹ the dance inclosure near Cape Maysi.

The archeological evidences of a low culture stage in the western provinces of Cuba are thus far negative, for no objects which can be ascribed without question to the aborigines have yet been found in those parts. The known polished stone implements, idols, and like objects from Cuba resemble those characteristic of the Tainan culture, and are confined to the eastern end of Cuba.

Naturalists have long recognized a marked difference in the fauna and flora of the two ends of Cuba. The prehistoric culture of these two localities was also different.

CONCLUSIONS

It appears from both historical and archeological evidences, so far as now known, that the Tainan or Antillean culture which was found in eastern Cuba did not originate on that island, but was introduced from Porto Rico or Hayti, where it reached its highest development. The germ of this culture came to both these islands from South America, but had grown into a highly specialized form in its insular home. There were minor differences in the different islands—Cuba, Jamaica, Santo Domingo, and Porto Rico—but these differences were all modifications of the polished-stone age.

There was considerable likeness in culture between the inhabitants of the keys of Florida and those of the Cuban coast and the small adjacent islands, due either to early contact of these two peoples or to migration from one to the other locality in limited numbers. The Indian villages of Carahate (near the site of the modern Cuban town of Sagua la Grande) and Sabaneque (near Remedios) were pile-dwellings,² not unlike those of the Indians

¹ This inclosure has been described by Ferrer and others; but one of the best accounts, and the only one in English that is known to me, is by Mr Stewart Culin: *The Indians of Cuba*, Bulletin of the Free Museum of Science and Art, University of Pennsylvania, vol. III, no. 4, 1902.

² These houses built on piles were called *barbacotas*. The polygonal or circular house with conical roof was known as a *caney*, and the quadrangular dwelling, with two-sided roof, a *bokio* or *bujio*.

now inhabiting the delta of the Orinoco and the shores of Lake Maracaibo in South America; but these adaptive conditions do not necessarily show kinship, and more probably were of independent origin. The resemblances between Floridian and Cuban coast peoples were due to contact and interchange of culture.

There were at least two distinct stages of culture in aboriginal Cuba. The natives in the first stage were savages with few arts, but those of the second stage were as highly developed as any of the West Indian aborigines. The one was an archaic survival, the other an introduced culture which originated outside the island.

The people of the first stage were survivors of the earliest inhabitants of the island, but they have left little to the archeologist to indicate the status of their culture; nevertheless, it was evidently of a very low order. The natives of the Cuban coast and of the numerous small islands were fishermen. Their culture was higher than that of the others referred to, but the highest prehistoric culture was confined mainly to the eastern provinces, especially Santiago, and was apparently introduced from Hayti, where it reached a high development, although even in the mountains of that island there were survivors of the savage, or lower, culture stage which predominated in western Cuba.

The Caribs, who occupied the Lesser Antilles from Trinidad to Porto Rico, were the last of the several South American tribes which invaded the West Indies. This virile race at the time of the discovery had conquered and assimilated the original inhabitants of the Lesser Antilles and peopled them with a composite people. The evidence that the Caribs settled on the coast of Cuba is not decisive. They probably visited the island in their marauding expeditions, but they contributed little to the existing culture of Cuba or that of the neighboring peninsula of Florida.

The Indians of Cuba, like those of Hayti, Porto Rico, and the Bahamas, were harassed by the Caribs from the Lesser Antilles, but it is yet an open question whether these marauders had settled in any considerable numbers on the island at the time of the discovery. The inhabitants of the extreme eastern end of Cuba, like the Ciguayos, who occupied the region from Puerto Plata to Higuey, from exposure to the inroads of the Caribs had become more war-

like than the other people of Cuba, but this does not necessarily mean that they were Caribs, as some writers appear to believe. The discovery of flattened skulls in caves near Cape Maysi, and their identity in this respect with deformed Carib crania from Guadeloupe, does not prove identity of race. According to Dr Carlos de la Torre,¹ the explorations of Sr Miguel Rodríguez-Férrer, Valdés Domínguez, Montané, and himself tend to confirm the opinion of Rafinesque that the Caribs had settled south of Baracoa, but the evidence presented in support of this theory is not conclusive.

The original colonization and prehistoric culture of Cuba must comprehend three different conditions of aboriginal life, practically three different peoples, viz., the primitive cave dwellers of the central region and western extremity of the island; the fishermen living in pile dwellings in some places; and the Tainans having the true Antillean stone-age culture. The derivation of the last-mentioned culture from Hayti and Porto Rico is reasonably certain. The connection of the coast fishermen of Cuba with the shell-heap and the key population of Florida was intimate, but it is still undetermined which was derived from the other.

The origin of the cave dwellers and of the rude savage race of Cuba is the most difficult of all to determine. Their ancestors were the first colonists of the island, but we know little of their language, arts, names, and customs, and lack a basis for comparing them with peoples of North America or South America. It is probable that these people were lineal descendants of those whose semi-fossil skeletons found in caves have excited so much interest. No evidence has yet been presented to prove that this race had vanished when Cuba was discovered by Columbus.

¹ *Manual ó Guía para los Exámenes de los Maestros y Maestras*, Habana, 1901, p. 45.

THE CROSS OF CARABUCO IN BOLIVIA¹

By ADOLPH F. BANDELIER

EARLY REFERENCES TO THE CROSS

In regard to the subject indicated in the above title, my purpose, rather than to present conclusions, is to place on record all known information on this topic as an incentive to more complete investigation.

When at the village of Carabuco, in 1897, we of course visited its highly interesting church and saw the enigmatical wooden cross that has been known for more than three centuries, the history of which is curiously connected with Indian lore. Carabuco is a village of Aymará Indians, situated on the eastern shore of Lake Titicaca, Bolivia, three days' journey north of La Paz. It is an old village, for it was mentioned as early as 1573 as having existed before the conquest. In 1591 it had 722 tributary Indians, which number of course included the entire district. The cross is so placed that it would be impossible to examine it unless taken out of the frame, which would hardly be permitted by the natives. The Indians attach to the relic the same superstitious importance as to images, and perhaps more, because they regard it as confirmatory of some of their ancient lore. It were well not to lose sight of this.

What we could see is a rough wooden cross, the stem of which is about three feet long, made of a peeled branch apparently about four inches in diameter. It was impossible to determine, without closer examination, how it had been cut. The arms are of similar wood. Two clumsy copper nails are driven into the stem and a copper ring surrounds it. The cross is not complete, a third nail having been taken to Spain and part of the wood being in the cathedral at Sucre, the former capital of Bolivia. (See note 1 at

¹ Published by permission of the American Museum of Natural History.

the close of the paper.) Originally the cross may have been about six feet long. The wood is said not to have been polished, but before the cross was placed under glass it had become customary to take away chips or splinters as relics (2), so that it has been disfigured rather than improved, and its size somewhat diminished. In addition to the cross, the church contains four large and very primitive paintings in which traditionary and legendary details connected with the cross are represented (3).

The earliest known information concerning this singular relic dates from the latter half of the sixteenth century. Simon Perez de Torres, the Spanish traveler, who was in South America a few years before the close of that century, visited Carabuco, and in his *Discurso* states that in that "city of Indians" there is a cross which "we found when we arrived in that land, that was thrown into the lake, without it being known who had made it. Now they take away much wood from it and [still] there is never any lacking." (4) Cristóval de Jaque de los Rios de Mancaned, another Spanish traveler, who arrived at Lima in 1600 and wrote an account of his journey six years later, speaks of Carabuco as follows:

"North of this lake [Titicaca] are the flats [plains] of Guarina, and on its shores, Carabuco, where one sees a cross which, according to tradition of the Indians, has been brought there by one of the apostles of our Lord Jesus Christ, and planted by him on the top of a mountain. On the arrival of the Spaniards, the Indians, noticing that they everywhere erected crosses as tokens of their domination, vainly endeavored to destroy that one. They threw it afterward into the lake, but, although they fastened to it many stones, it always floated on the surface. The Spaniards, being informed of this miracle by an Indian who doubtless expected a gratification, pulled the cross out of the lake and placed it at Carabuco in a chapel which D. Alonzo Ramirez de Segura, then Bishop of Cuzco, had constructed there." (5)

To the accounts of these secular authors must be added the testimony of an Indian, Juan de Santa Cruz Pachacuti Yamqui Salcamayhua, who wrote on the antiquities of Peru probably about 1613. Salcamayhua relates, as will later be seen, the travels and actions of a white man who is said to have appeared in the Peruvian highlands long before the Spaniards, and to whom he gives the name of Tunapa, Tonapa, and Ttonapa. Of him he states (I follow the text almost literally):

"This man, they say, that going about preaching, he came to the Andes of Caravaya and in her made a cross very large, and carried them on his shoulders, until he put them on a height of Carapucu, where he preached to them in loud voices, shedding tears." (6)

In 1621 we meet, so far as I have yet found, the earliest notice of the cross by a member of the clergy, the Augustine monk Alonzo Ramos, on whose history of Copacavana subsequent Augustines, from the Copacavana convent of that order, based their accounts. After referring to the tale of a white man corresponding to the Tonapa mentioned, and to the cross he is said to have carried, Ramos continues as follows:

"The Indians attempted to burn it [the cross], and not succeeding, buried it near the lake, where it remained for more than one thousand five hundred years. On a day of Corpus [Corpus Christi] the Urinsayas, quarreling with the Anansayas (7), insulted each other, and the Anansayas told the Urinsayas that they were immoral [vicious], sorcerers, and that their forefathers had stoned a Saint, attempting to burn a cross he carried with him, and that they kept it [the cross] concealed, not wishing to show it. This being overheard by some boys, they told it to Father Sarmiento, who was curate. He discovered the cross in three pieces and a copper-plate [leaf] with which the cross was bound [girded]. With the cross were found only two nails. The Lord D: Alonzo Ramirez de Vergara, Bishop of Charcas, had new excavations made and found the third nail and took it, and at his death the Licentiate Alonso Maldonado, President of the Audiencia [of La Plata or Charcas], inherited it and took it to Spain. When the bishoprics were divided, they [also] divided the cross, sawing it in twain, and making two of it, one [of which] remained at Carabuco and the other is at the Cathedral of La Plata [Sucre]." (8)

I would advert that the above is a translation of the original text of Ramos, which is somewhat at variance with that of the two republications by the late Father Rafael Sans; one dated 1860, the other 1886. The feast celebrated by the Indians was a double one. Ostensibly it was Corpus Christi, but it coincided with one of their ancient festivals. It is well to note, what Ramos affirms, that Bishop Ramirez de Vergara investigated the matter seriously and became satisfied of the authenticity of the find. Thereupon he caused the cross to be placed in a proper manner, as it had hitherto been kept in a chapel where many splinters of the wood were cut off and carried away (9).

Bishop Ramirez de Vergara occupied the episcopal see of Char-

cas from the last decade of the sixteenth to the first decade of the seventeenth century. From that period there are other data concerning the cross of Carabuco; these are from Ramos, and his modern editor, Sans. Ramos says:

"Not very far from Carabuco are found three stones of triangular shape, where the Indians say they tied the Saint and gave him many strokes with the intention of killing him. About the year 1600 a *corregidor*, desirous of having the matter of this mysterious man cleared up, caused to appear before him a cacique of Carabuco named Fernando, who, from his appearance and the statements of such as knew him, was judged to be a man of 120 years, and [being] brought to the village of Ancoraymes he was commanded [lit. it was commanded to him] to declare all he had heard from his ancestors touching the Saint and his cross. And [he] declared having heard that many years before Christians came to these parts had been seen a man of tall stature, white and light-complexioned, dressed almost like they, who preached in a loud voice that they should worship a single God, condemning [reprehending] vices, and that with some Indians that followed him he brought a cross, of which the fiend was afraid, [so] that he incited them to kill him, and that by not doing it they would suffer in their matters, he withholding from giving his oracles, and that therefore they tied him to some stones and beat him cruelly. During which torture (he added, having heard from his relatives) handsome birds came down to stay with him, which he now judges were angels sent by God to console him. That it was also believed to be certain that the Saint carried with him a small casket which, according to some notices, was concealed in one of the heights of Carabuco, and that the Indians leaving the Saint tied, birds came down to untie him, and he spreading his mantle on the waters, entered the lake, going toward Copacavana and passing through a *totoral* [clump of tall reeds], left a path which the Indians worship to this day; for they say that the reed of this channel is very sweet to the taste and useful against disease. In their language they call it *paquina* or *sehago*. This relation was given to the author by Diego Nuñez de Raya, a man of age, companion and secretary to various visitors. *Fides sit penes illum.*" (10)

The other tale is of the year 1599, and was related to Cristóbal Muñoz Cebada by an "aged Indian." It is silent on the subject of the cross, but speaks of the Saint and his cruel torture at Carabuco. I shall refer to this story farther on (11).

The tale of the finding of the cross, in the latter half of the sixteenth century, is doubtless true. That it was not discovered before is easily explained. The eastern shore of Lake Titicaca, on which Carabuco is situated, south of the present Peruvian frontier, was occupied by Spaniards at a comparatively late date. The Dominicans

were the first to establish missions on the shores of the lake, but on the western shores only; here they were maintained until 1569, when they were taken away from the Dominicans and turned over to the secular clergy (12). Father Sarmiento, in whose time it is stated the cross was discovered, was a secular priest. This may lead to the inference that the finding of the cross occurred after 1569 — between that year and 1599. The tale of the find is authentic beyond doubt, nor can we regard as inventions the statements that the Indians knew of the existence of the cross. That the story leaked out on the occasion of an Indian feast, while the Indians were intoxicated, is highly probable (13). It is when the Aymará is drunk, or, rather, when in the early stages of inebriety, that he becomes communicative. Afterward he is either hostile or stupid. The two clusters (Hanansaya and Hurinsaya) are a well known feature. The fact that the place where the cross was unearthed is pointed out to-day signifies but little in the case of a so-called "pious fraud."

Two objections to these early statements arise: The version of the two laymen, Perez de la Torre and Jaque, conflicts with the ecclesiastical version in regard to the locality of the find. The former states that it was *in* the lake, the latter that it was *near* it. But this contradiction is only apparent. If the site pointed out to-day is the one where the cross was discovered, it is so close to the shore that an overflow might have covered it temporarily at any time. It is not likely to have remained in the water, as intimated by Jaque, who, by the way, does not seem to have visited Carabuco but wrote from information obtained elsewhere in Bolivia (14).

More important is the objection that none of the Jesuits of the period, who were special, indeed official, investigators of Indian idolatries and antiquities, makes, so far as I know, any mention of the cross of Carabuco. Neither Acosta (15), nor Oliva (16), nor Cobo (17), nor the anonymous contradicter of Polo de Ondegardo (18), makes allusion to it, possibly because they may have regarded it as spurious, although it should not be overlooked that Cobo scarcely mentions any place on the eastern shore of Lake Titicaca, while Acosta left Peru about the time the cross is reputed to have been

discovered, or shortly afterward (19). The great fame which the image of the Virgin of Copacavana acquired in Bolivia immediately after 1582 (20) diverted the attention of both the clergy and the people from a curious find in a remote village of one of the least frequented parishes. The secular clergy and the Augustines were the only ones who were in contact with the eastern shores of Titicaca and who paid attention to what happened there—these, together with such laymen as lived on or visited the shores officially or casually, and the Indians. It is plain that the origin of the cross is connected with *Indian* lore purporting to be *primitive*, in the sense that it *antedates Spanish colonization*.

The finding of the cross took place about half a century subsequent to the first arrival of Spaniards in the Titicaca basin (21). It might be that in the course of these fifty years, or thereabouts, some missionary strayed to the eastern side of the lake and became a victim of his zeal at the hands of the Aymará; but if such were the case it would be known. It is also possible that, in the course of the same half century, the cross was *intentionally* buried for the purpose of creating afterward, by rediscovery, the impression of a miracle. I do not wish to be understood as supporting such a theory, but it would be only human if such had been done, and with sincerely pious intent. But how about the Indian story? It is possible that the person or persons who buried the cross invented the story also, and attempted to impress it on the minds of the Indians (22); but it is not likely that the Aymará would have framed it in order to ingratiate themselves with the whites, since it sounds hardly advantageous to their ancestors. It may yet be shown that the cross of Carabuco does not antedate the fourth or the fifth decade of the sixteenth century; at present it is an enigma, and it becomes even more enigmatic through other tales of which I shall give an account.

THE STORY OF "JUAN RUMIO"

While at Pelechuco we resided for several weeks at the hacienda of Keára, where the owner had gathered a number of Quichua as well as Aymará Indians from various parts of Bolivia and Peru. Among them was an Indian from Azángaro, in the northern section of Titicaca basin, hence a Peruvian Quichua. This man related to

us, as a well-known tale, the story of *Juan Rubio*. The name signifies "Blond or Fair John," and is of course Spanish. Of this individual it is told that during the time of the "Chullpas" (hence before the fifteenth century, in the "dark times") he came from the east, announcing to the Chullpas the proximate appearance of the sun. He went westward, and nothing is known of his fate. Near Sicasica this tale was repeated to us in almost identical words, and we also learned that many of the mestizos and even of the white inhabitants knew of it.

An Indian tale about a person or persons is always suspicious. Unless he has at command pictorial signs for recording them, the Indian seldom remembers dates, even approximately, and events sometimes appear ancient to him soon after their occurrence. Therefore, persons easily become mythical and such myths are readily regarded as "ancient" historic tradition, although comparatively recent; hence it is not easy to guard against errors arising from such a source. Only tales preserved by native religious organizations embody definite tradition, and even when the shamans can be induced to tell them, they sometimes adapt the stories to what they suspect to be the design or taste of the white interlocutor. The shaman does this as much to flatter him as to conceal the truth. Herein lies the greatest depreciation in the value of traditions carefully and honestly collected during early Spanish occupancy. It is exceedingly difficult to separate the grain of the primitive from a husk which the Indian informant may have intentionally wrapped around it. The danger lessens as we near the time of first contact, yet even then a wish to ingratiate themselves with the new masters may have induced the Indians to color, hence to distort, much of what was original.

With these preliminary observations I turn to a series of tales related by the aborigines of Peru and Bolivia to the Spaniards at an early day, and which are connected with the subject of the cross of Carabuco and the story of Juan Rubio. These tales, in the main, were told within fewer than twenty years after the first landing of Pizarro,

THE TRADITIONS ABOUT TONAPA

In a previous number of this journal I have presented Indian lore concerning early times of the Island of Titicaca and have had occasion to refer to myths in which a personage called Viracocha (for the sake of brevity) plays an important part. In the same connection there appears another mysterious individual, Tonapa, who manifestly is the same as Juan Rubio and the bearer of the cross of Carabuco. While Viracocha is endowed, by Indian lore, with creative power (although otherwise a human being), Tonapa is represented as a teacher, to whom miracles are also attributed.

I find the earliest mention of Tonapa in a fragment of the book written by Juan de Betanzos and concluded at Cuzco in 1551. Betanzos is probably the most trustworthy reporter on the subject, and of that period, as yet known, although he is not to be relied on implicitly. Betanzos says:

"And asking the Indians what figure [appearance] had the Viracocha when thus the ancients saw him, from what they had notice [heard] of them, and they said to me he was a tall man and wore a white dress that went as low as his feet, and this garment he had girded; and that he wore the hair short and a crown [tonsure] made on the head after the manner of the priests; and that he went bareheaded and had in his hands a certain object that now appears to them, to-day, like the breviaries which clergymen carry in their hands. And this is the information I got of it, according as the Indians told me. And I asked them how that person was called in the place of which that stone was set, and [they] told me he is called Con Tici Viracocha Pachayachachic, which is to say in their language, God Maker of the World." (23)

The name Tonapa is not mentioned by Betanzos, but from what follows it may be the same personage. He goes on to state that this man went to Cuzco and thence to the sea, which he reached at Puerto Viejo, in Ecuador, where "he came together with his people whom he had sent before him in the manner already told, where, as they met, he went out to sea with them, from which they say that he and his people moved on the water as if they walked on land." (24) The career of this mythical being began, according to Betanzos, at Tiahuanaco (25).

Some "myths of observation" are discernible. The white dress, the tonsure, and the book suspiciously recall the appearance

of a Dominican monk (26). But the entire story could not well have been concocted for the occasion, for while the part of it here told is from the vicinity of Sicuani, not far from Cuzco (27), the remainder is manifestly from the Bolivian or Peruvian Aymará, that is, from another linguistic stock (28). There is, of course, no allusion to Carabuco, which village was not thought of at the time.

Pedro de Cieza, a contemporary of Betanzos, relates substantially the same story about Viracocha, calling him besides, Tuapaca and Arnauan, which names he states are given to him in the Collao, that is, among the Aymará (29). That these are names, or titles, applied to Tonapa will appear from other sources.

In the first part of his chronicle Cieza mentions another tradition about white men that recalls the disciples attributed to Viracocha and Tonapa. The tale was related to him, in the district of Huamanga in Peru, in connection with some interesting ruins along the Rio Vinaque. "Inquiring of the Indians living there who made those ancient remains, they answer that other people, bearded and white like ourselves, who, a long time before the Incas ruled, [they] say came to these parts and took up their abode there" (30). As Cieza reports the same story about the ruins of Tiahuanaco (31), the origin of the tale appears suspicious. The aborigines may have wished to pay a compliment to their visitors, whom they certainly dreaded, by ascribing the buildings to white men.

The notice about white men having occupied some of the islands in Lake Titicaca, also given by Cieza, has no connection with Tonapa (32).

I forbear repeating the statement of Cristóval de Molina, who gathered Indian lore at Cuzco about 1570. It is the Viracocha story without mention of Tonapa (33).

Miguel Cabello Balboa, who went to Peru in 1566, asserts that he found a tradition among the Indians of Peru and Chile to the effect that at some remote period white men like priests visited those countries (34).

Not long after the time of Betanzos and Cieza the missions of the Augustines were established in Huamachuco, east of Trujillo and north of Lima, in Peru (35). In their first report on these missions they say :

"Above we have made mention of how, when Atagujú created his servants Sugad-cabra and Uciox-gabrad, he [made] jointly with them Guamansuri; since the devil imagines, and the Indians are convinced of it, that Atagujú sent from heaven the said Guamansuri to the world, and he came to the world in the province of Guamachuco, since there he had to begin, and when he came he found in it Christians, who in the language of Guamachuco are called Guachemines, and he went very poor among them." (36)

Further on they state:

"And the Indians say that 'that *Viracocha*' wanted to make them Christians, and they drove him out of the land." (37)

The last relates to a stone statue, in the Collao (Aymará country), said to represent a man with a tonsured head. This they report from hearsay (38), but it shows that the Tonapa or Viracocha tale was well known in Peru and Bolivia about thirty years after the conquest.

The Indian Salcamayhua had at his disposal folktales of the Quichua as well as of the Aymará (39), and he is more explicit than any other author concerning Tonapa. He identifies him with the Viracocha of Betanzos, Cieza, and the Augustines by calling him "Tonapa or Tarapaca Viracochanpachayachicachan or Pacchacan," etc. (40) He describes him as

... "a man bearded, of middle size and with long hair, and with rather long shirts. And [they] say he was beyond the age of youth, had gray hair, was thin, who went with his stick, and it was he that taught the natives with great love, calling them all sons and daughters, the whom was not listened to nor followed by the natives, and when [he went] through all the provinces have made [*sic*] miracles, and visible ones," etc. (41)

The adventures of this personage as related by Salcamayhua may be condensed as follows:

Tonapa came to Peru from parts unknown and appeared at Apotampo, which place Don Marcos Jiménez de la Espada identifies with Paccaritambo. (42) He traveled preaching through the whole of Collasuyu. Of these preachings "the modern old men of the time of my father Don Diego Felipe are wont to say that it was almost the law of God, chiefly the seven precepts [he evidently alludes to the seven sacraments], they lacked only the name of God our Lord and of His Son Jesus Christ; this is public and notorious

among the old men; and the punishment for those who broke them was severe." (43) After visiting various villages of the Collao, he went to the Andes of Carabaya and there (as already stated) cut a large cross which he himself carried to Carabuco. About events there it is stated: "And in it a daughter of a cacique of that province, they say, had water thrown on her head, and the Indians seeing it, understood that [she or he] were washing the head, and [they] cut the hair after that Tunapa had been safely imprisoned, close to the great lagoon of Carapuco. . . . They say that at daybreak entered, where Tunapa was confined, a handsome youth, and had said them [i. e., to him], 'Be not sad that now I come to call thee in the name of the matron who is expecting thee alone, the which is for to go to the place of delight.' And saying this they say that, touching with his fingers the bonds that were fastened to the four arms, hands, and feet; and in it they say that were many guards, because the said Tunapa was now sentenced to cruel death. As I say, that at the break of day as at the fifth hour of the morning, entered the lagoon jointly with the said youth, spreading on the water of the lagoon the mantle he wore, which mantle served in place of a raft, etc." (44) After his escape from Carabuco, Tonapa remained for some time "on a rock called Titicaca" (45), and then went by Tiquina to Tiahuanaco where he found Indians dancing and drinking. He preached to them, but they would not listen; so he converted them into stones, which stones (statues) "are visible to-day." (46) Tonapa then descended the Chacamarca river (*desaguadero*) to the ocean, and it is believed he went around by the straits (47).

Later on Salcamayhua refers to Tonapa again, saying that it was an Inca custom to obtain water from the rock on Titicaca, on which he had been sitting, and to have it brought to Cuzco to baptize children (48), and that the war-chief Capac Yupanqui was told by chiefs of Asillo and Hururu how, in ancient times, there appeared "a poor, thin, old man, bearded and with hair like those of women, and long shirt, and a great advisor in public matters of all the republic, and that he [the Inca] said to them the man was called *Tonapa Vikinguira*, who they say spoke the language of the country better [than they], and had banished all the idols, images

of the demons *Happiñños* to the snowy mountains, where men never reach, which are *Lloques* or *Quenamaris*." (49) He adds that there were traces of Tonapa also having been among the Huancas and Chinchaysuyos, according to the Indians from those parts (50). He further alludes to a little house on the road from Cuzco to Jauja, and to two stones, near by, into which Tonapa had changed a female fetish and an Indian on account of some immoral act. He likewise speaks of similar traces, in the shape of stones, not far from Pachacamac (51).

Ramos was a contemporary of Salcamayhua. The latter lived in the vicinity of the Cuzco range, while Ramos was stationed on the southwestern shore of Lake Titicaca, among the Aymará. In addition to the passages previously quoted from Ramos, I would call attention to the following account of the Sicasica story, to which allusion has already been made, and of which we were also told in the neighborhood of that village :

"So it is that in the year 1599 D: Cristóbal Muñoz Cebada informed himself of an aged Indian, who declared to know it from his ancestor, who held it as well established, that to the district of Sicasica there had gone a man of venerable appearance, tall of stature, with long beard, white and fair; who preached a law like that which the Christians have now, proving his doctrine by miracles, and he much exerted himself to persuade the Indians to erect a chapel to the veritable God. In order to do it they gathered much *ichu*, or grass, in which the Saint was wont to sleep. But one night the fiend appeared, reproaching them terribly with the facility with which they had believed a foreign stroller [adventurer], commanding them to stay the work and set fire to the straw. The Indians did so, and the *ichu* burning with full force, the Saint came out of the fire step by step without excitement, nor lesion of any kind, to the great dismay of the barbarians, who forthwith remained very much confused and repentant. The Indian further said, that after this miracle the preacher went with some Indians to other hamlets and dispelled with his prayers a terrible tempest. But not even these prodigies prevented the natives from abhorring him for his zeal in condemning their lubricity, and having converted only six, he took them with him to Carabuco, where they martyred them. The Saint charged them with their cruelty to his disciples, whereupon, tying his hands and feet, they fastened him on a raft which they thrust on the lake, and that then they saw a most handsome lady who, placed on the raft, guided its course. Surprised at this wonder and desirous of seeing its end, they followed her in their own craft and saw that the Saint and the Lady passed the *desaguadero*, and were never seen any more. And furthermore, it was a tradition much received [current] among the aborigines, that on another occasion

the holy missionary crossed the lagoon and went to Puno, where he preached to the people whom he found gathered in a great celebration. There he was several days in a cave, that to this day is called the Cave of the Saint. At Carabuco he had, close to his hut, a spring, worshiped by the inhabitants for its marvelous effects. This is what that Indian and others of his companions deposed, assuring that thus they had received it from their elders." (52)

I forbear alluding to the interpretations given to these various tales, as they have nothing to do with my purpose. The antiquity of the cross is established as far back as the last decades of the sixteenth century, and the manner in which it came to be discovered seems also fairly proven. That which preceded the find rests on Indian statements, the possible precolumbian origin of which is the only question at issue. The story of the cross alone would scarcely deserve notice, although a burial thereof for purposes of deception is far from being proven as yet. But it stands in direct relation to a tale heard from the Indians at a very early day and given by them as a tradition from primitive times.

There appears a certain probability that the Viracocha of Betanzos and Cieza is the Tonapa of Salcamayhua and of Ramos (53). *Vira* in Quichua signifies tallow, or fat; *cocha*, as is well known, means a lake, or the sea—any considerable sheet of water (54). From the fact that tallow or fat is lighter than water, the meaning of *vira* has been interpreted, in early statements concerning the mythical personage, as "froth," or "foam." This interpretation is entirely gratuitous. The Quichua call froth *pozocco*, and the Aymará *hupoco* (55); there are therefore well established terms, in both languages, distinct from *vira*. This explanation of fat, or tallow, as foam, is first met in Cieza's chronicles, and it is found also in Zarate soon afterward (56). It is difficult to understand how (the etymology of the term *Viracocha* being known) Betanzos could translate *Con Tici Viracocha Pachayachachic* as "God, Creator of the World." While the word *Viracocha* seems to be Quichua and may have passed therefrom into the Aymará, I cannot find *Tonapa* in either of the two languages. At all events, *Viracocha* designates something that will not sink, but floats on the surface of water. On this account it may be pertinent to ask, Might this bear any relation to the tale of Tonapa floating on the waters of Lake Titicaca?

Until now I have purposely not quoted another seventeenth century author, Fray Antonio de la Calancha, who copies Ramos in regard to Copacavana and the islands of the lake, but concerning the Viracocha story he follows a much earlier authority, the Licentiate Polo de Ondegardo, who went to Peru prior to 1544 and wrote his various treatises and memoirs between 1550 and 1575 (57). Calancha says:

"The one they called Tunupa, which signifies great wizard, lord (58), and creator, and the other, Taapac, means the son of the creator." For this he makes acknowledgment to Ramos, denying that Tunupa was identical with the Viracocha (59). He then goes on to relate Tunupa's travels, starting from Brazil, going thence through southern Bolivia, where he finds traces (60), and makes him wander over a great portion of South America. But Calancha also states that the second of the two mysterious travelers (Taapac) was the one more spoken of in Bolivia (61). The death of Taapac is attributed by him to the Indians on the shores of Titicaca, where, he says, the *body* was placed on a balsa—

"and the placid waters performing the office of oars, the zephyrs serving as pilot, . . . it navigated with such velocity that it filled with admiring awe those who had killed him without pity. . . . The balsa with the rich treasure [the corpse of Taapac] arrived on the beach of Cachamarca where now is the *desaguadero*. It is well established in the traditions of the Indians that the same balsa, breaking through the ground, opened the *desaguadero* [lit. outflow], for it never had any, and since that time is running, and on the waters to which it there traced the way, the holy body went as far as the village of the Aullagas, many leagues away from Chucuito and Titicaca, toward the coast of Arica and Chile," etc. (62).

It is certain that, from scarcely two decades after the conquest until the century later, those writers — clergymen, Spanish civil officers, soldiers, and travelers — who made it a special task to report Indian traditions, claim unanimously that Viracocha and Tonapa lore is of primitive Indian origin. To this there are, as stated, serious objections, and much has been added to it in course of time; still, as hitherto said, the tradition is so widespread that an invention of the whole within twenty years after the conquest for the purpose of flattering the Christians is hardly admissible. Again, the supposed martyrdom of Tonapa would not have been much to the credit of the Indians, although it might have been invented by Indians,

already christianized, in order to cast a slur on those who were still recalcitrant.

I submit these data without expressing an opinion. If further investigation should show the tales to be spurious, it will free ancient Peruvian history of a serious obstruction and present the value of Indian traditions in a new light. On the other hand, should the story prove to be both authentic and primitive, which can be determined only by further investigation on both sides of the Atlantic, an important gain to knowledge of precolumbian times in America will accrue.

As in the case of myths and traditions concerning the island of Titicaca, no conclusion, either negative or affirmative, can be reached at present. Among the desiderata to be obtained are:

1. Additional documentary evidence touching the Carabuco cross.
2. A minute examination of the cross, of its wood and workmanship, and of the copper nails and band.
3. Investigations among the Indians of Carabuco and vicinity as to recollections in regard to the origin and discovery of the relic.
4. Researches among the Indians, both Quichua and Aymará, concerning the Viracocha and Tonapa tales.
5. Study of hitherto neglected documents, written and printed, for possible new information. The research may not reveal anything that is new, but in this, as in any other investigation, negative testimony would be as important as the positive.

NOTES

1. Ramos, *Historia de Copacabana* (edition of 1860, part 1, cap. 28, p. 56): "Despues, el mismo Ilustrisimo Vergara hizo un nuevo escrutinio, haciendo excavar tres estados el lugar donde se halló la Cruz, hasta que se encontró el tercer clavo, que se lo llevó a Chuquisaca; de donde, en su muerte lo tomó el licenciado Alonso Maldonado, Presidente de la real Audiencia de la Plata, y lo llevó consigo a España. Los otros dos están en Carabuco, y son de la misma hechura que los de Jesucristo. Cuando se dividieron los Obispos, dividieron tambien esta santa Cruz, aserrándola por medio, de modo que salieron dos; la una quedó allí, y la otra se llevó a la Catedral de Charcas." Sucre was formerly "Ciudad de la Plata," and "Chuquisaca" is the Quichua name.

2. Idem. "El celoso Sacerdote la armó con gran devocion y la colocó en una capilla, donde por muchos años fué frecuentada, cortando los devotos sus astillitas de aquel santo madero, como se sacan y veneran las particulas de la verdadera cruz."

3. There is an elaborate description of these rude paintings by the Presbítero Avelino Uria, *Tradicion del Santuario de Carabuco* (La Paz, 1877). He gives no details of the tradition, but says (p. 2): "Colocados en el interior del templo, con el título de *Novisimos ó Postremerias del Hombre*, cuadros existentes desde el tiempo del coloniaje y conservados cuidadosamente hasta hoy dia." The paintings are divided each into eight smaller fields, containing representations of events of the story and of the miracles attributed to the cross. Fourteen of these are dedicated to the story, the remaining sixteen to the miracles. The tale, as told by the first, varies but slightly from that of Ramos and others. The Saint is represented as arriving at Carabuco in the company of five Indians, his "disciples," as having planted the cross on a hill dedicated to Indian sacrifices (II); as having thence gone to Sicasica (III), returning to Carabuco (IV), whence, after being tortured, he floated off on the waters of the lake under protection of the Virgin (VIII and IX). The finding of the cross is attributed to a *fiscal* (Indian custodian of the church), who heard of it, during a drunken feast of the Indians, from a woman, who was afterward compelled to designate the spot where it had been buried. It is said that she had to be tortured before she revealed the place (XIV). All this is represented in the crudest manner possible. It may be Indian work, although the artistic performances of the *mestizos* or *cholos* in the villages are not superior to those of the aborigines.

4. Simon Perez de Torres, *Discurso de mi Viage* (In Barcia, *Historiadores primitivos de Indias*, vol. III). He began his journey in 1586 and was in South America when the eruption of the Omate occurred, which was in 1600 (fol. 12 and 13). He must have been in Carabuco about that year, or perhaps a little before (fol. 14). "De aqui me fui á Carabuco, Ciudad de Indios, ai veinte leguas: En esta Ciudad ai vna Cruz, que hallamos quando llegamos á aquella tierra, que estaba hechada en la Laguna, sin saber quien lo habia hecho; agora sacan mucho palo de ella, i nunca le falta nada." On the margin is "Cruz milagrosa." The visit of Perez must have taken place previous to that of Bishop Ramirez de Vergara, hence it is the earliest notice of the cross that is known to me.

5. I quote from the French translation in the *Archives des Voyages*, under the title of *Voyage aux Indes orientales et occidentales, dans lequel*

on raconte le voyage que les Espagnols qui résident aux îles Philippines du Ponent firent au royaume de Camboge, et ce qui leur arriva dans ce pays insi que dans la Cochinchine, avec une description des forteresses que les Portugais possèdent dans l'Inde, la Perse, l'Arabie et l'Éthiopie inférieure, et de tous les établissements espagnols dans les Indes occidentales, par Christoval de Jaque de los Rios de Mancaned, natif de Ciudad Rodrigo, écrit en 1606. The identity of the author is well established by other sources. He left Lima for Bolivia (Potosi) on July 15, 1600 (p. 342). It is strange that Jaque, who subsequently married in Bolivia (p. 344), should call Bishop Ramirez "Segura" and make him Bishop of Cuzco, instead of Charcas. The date of 1592, therefore, is at least doubtful.

6. In my translations from Salcamayhua I adhere strictly to the text. He writes as would an Indian from the Peruvian or Bolivian highlands; his orthography is more than picturesque, and the style requires acquaintance with the Indian Spanish of those regions. *Relacion de Antigüedades deste Reyno del Pirú* (p. 238): "Este varon, dizen que andando predicando, llegó a los Andes de Caravaya, y en ella hizo una cruz muy grande, y los trajo por sus ombros, asta ponerles en vn cerro de Carapucu, en donde les predicó dando grandes bozes, echando lagrimas."

7. I have frequently had occasion to treat of these clusters, which played a conspicuous part in the organization of the Indians and which exist at the present day.

8. *Historia del célebre y milagroso Santuario de la ynsigne Ymagen de N^{ra} S^{ra} de Copacabana* (Lima, 1621; lib. 1, cap. ix).

9. Ramos, *Historia de Copacabana* (edition of 1860, p. 56): "El celoso Sacerdote la armó con gran devocion y la colocó en una capilla, donde por muchos años fué frecuentada, cortando los devotos sus astillitas de aquel santo madero, como se sacan y veneran las particulas de la verdadera Cruz." Also Perez de Torres, *Discurso*, etc., folio 14.

10. *Historia de Copacabana* (lib. 1, cap. 39, p. 57).

11. *Idem* (p. 60). Aged Indians are not always well informed, still less are they always reliable; on the contrary, they are the most wily deceivers, especially if they should be medicine-men.

12. Fray Juan Melendez, *Tesoros verdaderos delas Yndias, Historia verdadera de la Provincia de San Juan Bautista del Peru del Orden de Predicadores* (Roma, 1681, vol. 1, lib. 1, p. 620): "Tuuimos (como hemos dicho) Conuentos en esta Prouincia de Chucuyto, en Juli, en Copacavana, y en los demas pueblos Vicarias, hasta el año de 1569, en que despojados nuestros Frayles de toda la Prouincia, sucedió todo aquel cuento que ya dexamos escrito del Virrey Don Francisco de Toledo, y el modo,

y los motivos, que tuimos para boluer al pueblo de Pomata." It does not seem that the Dominicans extended their stations to the eastern side of Lake Titicaca (p. 399): "En el año de 1565 tenia la Orden asignada al Convento de San Pedro Martir de Juli, doce Religiosos Dominicanos." (p. 411:) "Aceptaron la Vicaría y Casa de Santo Domingo del Pueblo de Acora en la Prouincia de Chucuytu (en el Capítulo de 1565.) la de Panamá, la de Ylaui, la de Zepita, la de Yunguyu, y la de Copacavana en la misma Prouincia de Chucuytu." (pp. 444, 446:) "Mientras los Jesuitas poco despues consiguieron á Juli y los Agustinos á Copacavana. Los otros pueblos recibieron Clérigos seglares."

13. In Bolivia every Indian feast terminates with a fight. This was the case at the time of and even before the conquest, as no festive gathering of any kind could take place without a disgusting orgy. This is so well established that no reference to documents is necessary.

14. *Voyage aux Inues orientales et occidentales*, etc. (pp. 342, 343). It is presumable that he obtained his information at Copacavana.

15. Enrique Torres Saldamando, *Los antiguos Jesuitas del Perú* (Lima, 1882, p. 2). He arrived at Lima on April 27, 1569, and at Cuzco in 1571, where he remained as *visitor* until 1576. He visited nearly the whole of Peru and Bolivia in some official capacity of the order. In 1577 (p. 6) he was in charge of the mission at Juli, one of the most important on the western shore of Lake Titicaca. From 1576 to 1580 he was provincial of the Jesuits.

16. Oliva was in Peru from 1597 to his death in 1642. He visited the western shore of the lake and the central part of Bolivia.

17. Father Bernabé Cobo reached Lima in 1599 (*Antiguos Jesuitas*, etc., p. 99). In 1615 he went to Juli and visited, as missionary, central Bolivia and La Paz, until 1618. There are several works from his pen that remain unpublished.

18. The date of this report (*Relacion de las Costumbres antiguas de los Naturales del Pirú*, published at Madrid in 1879) is not known, but it was written either at the close of the sixteenth or in the first two decades of the seventeenth century.

19. Acosta left Peru for Europe in 1585 (*Antiguos Jesuitas*, p. 10).

20. It is curious that the origin of the image of the Virgin of Copacavana is also connected with a quarrel between the two clusters of Anansaya and Hurinsaya. The two groups at Copacavana quarreled about the establishment of a sodality, the former being in favor of placing it under the protection of Our Lady of the Light, the latter of Saint Sebastian. The Indian Francisco Titu Yupanqui, from Copacavana, at the instance

of the head of the Anansayas, then commenced work on the image; in June, 1582 (Ramos, *Historia de Copacavana*, ed. of 1860, pp. 65, 66). It was installed in the church of Copacavana on February 2, 1583, and its fame spread rapidly. The parish was then in the hands of secular priests. The nature of the quarrel, however, was entirely different at the two places, and there appears no connection between them. That the subject of the quarrel should have been a religious one is natural, the festival being of a double nature, the celebration of Corpus Christi serving as a veil for an ancient feast coinciding approximately with the other. Ramos (*Historia*, p. 56) says it was the "*Inti-raymi*." The *Carta pastoral de Exortacion e Instruccion contra las Idolatrias*, etc. (1649, fol. 43) positively states that the feast of Corpus Christi coincided nearly with the old Indian festival of the *Oncoymita*, when the Pleiades made their first appearance. *Inti-raymi* appears to have been the ancient name of the lunar period approximately corresponding to our months of May or June. (See Velasco, *Historia de Quito*.) This is corroborated by Cristóval de Molina (*The Fables and Rites of the Incas*, transl. by Markham, Hakluyt Soc., 1873, p. 16): "They commenced to count the year in the middle of May, a few days more or less, on the first day of the moon; which month, being the first of their year, was called *Hauca* and *Llusque*, and in it they performed the following ceremonies, called *Yntip Raymi*, or the festivals of the sun." Hence Ramos had some foundation for his statement. It may also be that the feast had a different name in various parts of Peru.

21. The first visit to the lake took place probably in 1538 or early in 1539. The date is not yet certain, but it could not have been later than 1539, nor earlier than 1538, unless Almagro passed near it in 1535.

22. In this connection I recall the Pueblo Indian story of "*Montezuma*," which was concocted about 1846 and is told by the New Mexican Indians as an ancient tradition. Compare my paper *The Montezuma of the Pueblo Indians*, *American Anthropologist*, October, 1892.

23. *Suma y Narración de los Incas que los Indios llamaron Capacuna*, etc. (1551, published at Madrid, 1880; cap. II, p. 7): "Que preguntando á los indios que tenía este Viracocha cuando así le vieron los antiguos, según que dellos tenían noticia, y dijéronme que era un hombre alto de cuerpo y que tenía una vestidura blanca que le daba hasta los pies, y questa vestidura traía ceñida; é que traía el cabello corto y una corona hecha en la cabeza á manera de sacerdote; y que andaba destocado, y que traía en las manos cierta cosa que á ellos les parece el día de hoy como estos breviaríos que los sacerdotes traían en las manos. Y esta es

la razon que yo desto tuve, segun que los indios me dijeron. Y preguntéles cómo se llamaba aquella persona en cuyo lugar aquella piedra era puesta, y dijéronme que se llama Con Tici Viracocha Pachayachachic, que quiere decir en su lengua, *Dios Hacedor del Mundo*." This story was told Betanzos at Cacha, five leguas north of Sicuani on the road to Cuzco, where interesting ruins of Inca architecture still stand. The Quichua idiom is spoken there, as it probably was at his time, although the language may have been a mixture of Quichua and Aymará. At any rate, they were on the confines of the Collao, where Aymará was spoken, and it is not impossible that they may have heard the tradition from the Collas. Still, the people of Cacha assured Betanzos it was local lore and was connected with volcanic phenomena, vestiges of which are plainly visible to-day. Betanzos says (pp. 5, 6): "Y viendo esta admiracion llamé en este pueblo de Chaca los indios é principales más ancianos, é preguntéles qué hobiese sido aquello de aquel cerro quemado, y ellos me dijeron esto que habeis oido. Y la guaca de este Viracocha está en derecho desta quemadura un tiro de piedra della, en un llano y de la otra parte de un arroyo que está entre esta quemadura y la guaca." This is a very good description of the lava flow in front of the ruins of what to-day is called the "temple of Viracocha" at Rajti (near Cacha), which we visited in 1894. The mysterious personage connected with this eruption came (according to the statements of the Canas) from Bolivia (cap. 1, p. 1): "Y en estos tiempos que esta tierra era toda noche, dicen que salió de una laguna que es en esta tierra del Perú en la provincia que dicen de Collasuyo, un Señor que llamaron Con Tici Viracocha." According to the footnote by Don Marcos Jiménez de la Espada (p. 1) the original manuscript has Con *Titi* Tiracocha, for which he substituted *Tici*. It is a question whether *Titi* is not the proper spelling. If Viracocha emerged from Lake Titicaca, the change made by Espada might not be justified. At all events the Viracocha tradition appears to have originally been Aymará, which, combined with its reappearance independently among other tribes, would give it some color of authenticity. The story told Betanzos at Cacha was also repeated by Cieza, if the latter did not obtain it from Betanzos himself (which is not unlikely), or at least from somebody at Cuzco. *Primera Parte de la Crónica del Perú* (edition of Vedia, vol. II, cap. xcvi, p. 441). As he himself admits, Cieza was unable to converse with the Indians directly.

24. *Suma y Narracion* (p. 8): "Y como llegase a la provincia de Puerto Viejo, se juntó allí con los suyos que ante él inviaba en la manera ya dicha, donde como allí se juntasen, se metió por la mar juntamente

con ellos, por do dicen que andaba él y los suyos por el agua así como si anduvieran por tierra."

25. Idem. p. 5.

26. The Indians were acquainted with the characteristic dress of the Dominicans as early as 1533.

27. See Note 23.

28. This is also indicated by Cieza, *Segunda Parte de la Crónica* (p. 5). He did not believe the personage to have been a Christian missionary (p. 9), but repeats the tale of his having reached the coast and disappeared on the waters of the ocean (p. 8): "Y sobre esta materia dicen más, que saliendo de allí, fué hasta llegar á la costa de la mar, adonde, tendiendo su manto, se fué por entre sus ondas, y que nunca jamás pareció ni le vieron; y como se fué, le pusieron por nombre Viracocha, que quiere decir espuma del la mar." Cieza obtained his information at Cacha in 1549, that is, sixteen years later than the occupancy of Cuzco by the Spaniards. Betanzos learned of the story a few years earlier, so that the Viracocha tale became known to the Spaniards perhaps within a decade of their first arrival.

29. *Segunda Parte* (p. 6): "Generalmente le nombran en la mayor parte Ticiviracocha, aunque en la provincia del Collao le llaman *Tuapaca*, y en otros lugares della *Arnauan*."

30. *Primera Parte de la Crónica* (cap. LXXXVII, p. 434): "Preguntando á los indios comarcanos quién hizo aquella antigualla, responden que otras gentas barbadas y blancas como nosotros, los cuales, muchos tiempos antes que los ingas reinasen, dicen que vinieron á estas partes y hicieron allí su morada." There is another mention of the tradition, in the *Description de la Tierra del Repartimiento de los Rucanas Antamarcas de la Corona real, jurisdiccion de la Ciudad de Guamanga* (1586, in *Relaciones geográficas de Indias*, vol. II, p. 210): "Par. 21. — Respóndese al capítulo veinte y uno, que junto al pueblo de *La Vera Cruz de Cauana* está un pueblo derribado, al parecer, antiquísima cosa. Tiene paredes de piedra labrada, aunque la obra tosca; las portadas de las casas, algunas de ellas algo más de dos varas en alto, y los lumbrales de piedras muy grandes; y hay señales de calles. Dicen los indios viejos, que tienen noticia de sus antepasados, de oídas, que en tiempos antiquísimos, ántes que los Ingas los señoreasen, vino á esta tierra otra gente á quien llamaron *Viracochas*, y no mucha cantidad, y que á estos los seguían los indios viniendo tras ellos oyendo su palabra, y dicen ahora los indios que debían de ser santos. A éstos les hacían caminos, que hoy día son vistos, tan anchos como una calle y de una parte y de otra

paredes bajas, y en las dormidas les hacian casas que hasta hoy hay memoria dellas, y para esta gente dicen que se hizo este pueblo dicho, y algunos indios se acuerdan de haber visto en este pueblo antiguo algunas sepulturas con huessos, hechas de piedras cuadradas y enlucidas por de dentro con tierra blanca, y al presente no parecen hueso ni calavera destos."

31. *Primera Parte*, p. 446.

32. Idem (p. 443); *Segunda Parte* (p. 4): "Tambien cuentan lo que yo tengo escripto en la primera parte, que en la isla de Titicaca, en los siglos pasados hobo unas gentes barbadas, blancas como nosotros, y que saliendo de Coquimbo un capitan que habia por nombre Cari, allegó á donde agora es Chucuito, de donde, despues de haber hecho algunas nuevas poblaciones, pasó con su gente á la isla, y dió tal guerra á esta gente que digo, que los mató á todos. Chirihuana, gobernador de aquellos pueblos, que son del Emperador, me contó lo que tengo escripto." This was told Cieza by an Aymará in 1549.

33. *The Fables and Rites of the Yncas* (Markham transl., pp. 6-8). He mentions Viracocha, but as a deity, and says he had two sons, one of whom was called Tocapo Viracocha. These sons "went until they reached the sea, whence they ascended to heaven, after having accomplished all they had to do in this world." It recalls the disappearance of Viracocha on the coast of Ecuador, as told by Betanzos and Cieza.

34. *Miscelánea Antártica*, (MS., *Segunda Parte*, cap. 19, fol. 258): "Que los Indios antiguos dan para tenerla por las antigüas tradiciones de sus mayores . . . y la misma razon dan los de Chile señalando su venida de acia el estrecho aquién llamamos de Magallanes." Idem., *Tercera Parte*, cap. 6, fol. 333: "Porque tambien dicen que a pocos años despues [the death of Christ] fueron muertos en las partes superiores deste Piru ciertos varones de aspecto y presencia venerable barba larga vestido onesto," etc. The note following refers to a similar tradition, from Huamachuco, which may be the same as that related by Balboa.

Although the Jesuits make no mention of the cross of Carabuco, one of their number, Father Anello Oliva, evidently refers to the Tonapa tale in his *Historia del Peru, y Varones insignes en Santidad de la Compañia de Jesus*, from 1631 (Lima, n. d., but about 1893, p. 127): "Confir-mase este conocimiento con una larga y gran tradicion que tienen los naturales desta tierra que vino a ella un hombre con barbas (conocido por estas señas, por no tener los Indios ningunas) y el cabello algo crespo, los ojos çarcos, de buena estatura, vestido de una camisetá morada y una manta carmesí, y que saliendo de la mar auia predicado a

la gente de la costa que no adorassen al Sol, Luna ni otras cosas . . . sino solo a Pachacamac, que era el Todopoderoso. Mas por que predicó que el Pachacamac teniendo un hijo se lo auian muerto los hombres y que assi lo auia querido su padre por amor de los mismos hombres, le apedrearon y aun le quisieron matar, y dicen se fue huyendo aunque despues pareció en el pueblo de Hilavaya donde predico lo mismo y por esta raçon tambien le quisieron matar y de hecho le echaron del lugar . . . [p. 128:] y que tercera vez el mismo despues de lo sucedido auia parecido en Copacauana junto al famoso templo del Sol que tengo contado estaba en la Isla de Titicaca y que predicando lo mismo que otras veces quisieron tambien matarle sacrificandole al Sol lo qual por que no faltaron algunos que lo contradixessen tomaron resolucion de quitalle la vida de tal suerte que no quedasse memoria del y que lleuandole muerto a una ysla despoblada de la propia laguna en una canoa se hundio la canoa con la gente que la llevaba y el cuerpo de manera que nunca mas pareció." This tradition he obtained from a certain Catari from Cochabamba in central Bolivia. It indicates that the tale of a white and bearded man was also current among the coast indians of Peru. Oliva is not a very reliable guide; yet, while he has not attempted a critical sifting of the stories, it is not likely he invented them. Hilavaya or Ilabaya, is a village near Sorata, from which Carabuco may be reached in less than two days' travel.

35. The Augustines arrived in Peru in 1550. Their first attempt at conversions among Indians was at Huarochiri, but they soon had to abandon it on account of the approach of the insurgents under Francisco Hernandez Giron. This was in 1552 or 1553. The mission at Huamachuco probably began in 1554, since it is stated in the *Relacion de la Religion y Ritos del Peru, hecha por los primeros Religiosos Agustinos que alli pasaron para la conversion de los Naturales* (*Documentos inéditos de Indias*, vol. III, p. 11): "En este tiempo se retiró el dicho Francisco Hernandez con su ejército, y fué hasta Pucara, donde fue del todo desbaratado, y así los religiosos tornaron a su obra y enviaron a otros dos a la provincia de Guamachuco que fueron el padre Fr. Juan de San Pedro y Fr. Juan del Canto." . . . The action at Pucara was fought October 8, 1554. — *Carta de los Oydores que fueron con el ejército real, en persecucion de Francisco Hernandez, a la Audiencia de Panamá*, Cuzco, November 5, 1554; Bravo de Saravia, *Carta a la Audiencia de Panamá*, January 12, 1555 (*Doc. inéd. de Indias*, vol. III, pp. 314-317). The date of the report is usually given as 1555, after Ternaux-Compans (*Recueil de Documents et Mémoires originaux sur l'Histoire des Possessions espa-*

gnoles en Amérique, 1840, p. 83, note), whereas it is posterior to 1560. (*Relacion de la Religion*, etc., p. 55.)

36. *Relacion* (p. 22). It recalls the work the Indians are said to have done for the Viracochas in the province of Guamanga. See Note 30.

37. *Relacion* (p. 24): "Y dicen los indios que aquel *Viracocha* les queria hacer cristianos y lo echaron de la tierra."

38. *Ut supra*: "De aqui verá V. S. como sin dubda por aquella tierra muchos años antes habia memoria de cristianos y se habia predicado el Santo Evangelio, porque por los indios es muy comun, y allá en el Collao se halló una estatua de piedra en un lugar que no me acuerdo del nombre, questo muy público es, como Apóstol y con su corona y axotas [*ojotas* = sandals] como acá los pintan." The statue here mentioned is probably the carving in stone said to exist or then to have existed at Cacha, to which place, as stated in a previous note, the Viracocha tale was particularly attached. Betanzos describes it (*Suma y Narracion*, p. 6) as follows: "En la cual guaca pusieron un bulto de piedra esculpido en una piedra grande de casi cinco varas en largo y de ancho una vara ó poco ménos, en memoria de este Viracocha y de aquello allí subcedido; lo cual dicen estar hecha esta guaca desde su antigüedad hasta hoy." Much more positive are the statements of Cieza (*Segunda Parte*, p. 9, cap. v): "Yo pasando por aquella provincia, fui á ver este idolo, porque los españoles publican y afirman que podria ser algun apóstol, y aún á muchos oí decir que tenia cuentas en las manos, lo cual es burla, si yo no tenia los ojos ciegos, porque aunque mucho lo miré, no pude ver tal ni más de que tenia puestas las manos encima de los cuadriles, enroscados, los brazos, y por la cintura señales que debrian significar como que la ropa que tenia se prendia con botones." The belief of the Spaniards that this statue represented some Apostle explains the statements of the Augustines.

39. Juan de Santa Cruz Pachacuti Yamqui Salcamayhua, author of the *Relacion de Antigüedades deste Reyno del Pirú*, quoted in preceding notes, was a native of Orcusuyo, hence a Quichua neighbor of the Aymari. He makes a great profession of Christianity, and I am led to suspect that he did it on account of the strict investigations then carried on about idolatrous practices; for he wrote about 1613 (according to Jiménez de la Espada), when Arriaga and P. Terhuel carried on their famous official search. His book was published by Espada in *Tres Relaciones de Antigüedades peruanas*, 1879, and there is also an English translation by Markham. I refer to the original Spanish text. Espada has been careful to preserve the style and orthography of the author

(p. 234): "Digo que emos oydo siendo niño noticias antiquisimos y las ystorias, barbarismos y fabulas del tiempo de las gentilidades, que es como se sigue, que entre los naturales á las cosas de los tiempos passados siempre los suelen hablar," etc. The term *parlar* is to-day used by the Bolivian Aymará for "to speak," and they regard it as a legitimate Aymará word. I cannot find it in any vocabulary of the language. The extreme devotion to the Christian faith which Salcamayhua boasts renders the purity of his records of tradition somewhat suspicious. Still, the nucleus is so much in conformity with Betanzos and Cieza, that they were either obtained from their writings or were original traditions preserved among the Indians of that district, colored of course, in time, and possibly still further adorned by himself. He could not well have been able to consult the manuscript of Betanzos or of the second part of Cieza, and the book of Ramos appeared in print after he had written his *Relacion*. See Note 53.

40. *Relacion* (p. 236): "Los yndios de aquel tiempo dicen que suelen burlar deziendo, tan parlero hombre, aunque los predicaua siempre, no fueron oydos, porque los naturales de aquel tiempo no hezieron caudal ni caso del hombre. Pues se llamó á este baron," etc. Following are the names given in the text. On the same page he adds two more designations in Quichua, but I do not attempt to trace their signification.

41. *Idem*: "An llegado entonces á estas provincias y reynos de Tabantinsuyu vn hombre barbudo, mediano de cuerpo y con cabellos largos, y con camissas algo largas, y dicen que era ya hombre passado mas que de moço, que trayeya las canas, hera flaco, el qual andaua con su bordon, y era que enseñaba á los naturales con gran amor, llamandoles á todos hijos y hijas, el qual no fueron oydos ni hecho caso de los naturales, y quando andava por todas las provincias an hecho muchos milagros, & bisibles, solamente con tocar á los enfermos los sanaba, el qual no trayeya enterés ninguno ni trayeya hatos, el qual dicen que todas las lenguas hablaua mejor que los naturales, y le nombrauan," etc.

42. *Idem*, note 3.

43. (p. 237): "Los viejos modernos del tiempo de mi padre, don Diego Felipe, suelen dezir que caçi caçi era lo mandamiento de Dios, principalmente los siete preceptos; no les faltaua solamente nombre de Dios nuestro señor, y de su hijo Jesucristo nuestro señor les faltaua, que es publico notorio entre los viejos; y las penas eran graues para los que quebrantauan." This passage is preceded by one which, if genuine tradition from precolumbian times, is not devoid of interest. It says that Tonapa reached a village called Apotampo (it is not clear whether this is

the name of the place or of its chief), that the chief received him well, but the people listened to him only out of regard for their leader, and that he gave to the latter a piece of his stick and *cut marks into it to correspond to each section of his sayings*. Notched sticks were and are still used by the Indians of Peru and elsewhere, sometimes in place of knotted strings, and this custom is certainly a survival from times anterior to the conquest. The passage reads as follows (p. 237): "De modo que en vn palo los recibieron lo que les predicaua, señalandoles y rayandoles cada capitulo de los rrazones."

44. (p. 238.) The first part of the paragraph has been quoted in my text, therefore I give it here in the original Spanish: "Este baron, dicen que andando predicando, llegó á los Andes de Carabaya, y en ella hizo una cruz muy grande, y los trajo por sus ombros, asta ponerles en vn çerro de Carapucu, en donde les predicó dando grandes bozes, echando lágrimas. Y en ella, vna hija de vn caçique de aquella probinçia, dicen que fueron echados en la cabeza con agua, y los yndios, biendo aquella manera, se entendieron que lababa la cabeça y, asi lo tresquiló despues que fue preso el *Tunapa* a buen recaudo, junto en la laguna grande de Carapuco. Carapuco quiere decir quando cantan quatro bezes muy á la madrugada un abe llamada *Pucufuco*. Dizen que al amanecer entraron a *Tunapa* do estaba preso un mancebo muy ermoço, y los auia dicho: 'no tengas pena, que ya vengo a llamaros en nombre de la matrona que os está aguardando solo, el qual esta para irse al lugar de hulguras.' Y diziendo así, dicen que tocandole con los dedos á los cordeles, questaban atados de los quatro braços, manos y piez; y en ella dicen que abia mucha gente de guardia, questaban ya sentenciado el dicho *Tunapa* a muerte cruel. Como digo, que al amanecer, como a las cinco oras de la mañana, entraron en la laguna juntamente con el dicho mancebo, tendiendoles sobre el agua la manta que traia, el qual manta ciuió en lugar de balça, de cuya llegada en el dicho pueblo de Carapucu y prouinçia della alteraron los curacas y principales della," etc. Three points deserve to be considered in these statements: First, the cutting of the hair of the girl after she had been baptized, which shows that she was quite young, so that, according to the Aymará custom, still observed to-day, she had not yet been washed, that act of cleanliness being performed only after the ceremony of first hair-cutting. Second, the belief in the bird the song of which, at daybreak, prognosticates evil: this is also a present-day Aymará superstition. Thirdly, the planting of the cross on a height near Carabuco, also told by Cristóval de Jaque, *Voyage*, etc., p. 342.

45. Idem: "Dicen que el dicho *Tunapa*, despues de haberse ya librado de las manos de aquellos bárbaros, estuvo buen rrato encima de vna peña llamado Titicaca" — possibly *Titikala*, the so-called sacred rock on the island.

46. This is the same as the Viracocha tale told by Betanzos and Cieza, *Suma y Narracion* (p. 2), *Segunda Parte de la Crònica* (p. 7). It is also to be noted that Cieza mentions a *second* personage like the Viracocha, who came later: "Sin esto, dicen que, pasados algunos tiempos, volvieron á ver otro hombre semejante al questà dicho, el nombre del cual no cuentan, y que oyeron á sus antepasados por muy cierto, que por donde quiera que llegaba y hobiese enfermos, los sanaba, y á los ciegos con solamente palabras daba vista; por las cuales obras tan buenas y provechosas era de todos muy amado; y desta manera, obrando con su palabra grandes cosas, llegó á la provincia de los Canas, en la cual, junto á un pueblo que há por nombre Cacha," etc. The text of Salcamayhua (p. 239) is as follows: "Y como se partiò de aquel lugar, toda la gente questanan baylando se quedò hechas piedras, combertiendose, que hasta el día de oy se echa de ber. Remito á los que han pasado por alli."

47. (p. 240:) "Dizen quel dicho *Tunapa* pasó siguiendo al rrio de Chacamarca, hasta topar en la mar. Entiendo que pasó por el estrecho hacia la otra mar. Esto an averiguado por aquellos ingas antiquisimos." It will be observed that he always insists on having obtained his information from strictly Indian sources.

48. (p. 261:) "En este tiempo dicen que se acordò de yr en busca del lugar á do el baron *Tionapa* abia llegado, llamado Titicaca, y de alli dizen que las truxo agua para ongir con ella al nuevo infante *Yngaruca* diciendo muchas alabanzas de *Tionapa*, y avn dizen que en aquel manantial que està encima de las peñas biuas como en vna taça, estaua el agua llamado *Capacchana Quispisutoe Vno*; y despues dizen que otros yngas suelen mandar traer un pomo, llamado *Coricacaca*, y los ponía ante ssi, para que estubiera en medio de la plaza del Cuzco, llamado Haocaypata Cuçipata, alabando la agua tocada de *Tionapa*," etc. I have not been able to find any other reference to such a custom among the Inca, and am inclined to believe that Salcamayhua was either misled by his informants or strained his religious zeal beyond the limits of strict adherence to the Indian story.

49. Idem: "Y en este tiempo dicen que los curacas de Asillo y Hururu les conto al ynga que cómo antiguamente abia llegado vn pobre viejo flaco, barbudo y con cabellos como mujeres, y camissa larga, y gran consejador en acto público a toda la república, y les dezía que el hombre se llamaua *Tionapa Vihinguirá*, el qual dizen que en la lengua de esta

provincia hablaua mejor y que los abia desterrado á todos los ydolos, yma-jines de los demas *Hapiñños*, á los serros nibados, donde jamas los hombres los llegauan, que son *Lloques ó Quenamaris*. Y tras desto dicen que todos los curacas y sus historiadores de los orejones les dixieron lo mismo, que habian desterrado ese mismo *Tionapa* á todos guacas y ydolos á los serros de Aosancata y Quiyancata y Sallcantay, y á Pitosiray." Asillo, as well as Onurillo (Hururu), is in the vicinity of Azángaro, whence came the Indian who, at Keara, first told us the story of Juan Rubio. It seems, therefore, that this tale is the same as that of Tonapa and that it was current about Azángaro three centuries ago.

50. Idem: "Y como cada prouincia de los curacas de Tauantinsuyo estauan en la plaça de Haucaypata, todos en sus lugares y asientos, dicen que los Guancas y Chinchay suyos, los dixieron que el *Tionapa Varivilca* abia tambien estado en su tierra, y que los abia hecho una cassilla para su morada, y que en el entretanto los habian desterrado á todos los *uacas* y ydolos y *apiñños* de las prouincias de Hatunsaussaguanca, haciendo grandissimos burlas y vituperios; de modo el dicho *Tionapa Varivilca* los abia desterrado, echandoles á todos los *uacas* á los serros nibados y car-ambanos, como en Pariaca y Uallollo." Pariacaca and Gualollo are two mountains in the Yauyos country, east of Lima. The *Description y Relacion de la Prouincia de los Yauyos toda, Anan Yauyos y Lorin Yauyos, hecha por Diego Davila Briseño, corregidor de Guarochiri*, 1856 (*Relaciones geográficas*, vol. 1, p. 72), has a tradition concerning a war between the two mountains that appears to relate to some volcanic disturbance in precolumbian times. Father Francisco de Avila, curate of San Damian, in the province of Huarochiri (adjoining Yauyos), in his *Narrative of the Errors, False Gods, and other Superstitions and Diabolical Rites in which the Indians of the Provinces of Huarochiri, Mama, and Chaella Lived in Ancient Times*, etc. (transl. by Markham in *Narratives of the Rites and Laws of the Incas*, Hakluyt Society, 1873, cap. 1, p. 123), mentions this war also. He likewise tells (p. 124 et seq.) the story of the idol *Coniraya*, which recalls the Tonapa tale, inasmuch as it says: "They say that in most ancient times the Coniraya Uiracocha appeared in the form and dress of a very poor Indian clothed in rags, insomuch that those who knew not who he was reviled him and called him a lousy wretch. They say that this was the Creator of all things; and that, by his word of command, he caused the terraces and fields to be formed on the steep sides of ravines, and the sustaining walls to rise up and support them. He also made the irrigating channels to flow, by merely hurling a hollow cane, such as we call a cane of Spain,

and he went in various directions, arranging many things. His great knowledge enabled him to invent tricks and deceits touching the *huacas* and idols in the villages which he visited." He then proceeds to relate how this being made pregnant a woman, called Cavillaca, by inducing her to eat a fruit called *lucma*, which is well known in Peru. "When the nine months were completed she conceived and bore a son, herself remaining a virgin." Thus far it bears a certain resemblance to the Tonapa story and to the manner in which the birth of Christ might be represented by an Indian, from a tale told his tribe centuries ago. The admixture of Catholic ideas is interesting. In the course of three-quarters of a century that part of the story could easily have arisen through contact. It is noteworthy that the people of Huarochiri addressed Coniraya in their prayers as Viracocha. *Narrative*, etc., p. 124: "It is, however, certain that it was invoked and revered almost down to the time when the Spaniards arrived in this land. For when the Indians worshipped it they said, '*Coniraya Uiracocha* (this name is that which they gave, and still give, to the Spaniards), thou art Lord of all: thine are the crops, and thine are all the people.' In commencing any arduous or difficult undertaking, they threw a piece of coca (a well-known leaf) on the ground, as an oblation, and said, 'Tell me, O Lord *Coniraya Uiracocha*, how I am to do this?' The same custom prevailed among the weavers of cloth, when their work was toilsome and difficult. This invocation and custom of calling the idol by the name of Uiracocha certainly prevailed long before there were any tidings of Spaniards in the country. It is not certain whether *Coniraya* or *Pariacaca* were first; but as it is more probable that *Coniraya* was the more ancient, we will first relate his origin and history." The manner in which the woman Cavillaca became a mother recalls the tale of *Pose-yemo* among the New Mexican Tehuas, with the difference that in the latter story it is the child who plays the important part, whereas at Huarochiri mother and child are turned into stones on the coast (p. 127), and only Coniraya remains as a prominent actor, although he is also finally transformed into a rock.

51. *Relacion*, etc., p. 263.

52. *Historia de Copacavana*, edition of 1860, cap. 30, p. 60.

53. See Notes 23, 28, and 39; also Cieza, *Segunda Parte*, p. 6. Tuapaca is probably "Tarapaca." There is a possibility that Father Ramos, before writing his book on Copacavana, or at the time he wrote it, read the work of the Dominican Fray Gregorio Garcia, *Origen de los Indios de el Nuevo Mundo*, 1607. I quote from the edition of 1729, after having compared it carefully with the Editio princeps (lib. v, cap. vii,

pp. 331-333), in which the author states that he copied Betanzos. He calls it (on the margin) "Histor. M. S. de los Incas."

54. Torres Rubio, *Arte y Vocabulario de la Lengua Quichua*, edition of 1754, fol. 104, 77.

55. Idem, fol. 95; Bertonio, *Vocabulario*, I, p. 229.

56. *Segunda Parte* (p. 10): "Ques tanto decir como espuma de la mar; y quanto al nombre es verdad, porque *vira* es nombre de manteca, y *cocha* de mar." Agustín de Zárate, *Historia del Descubrimiento y Conquista de la Provincia del Perú*, edition of Vedia, vol. II, p. 471: "Que es tanto como espuma ó grasa del mar." Zárate published his work in 1555, two years after the first part of the chronicles of Cieza appeared.

57. *Corónica moralizada del Orden de San Agustín en el Perú*, vol. I, 1638, lib. II, cap. X, p. 366: "Asentado este se conforman los Autores en dezir, que en todas las tierras arriba de Chuquiago, Chuquisaca, Potosí i sus comarcas, dóde el Licenciado Polo izo la aueriguacion, i en las de Chucuito." The memoir which Ondegardo wrote on the rites and folklore of the Peruvian Indians exists, in manuscript, at Lima; it has never been published.

58. *Corónica*, vol. I, p. 320: "Al uno llamaró Tunupa, que quiere decir grã sabio, señor i criador. I al otro Taapac, que significa el ijo del criador, así lo testifica el Padre F: Alonso Ramos, en su Copacavana." Previously he says: "No era él de Viracocha como pretende el Padre fray Gregoria Garcia, que ese dió al primero que despues del diluvio vino por la parte del Setentrion á poblar este nuevo mundo, con otros que le acompañaron, i andando el tiempo lo adoraron por Dios como dejamos dicho."

59. Compare the assertions of Calancha with Gregorio Garcia, *Origen de los Indios* (reprint by Barcia, 1729, lib. V, cap. VII, pp. 330-332).

60. *Corónica*, p. 320: "Pves venimos siguiendo á estos dos Predicadores del Evangelio, preguntemos las señas, aspecto, talle i vestido, i el nonbre con que les llamavan. En todas las Provincias pasado el Brasil donde llamavan Tome, desde el Paraguay asta Tarija 500 leguas, les llamaró Tume, i Tumime como verémos."

61. See Note 58.

62. *Corónica*, vol. I, p. 338. Calancha deserves mention chiefly because he refers to Ondegardo.



LEGEND.

- Cliff-dwellings.
- ▢ Pueblo ruins, upward of 500 rooms.
- ▢ " " " " 50 to 500 rooms (app.).
- ▢ " " " " 2 to 50 " "
- ▢ Defensive outposts of stone, single room.
- Pithalls.
- ⊗ Shrines.
- Reservoirs.
- Passable wagon roads.
- Trails.
- Irrigation ditches.

ARCHAEOLOGICAL
MAP
of

PAJARITO PARK

Territory of New Mexico

NEW MEXICO NORMAL UNIVERSITY

Expedition of 1900

EDGAR L. HEWITT,
A. M. CHAPMAN

ARCHAEOLOGIST IN CHARGE,
CHITTENDEN

1900

ARCHEOLOGY OF PAJARITO PARK, NEW MEXICO

By EDGAR L. HEWETT

INTRODUCTION

In the summer of 1896 the writer commenced to investigate the archeology of the plateau between the Jemez mountain range and the Rio Grande in New Mexico. The ethnological significance of this region seemed at that time to have been overlooked, nor has it yet received much attention. The studies then begun have continued intermittently ever since.

The first object was to obtain such facts as could be obtained by exploration, photography, and a limited amount of excavation. I hope to be able to present at some future time an extended report on the archeology of this region. Much work is yet to be done. The data procured are insufficient for any exhaustive study. The present paper is a preliminary notice of the district, the work commenced there, and the method employed.

During much of the time I have had for assistants two of my former associates on the faculty of the New Mexico Normal University — Mr Richard H. Powell, now of Greeley, Colorado, and Mr Kenneth M. Chapman, of Las Vegas, New Mexico. To them I am indebted for a great part of the photographic work and the work of platting ruins. Mr Powell rendered especially valuable service in the study of the petroglyphs and in superintending excavations. Mr Chapman contributed freely of his rare artistic skill in the illustrative work. During the summer at Puye, in 1899, Miss Jessie M. Himes, of Normal, Ill., and Miss Carol Brewster, of Northampton, Mass., graduate students, rendered most efficient service in the study of the cliff-dwellings as well as at the excavations. Mrs Ruth Reynolds McNary, of Las Vegas, has generously given much time to the preparation of the pottery obtained and to the photographs made therefrom for paleographic study. I have had much valuable help from my much esteemed old guide, Wajima, a head-

man of the Powhoge (San Ildefonso) Indians. His scrupulous care to point out every ruin and to make known to me its traditions, his patience in explaining Tewa expressions and legends, and his help in interpreting the paleography of pottery have greatly advanced my knowledge of the ethno-archeology of the region.

THE RIO GRANDE DISTRICT

The scarcity, almost absence, of collections for comparative study from the Rio Grande district strikes every investigator in Pueblo anthropology. Of the four great drainage areas which embrace the Pueblo culture, namely, the Rio Grande, the San Juan, the Little Colorado, and the Gila, the first has received the least attention. No important expedition has made it an objective point, and few contributions of the first magnitude are to be found in ethno-archeological literature which have for their subject the aboriginal culture of the Rio Grande valley. In the study of the Rio Grande pueblos as a whole the works of Bandelier¹ and Winship² are our main contributions.

The study of the ethnology of the Rio Grande pueblos is attended with considerable difficulty. Arts and industries, sociologic conditions and languages, have undergone important modifications under the influence of civilization. Ceremonies have disintegrated with the passing of the clans in which they were developed. Primitive ritual has taken on numerous aspects of Christian worship, so that the process of separating recently acquired from autochthonous elements is a laborious one. Traditionary episodes must be subjected to the same scrutiny. However, there is an important residuum of unquestionably archaic facts resulting from this sifting process which is indispensable in any thorough investigation of the larger anthropological problems in view.

In the field of prehistoric archeology, the Rio Grande valley affords exceptional attractions and yields a wealth of unique material: not of the kind that can be used to good advantage to enrich museums, for these ruins have never been prolific in pottery and other artifacts that attract collectors. This has partially saved them for close work on the ground.

¹ *Papers of the Arch. Inst. of America, American Series.*

² *The Coronado Expedition*; Fourteenth Ann. Rep. Bur. of Amer. Ethnology.

Ruskin once said that a nation writes its autobiography in three manuscripts—the book of its deeds, the book of its words, and the book of its art—no one of which can be understood unless we read the other two, and that, of the three, the last is the only one that is quite trustworthy and the one that is most vital to our knowledge of the nation's life. Now, in the self-portraiture of primitive peoples there is scant record in the book of deeds and perhaps less in the book of words; the book of their art is the all-important one. Giving to the term its widest significance, we may say that the arts of a prehistoric people as disclosed by archeologic work afford our most valuable mass of facts for anthropologic study. It comes to us untainted by corrupting influences. Primitive art is perfectly instinctive; it displays the common gifts and the common beliefs of the people, and faithfully reflects the primitive mental processes; it is the least misleading of all anthropologic evidences, though we have done much blundering in the reading of it. But, as the French scholars continually say, "*Dans les sciences d'observation les tâtonnements sont inevitables.*" No other field has yielded so much light on the question of the gestation and generation of culture as has the Pueblo field, and none is to-day more promising for the investigator. Fundamental problems have been attacked and settled, only to raise a multitude of ethnographic and ethno-psychic questions the solution of which will demand the concerted effort of many students on large quantities of material.

It was because of the lack of reliable material for comparative study from the Rio Grande basin that a strictly prehistoric field was sought in that region. A number of sections invite such investigation; for example, the arid plateau west of the Rio Grande, of which Acoma may be regarded as the geo-ethnic center; the upper Jemez valley; the upper Pecos valley and the plains region east of the Manzano mountains, of which Tabirá ("Gran Quivira") is the center. All these are important and await close research. But the plateau lying between the Jemez mountains and the Rio Grande, extending from the Chama river on the north to the Cañada de Cochiti on the south, appeared to be the richest in prehistoric remains and the freest from historical influences. It was accordingly chosen as our principal field of work.

PRELIMINARY WORK

Preliminary reconnoissance of the above-mentioned plateau disclosed the existence of a multitude of ruins scattered over the district which traditionary evidence ascribed to the two existing linguistic stocks of the Rio Grande valley — the northern and central groups to the Tanoan¹ and the southern group to the Keresan stock. An accepted boundary existed between these two stocks which research has not yet positively found. Tewa, Jemez, and Keres traditions say that the Rito de los Frijoles was the scene of a famous conclave at which an agreement was reached as to the territorial limits of the various neighboring tribes. The Keres name for this valley and the village therein (Tyuonyi, "the place of the compact or treaty") seems to confirm this.

Up to the present time the research has been confined principally to portions of the northern and central groups. It was believed that Pajarito Park, extending from Santa Clara cañon on the north to Rito de los Frijoles on the south, embraced practically every phase of the prehistoric culture of the district. Accordingly that portion was mapped out first and the work proceeded as described below. Relations, unforeseen at the beginning, between the former inhabitants of this plateau and those of regions as far distant as the Little Colorado and the Hopi or Tusayan plateau, and possibly the Gila, have been disclosed as the work proceeded, which make it most desirable to extend the investigation. The successful study of these relations can be accomplished only when we have material on hand from every part of the district, accompanied by authentic records and supplemented with ethnologic data from existing pueblos, so that exact comparative methods may be used. There is available for this purpose an invaluable body of authentically-recorded material in the National Museum from various sites in the Little Colorado basin and the Hopi plateau, and it is to be hoped that researches now in progress or hitherto accomplished will, when published, bring into availability much similar material from the San Juan and Gila basins. Those who are providing the museum collections on which the students of the future must depend

¹ I employ the linguistic stock name of Powell, which includes the various Tewa, Tigwa, Tano, Jemez, and Piros dialects.

for material should bear in mind that only exact localization of specimens will permit of exact methods of study. In other words, if natural-history methods are capable of successful application to culture history, the same importance must be attached to exact localization of specimens in the latter as in the former.

ARCHEOLOGICAL SURVEY

An important first step was to ascertain the distribution of the former population. To this end an exploration, designed to cover every quarter-section of land in the district, was commenced. For two seasons this was pushed as vigorously as possible, and some additions have been made to it each year up to 1903. This is still unfinished. The results, so far as accomplished, are displayed in the accompanying map (plate XXI), which is not submitted as a mathematical archeological survey. The topography is derived in part from official Land Office surveys, in part from the sheets of the Geological Survey, and in part from our own notes. Accordingly I can not vouch for its mathematical accuracy. A portion of the territory covered is on unsurveyed land. The archeological features of the map are our own.

DISTRIBUTION OF RUINS

The ruins embraced in the district are distributed in three irregular groups. The most northerly I have called the Puye group, this being the traditional name of its principal village. Following the same system, I have designated the central the Tchregu, and the southern the Tyuonyi group. The ruins of the Puye and Tchregu groups have been known traditionally as the former homes of Tanoan clans, and those of Tyuonyi as the early habitations of Queres or Keresan clans. As yet there is no archeological evidence to the contrary, and there is much to confirm this.

CLASSIFICATION OF RUINS

I refer to the domiciliary structures described in this paper as (1) *cliff-dwellings* and (2) *pueblos*. By the first term I mean those ancient dwellings of sedentary Indians that are wholly or in part embraced within cliffs, built against cliffs, or situated on ledges

under overhanging cliffs (plates XXII to XXIV); they are both single and multiple chambered, both isolated and communal. By the second term I mean the communal houses of the Pueblo Indians that are situated on mesas, in valleys, or on plains, independent of support from natural rock walls; they are both ancient and modern, and are always multiple-chambered.

Popular nomenclature long ago settled upon the terms *cliff-dwelling* and *pueblo*. They are exact enough for all practical purposes. An obvious fact of geological environment gave rise to the first, and a fact of social organization to the second term. There are no structural differences on which to separate them. Geological environment gives name to the cliff-dwelling absolutely. A pueblo would be a cliff-dwelling if it were situated against or under a cliff; if away from the cliff environment it remains a pueblo. "A fog is a cloud in which you are. A cloud is a fog in which you are not." Dr Fewkes¹ makes the fundamental difference one of *dependence* on or *independence* of natural rock walls, and the distinction seems quite adequate.

The term *pueblo* is applied to a single structure or to a cluster of such structures. There is but one kind of pueblo building—it is invariably a cluster of rooms or cells. There are numerous variations of extension or arrangement, but not of structure. The cells may be arranged irregularly or they may follow a definite alignment of common wall; they may be arranged in one story or with superimposed stories. The orthodox form of the Rio Grande pueblo is an arrangement of four sections or of four separate houses inclosing or nearly inclosing a quadrangle (figure 13). There appears to be a general tendency to form quadrangles, but most of them are incomplete and there are many more aberrant than orthodox arrangements. Two elements enter into the morphology of the pueblo cluster: New buildings or large sectional additions are occasioned usually by the arrival of new clans or phratries; but new cells in clusters of two or more are added to the side, front, back, or top of the maternal residence as new marital alliances are contracted. Pueblo daughters do not "marry off" as ours do;

¹ See discussion of "Ruins in Verde Valley," by J. Walter Fewkes; *Seventeenth Ann. Rep. Bur. of Amer. Ethnol.*, part 2.

rather they "marry on," as I used to hear said in the rural districts by men whose sons-in-law came to live at the daughters' ancestral home. The new family is always annexed to the maternal clan, and, unless prevented by surrounding conditions, the daughter will build her home adjoining that of her mother. It might almost be stated as a law of growth for pueblo houses that development in any direction or quarter is in proportion to the number of daughters born there, and that decay or abandonment of rooms proceeds in an inverse ratio to the number of daughters. I am aware that other modifying influences have been well established which practically annul this natural tendency. Thus the gradual accretion of new rooms to the pueblo, which is occasioned by new marriages, tends to irregularity of arrangement with reference to the general ground-plan, while large additions occasioned by the arrival of considerable numbers at one time tend to symmetrical growth. In the district under consideration every arrangement possible to rectangular blocks or cells is represented by numerous examples.

The many single-chambered structures scattered over the formerly arable valleys and mesas are not to be regarded as pueblos; they were used as camps or lookouts, as similar structures to-day are used in summer by the Tewas. The building had only a partial wall; the masonry was usually carried to a height of three or four feet; there was an open space above the half wall, closed with brush as occasion demanded, and the structure was surmounted by a brush roof.

In considering the domiciles of the cliffs I can not so readily accept the classification of my predecessors. The term *cliff-dwelling* applies so perfectly to all domiciles of the cliff environment and is so firmly established by popular usage that I cannot bring myself to use the classification into cave dwellings, cavate lodges, and true cliff-dwellings. They are all equally true cliff-dwellings. I prefer to remove the term cave-dwelling from the nomenclature of cliff-domiciles, restricting it to the widely different culture of the so-called "cave-men," or dwellers in natural caves, and then to use but the one term to designate all cliff-domiciles. The term so used embraces a wide range of domiciles which shade almost insensibly from one to another. This gradation is shown in the accompany-

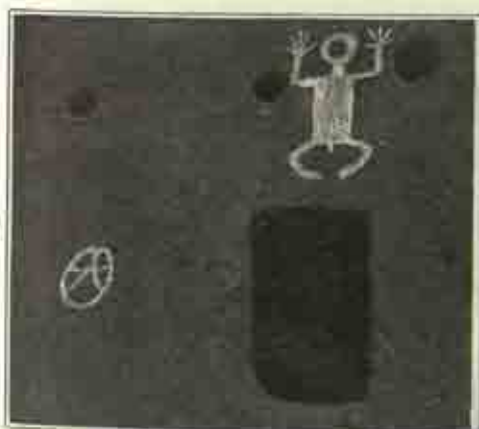
ing series of photographs from Pajarito Park. It will be seen that there are certain fundamental structural differences, bridged over in various ways, but nevertheless affording a valid basis for separation into types, as follows:

TYPE A. — *Open-front dwellings*. These are usually but not always single-chambered; not in strongly defensive sites; originally shaped by wind erosion but enlarged and further shaped by excavation, which was the only industrial process employed in their construction. (See plate xxii, 1, 2.)

TYPE B. — *Excavated dwellings with closed front*. These have the common characteristic of a front wall, either of the natural rock in situ, or of masonry. They are usually, though not always, multiple-chambered; wholly artificial; usually in strong defensive sites; floors usually below the level of the threshold; generally with a crude fireplace beside the doorway; frequently provided with a smoke vent; rooms usually rectangular and well shaped; floors and walls plastered; dado in red usually around the base of the wall; front walls from a foot to four feet thick. This type displays great advance over type A in constructive skill. In type A the only industrial process employed was excavation or digging. In the various forms of type B a considerable variety of constructive processes is displayed, viz., excavation, masonry, plastering, painting, and carpentry.

Plate xxii, figure 3, illustrates the simplest form of type B; it has a small rectangular doorway without casing. Figure 4 illustrates the introduction of masonry. The doorway is cased in stone laid in adobe mortar. The dwelling is furnished with a smoke vent. These appear to be improvements on a dwelling originally like that shown in figure 3. Figure 5 of the same plate shows a perfectly preserved casing surrounded with additional and well-preserved masonry. Figure 6 illustrates a free use of masonry to replace the entire front wall of natural rock which had fallen away.

Figure 1 of plate xxiii illustrates a still more advanced use of masonry; almost the entire front wall is artificial, and the masonry is the best I have seen in this section. The rooms are finely shaped. This was a small, natural cavern under an overhanging ledge, exca-



TYPICAL CLIFF-DWELLINGS OF PAJARITO PARK

vated into the desired shape and then walled up. It is situated in Sandia cañon. Figure 2, plate xxiii, is similar to figure 5, plate xxii. It has a cased doorway and has the new feature of a vestibule excavated from the natural rock. This vestibule was roofed and served the purpose of a room. The back room was furnished with a smoke vent. Figure 3 of plate xxiii is a restoration, but it is, I think, quite true to history. It consists of the excavated room with an external structure which, while to all intents and purposes was a porch, actually served for domiciliary purposes more than did the cave rooms. These porches were built of poles, stone, and brush, the cliff wall furnishing the posterior support for roof and floor beams. This feature was very generally in use throughout the district.

TYPE C. *Pueblo-like cliff-dwellings.* These exhibit every feature of independent pueblos. They are built of stone. Masonry, plastering, and carpentry are involved. They display advance in constructive skill over type B, principally in masonry. In their development they were subject to the same laws that govern the growth of independent pueblos.

The lower part of plate xxiv, 1, illustrates this type built against the cliff. These were not numerous. Those illustrated were at Tchrega and could be shown only by restoration. The foundation walls are clearly defined. The upper stories were not superimposed upon lower chambers, but rested on the talus. Back of the rooms which abutted against the cliff were excavated rooms that were used for storage and in some cases as burial crypts.

Plate xxiv, 2, illustrates the so-called Montezuma Castle on Beaver creek, a branch of the Rio Verde in Arizona, and is introduced here to complete the series of illustrations of pueblo-like cliff-dwellings. There is no representative of the communal cliff-dwelling built on ledges under overhanging cliffs in Pajarito Park.

It will be seen that types A and B include those dwellings usually classed as cavate lodges. Type C comprises those that are structurally identical with pueblos. Plate xxiv, 1, illustrates a form not heretofore described, so far as I know. Plate xxiv, 2, illustrates the so-called "true cliff-dwellings." The classification, by both methods, of the examples figured is concisely shown as follows:

- I. Cliff dwellings : Type A, plate xxii, figures 1, 2 ; Type B, plate xxii, figures 3 to 6, and plate xxiii ; Type C, plate xxiv, figures 1 (lower part) and 2.
- II. Pueblos : Plate xxiv, 1 (upper part).
As classified by Dr Fewkes and others :
 - I. Cavate dwellings : Plates xxii and xxiii.
 - II. Cliff dwellings : Plate xxiv, 2.
- III. Pueblos : Plate xxiv, 1 (upper part).

THE TYUONYI GROUP

Of the three groups in which the ancient population of Pajarito Park was distributed, the Tyuonyi was the most southerly. It lies between the Rito de los Frijoles and the Cañada de Cochiti, and is one of the wildest and most picturesque regions of the Southwest. Here the characteristic *potreros* of the Park reach their most stupendous heights and the cañons correspondingly great depths. The district has been described by Bandelier¹ and Lummis.²

Pending further investigations only the briefest notice of this group will be given in this paper. The most important ruins are the cliff-dwellings and pueblos of the Tyuonyi or Rito de los Frijoles. The former exist in large numbers and are principally of type B. These and the pueblos in the valley were doubtless contemporaneously occupied. Numerous other pueblo ruins exist in the district farther south, chief of which are those on Potrero de las Vacas and Potrero de las Casas, the ruins of Haatse on Potrero Chato, Kuapa in Cañada de Cochiti, and those on Potrero Viejo. The archeological remains in this group that are unique are the famous "stone pumas" of Potrero de las Vacas and Potrero de los Idolos, and the exceptionally large ceremonial cave in the face of Potrero de las Vacas, overlooking the Cañada de la Cuesta Colorado, known as "La Cueva Pintada." The range of variations in domiciliary structures is not nearly so great in this group as in the group farther north. Some of the pueblos were built largely of boulders and adobe, and accordingly are not well preserved.

It is generally accepted that these are all ruins of former habita-

¹ *Final Report, and The Delight Makers*, by A. F. Bandelier.

² *The Wanderings of Cochiti, in The Land of Poco Tiempo*, by Charles F. Lummis.



1

2



3 (restored)

TYPICAL CLIFF-DWELLINGS OF PAJARITO PARK

tions of the Keres people. They are regarded by the Cochiti Indians as the homes of their ancestors, but it is an open question whether the principal clusters of ruins represent contemporaneous settlements of clans which finally came together at the modern pueblo of Cochiti, or successive migrations of the whole tribe.

THE TCHREGA GROUP

Of the Tchrega group we have absolutely no published details, except a brief notice, by Bandelier,¹ of the ruin which gives its name to the group. The geographical, or rather the geological, limits of this section are well defined. On the west is the lofty Jemez (locally known as the Valles) mountains. On the east the immense gorge of White Rock cañon forms its entire boundary. On the other two sides it is embraced between the deep cleft of Juege cañon and the Tyuonyi. The surface is an enormous volcanic sheet, in some places 2,000 feet thick, which here extends to the river and presents the great escarpments which are seen from the railroad in the cañon below San Ildefonso. The country is exceedingly rough and difficult of access.

Cliff-dwellings of all three types are abundant, but are not so numerous as in the Puye section. Many of those of type B are in an almost perfect state of preservation, as shown in plates xxii, xxiii, and exhibit the best workmanship that I have seen in this kind of cliff-house architecture. This is displayed in the masonry where any is used, in the shaping of interiors, in the plastering of walls and floors, and in wall painting. In some of these rooms dados are executed in tasteful patterns of yellow and two shades of red. The remains of the best representatives of pueblo-like cliff-dwellings built against vertical cliffs and advancing out in several terraces over the talus are here. (See lower part of plate xxiv, 1.)

Several of the larger pueblo ruins of this group will be described as fully as the limits of this paper will permit, as they are new to archeological literature. Before describing particular ones, however, the following general account may be presented as applicable to all the large pueblos of both the Tchrega and Puye groups. They are all built of fairly well shaped blocks of volcanic tufa, of

¹ *Final Report*, part II.

an average of about six inches in thickness and eight inches in width. The blocks vary in length from a foot to four feet. The buildings present no features of construction that are new to pueblo architecture. The blocks are laid in adobe mortar. Small stones for chinking are freely used. Inner walls when protected by *débris* are covered with a durable plaster which shows evidence of many successive renewals. Doorways in the interior average about 15×40 inches in size, cased with wood, nearly all with stone sills. No doorways are found in exterior walls, and only small round windows, usually less than a foot in diameter and near the floor. This feature is found also in the cliff-dwellings of type B and suggests a possible function in ventilation. The timbers used were very small, rarely exceeding six inches and more often not more than four inches in diameter. This is a singular circumstance when we consider that it occurs in a region where large timbers were plentiful and near at hand, and naturally are to be looked for in such large buildings. It is a peculiarity of construction to be considered in comparison with the large pueblos of Chaco cañon, which are smaller than these, but in which the timbers used would average much larger, and this notwithstanding the fact that the Chaco cañon pueblos are situated in an absolutely treeless country. Timbers 40 feet long and 18 inches in diameter have been found in the ruins of Pueblo Bonito. I am unable to say where the timbers were obtained, but certainly not nearer than thirty miles away. The movement of these timbers by men without beasts of burden is an interesting problem in prehistoric transportation. Another interesting point of comparison between the buildings of these two regions is in their masonry. Much smaller blocks of stone prevail in the Chaco buildings, and they present smoother and more beautiful walls than those of Pajarito Park. This does not necessarily point to greater constructive skill, for the natural cleavage of the Chaco sandstone renders dressing almost unnecessary, while the dressing of the volcanic tufa of the Pajarito with stone tools would leave comparatively rough surfaces. The building stone at the Chaco lent itself readily to tasteful arrangement in alternating courses of thick and thin blocks, and also made the almost unique curved walls of these pueblos possible.



1. THE PUEBLO OF TCHREGE, RESTORED. (DRAWING BY K. M. CHAPMAN)



2. "CASA MONTEZUMA" ON BEAVER CREEK, ARIZONA

The large rough tufa blocks of the Pajarito could not easily be worked and set in this way, and they permitted of no decorative effect in arrangement of courses. The difference in material also accounts for the great difference in the preservation of the walls. The flat slabs of sandstone fit together quite perfectly, with but little mortar to weather out. The imperfectly flattened surfaces of the tufa blocks are readily freed by the weather from the supporting mortar and chinking stones, and collapse of the walls soon follows. In Pajarito Park it is only in exceptional cases that walls remain above the surrounding débris to a height of more than seven or eight feet, while in the Chaco walls still stand at a height of 39 feet above the débris and 48 feet above the foundation. There is no difference in isolation or protection from destructive agents to account for this, and probably but little in age. An evidence that the height of ruined walls bears little relation to the question of age of ruins is seen in the fact that some of the ruins of the Tyuonyi group, where boulders or cobblestones were used, are almost completely leveled to the ground, the convex surfaces of the stone affording no stability to the walls. These buildings we know to have been occupied in comparatively recent times.

Passing now to a consideration of individual ruins of the Tchregua group, we may discuss briefly some of the most important only.

1. OTOWI

This ruin is situated unlike any other of the first magnitude in the Park. It is on a hilltop which occupies an irregular bench midway between the level of the valley and the top of the mesa above Pueblo cañon, a mesa probably 800 feet high. The form is also unique, as is shown by the accompanying ground-plan (figure 12). It consists of a cluster of five houses which were situated on very irregular ground and were connected at one end by a common wall, with the exception of section E, which was detached. Unlike any other that I have seen in the Pajarito district, Otowi contained circular kivas built within the pueblo walls, as at Pueblo Bonito in Chaco cañon. There were ten kivas at Otowi, two of which were entirely within the walls (see sections A and E). Section A was for the greater part a

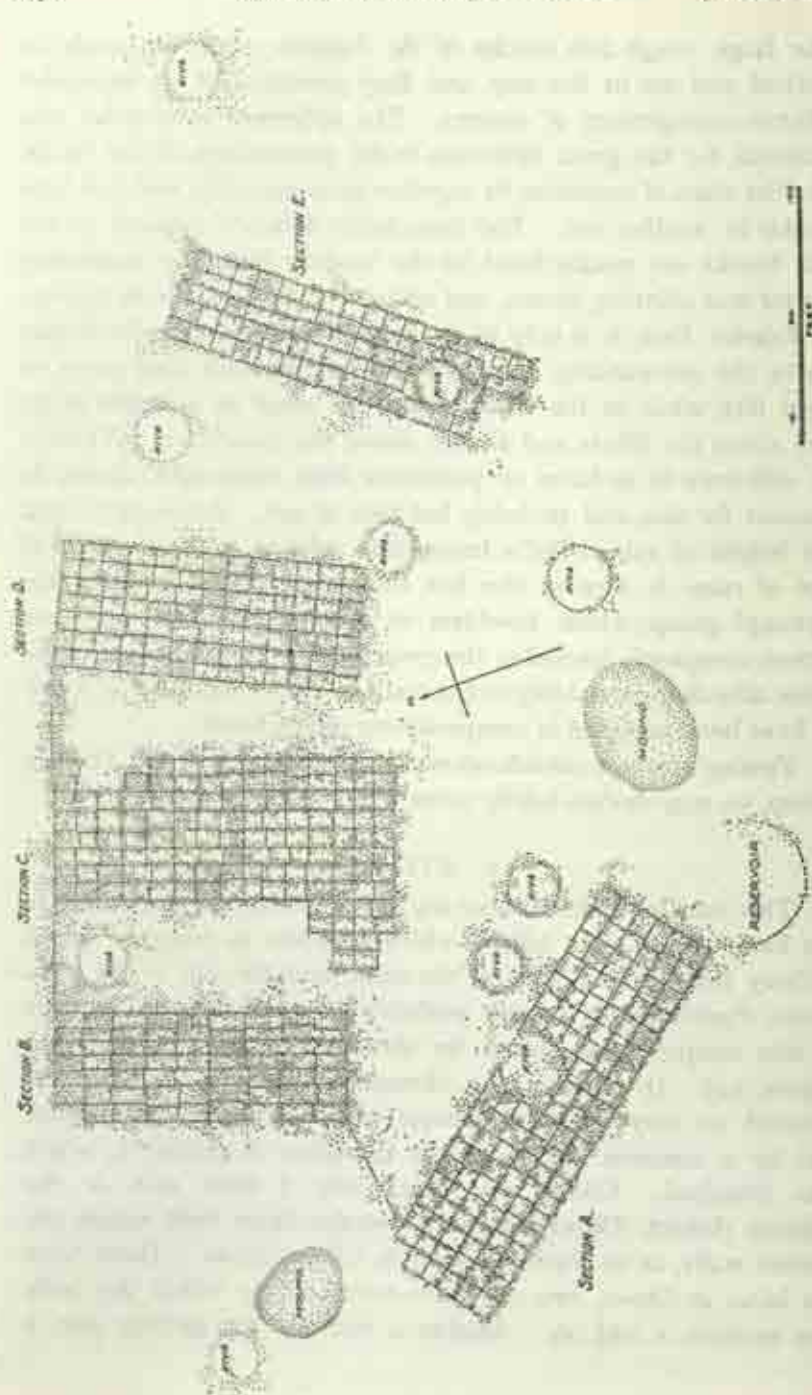


FIG. 12. — Ground-plan of Otowi.

single-story structure, though it contained a few second-story rooms. As thorough an examination of the ruin as was possible without excavation disclosed a well-defined ground-plan, substantially as shown in the drawing. It must be borne in mind, and this applies to all the plans figured in this paper, that the platting was done without excavation and in many places the debris will not permit of an exact determination of the walls, in which cases some conjectural work must be done. No drawing showing exact alignment of walls can be made until some thousands of tons of stones are moved.

Section *b* has numerous indications of second-story rooms. Section *c* was the largest of the cluster and must have been three stories high, as were sections *d* and *e*. It does not preserve the regularity of the other sections. Section *e* may have had some fourth-story rooms. Altogether the five houses at Otowi contained over 450 ground-floor rooms. The number of superimposed rooms would be purely a matter of conjecture.

No difference in age is discernible among the houses at Otowi, but traditionary evidence establishes its evolution beyond question. It consisted originally of one house (section *c*) which would have almost an exact counterpart in one of the house-groups of Taos. A group of clans occupying a small valley pueblo was compelled to seek the protection of a stronger defensive site, and a defensive alliance was formed with the people of Otowi, already favorably located. Accordingly a new house was built near-by by the newcomers. The other houses represent similar successive accretions. The entire development of the village was probably a matter of but a few years. A reservoir, which doubtless supplied water for drinking purposes at times, was placed, as was so often the case among both ancient and modern pueblos, so as to receive the drainage from the village. This failure to recognize the contamination of the water supply doubtless accounts for the persistent traditions of "great sicknesses."

No cliff-dwellings are in the immediate vicinity of Otowi.

2. *TSANKAWI* (Tewa: "Place of the round cactus")

About two miles southeast of Otowi is the ruin of Tsankawi, the most picturesquely situated of any settlement of primitive people that I have ever seen. It is a veritable "sky city." From the top

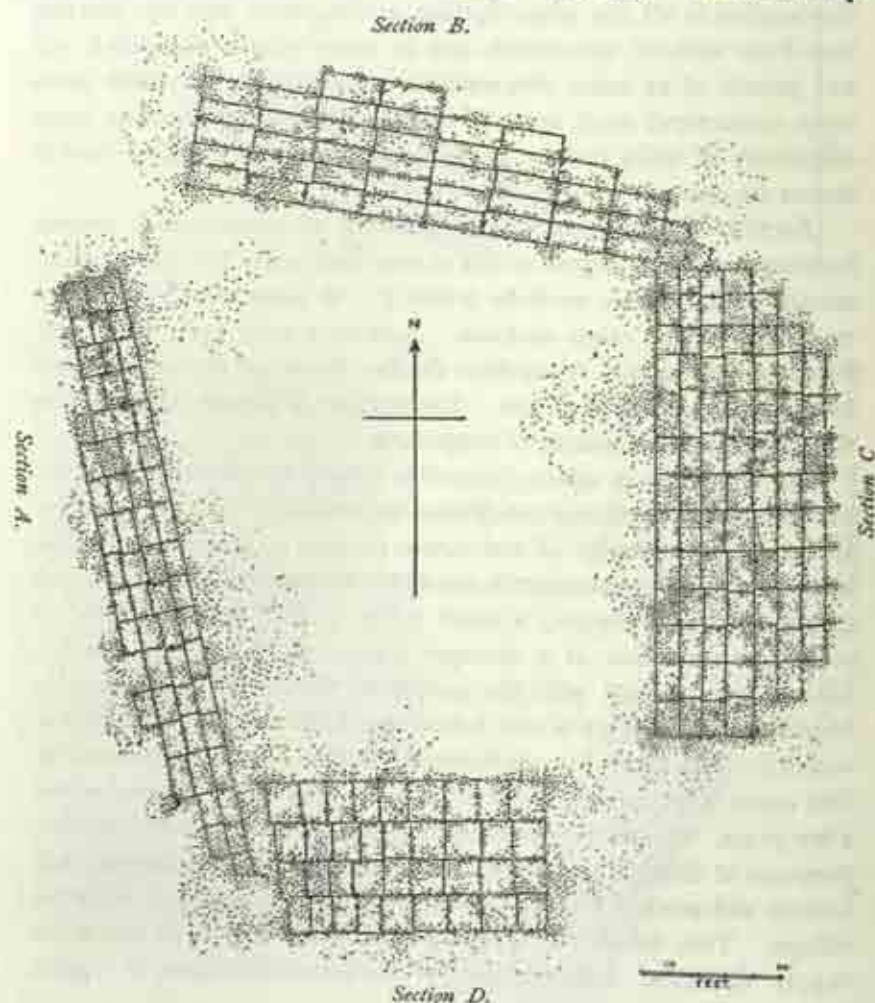


FIG. 13.—Ground-plan of Tsankawi.

of Tsankawi mesa one looks upon a stupendous panorama—the Jemez range on the west; on the eastern horizon a hundred miles of the lofty Santa Fé range; glimpses of the Rio Grande and its

fertile valley through a cleft some ten miles away, beyond which lies the dreary sand-waste of the immense Tertiary lake that was emptied when the Rio Grande drainage was established; and near at hand in every direction huge yellow volcanic mesas and profound depths of wooded cañons. The site was chosen entirely for its defensive character and is an exceptionally strong one.

The builders of Tsankawi kept to the orthodox rectangular plan, as shown in figure 13. The masonry is in no respect different from that of Otowi. There were ten kivas at Tsankawi—a large number for the population, which probably never exceeded 300 to 400 people, although this would be considerably increased if we count the population of the cliff-village in the south face of the mesa. The growth of Tsankawi is a repetition of the development of Otowi. It was a composite pueblo, consisting of four virtually independent houses. The sections were brought about by the alliance of groups of clans, and the growth from within, which the nature of the site directed toward compactness, was so managed as to preserve the symmetry of the ground-plan. Other clans clustered about the mesa in cliff-dwellings, principally of type B, some of which are excellently constructed. The ground-plan of Tsankawi pueblo embraces about 200 rooms. The sections were each probably three stories high.

3. *NAVAKWI* (Tewa: "Place of the hunting trap")

The site of this village was not strongly defensive. It was one of the first of the large villages to be abandoned. The original nucleus was section a (figure 14), which, it will be observed, was considerably enlarged by internal growth. The character of the site being such as not to make compactness an obvious desideratum, the growth tended to considerable irregularity. Section A is traditionally said to represent a late accession of clans from a neighboring small pueblo who were allowed to become "trail keepers."

4. *TCHREGA* (Tewa: "a bird"; Spanish, *Pajarito*, "small bird")

Tchrega was the largest pueblo in the Pajarito district, and with the extensive cliff-village clustered about it, the largest aboriginal settlement, ancient or modern, in the Pueblo region of which I have

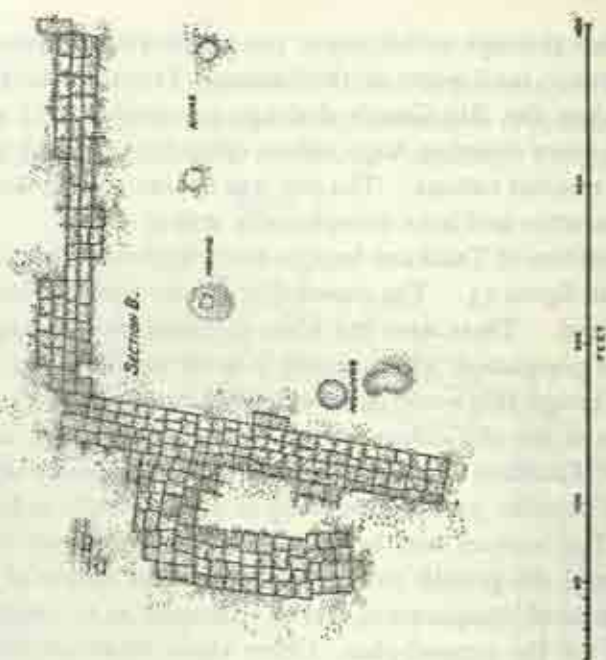
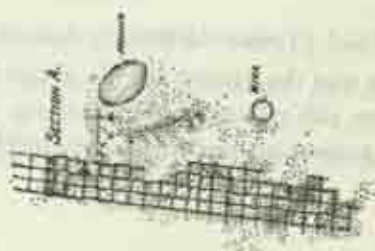


FIG. 14. — Ground plan of Navakwi.





A. C. YERGAN, PHOTO.

RUINS OF PUYE PUEBLO



A. C. YERGAN, PHOTO.

SHUFINNE MESA, SHOWING CLIFF-DWELLINGS

personal knowledge, with the exception of Zuñi. The ruin shows a ground-plan of upward of 600 rooms (see figure 15). Mr K. M. Chapman has prepared in water-color, a photograph of which is shown in plate XXIV, 1, a restoration of the pueblo with a small portion of the tributary cliff-village. I believe the result to be quite true to history.

The original nucleus was section A, which constituted one house. Section B was an independent house and represents a large accession which is thought to have been the entire population of Navakwi, which joined with Tchrega for mutual aid. The large irregular section C represents smaller accessions from without as well as natural evolution from within. The cliff-village along the side of the mesa, shown by restoration in plate XXIV, 1, was the most extensive group of pueblo-like cliff-dwellings of the kind of which I have any knowledge. The cluster extends along the cliff for three-quarters of a mile and represents accessions from many small pueblos. Tchrega was the last of all the villages of Pajarito Park to be abandoned.

5. SMALL PUEBLOS

A large number of small pueblos, which seem to antedate the large ones that have been described, are scattered over the surrounding region, but nowhere are they so numerous as to the southwest of Tchrega. Portions of the Ramon Vigil Grant, on which Tchrega is situated, are literally covered with small pueblos, as will be seen from the map (plate XXI). It was from these scattered groups that the great aggregations at Tchrega, Navakwi, Tsankawi, and Otowi were formed. Enough excavation has been done in these small pueblos to establish their greater antiquity, not only from the present condition of the ruins, but from the character of the pottery found. This is further and finally established by traditional evidence.

Although this is now a timbered country, a considerable part of it, especially portions just north of the Rito de los Frijoles where ruins are so thickly clustered, must once have been agricultural land. It has evidently been forested since the abandonment of the small pueblos. Prior to the sale of the marketable timber from the Ramon Vigil Grant, trees large enough to furnish

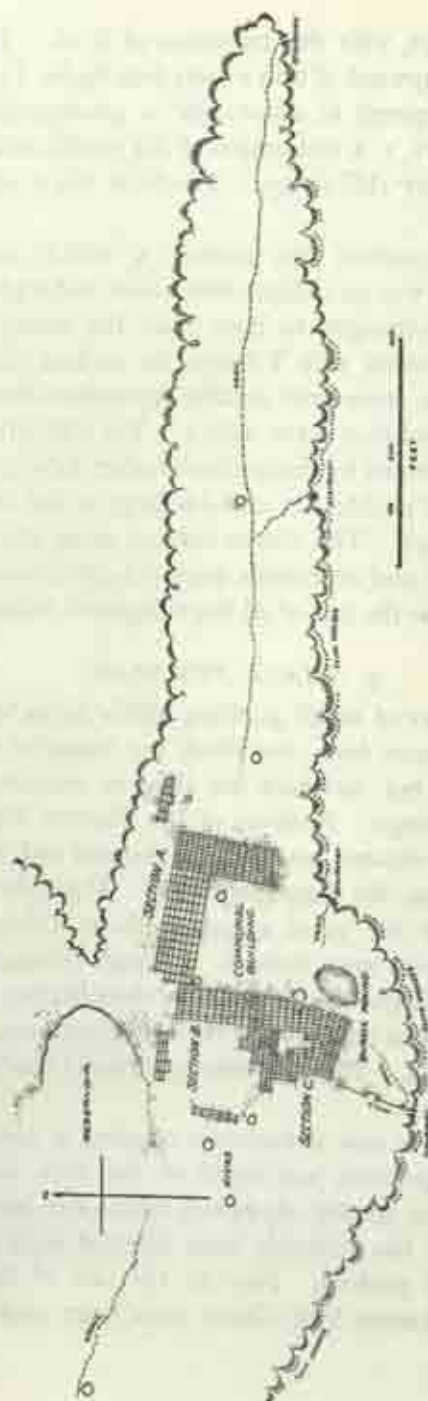
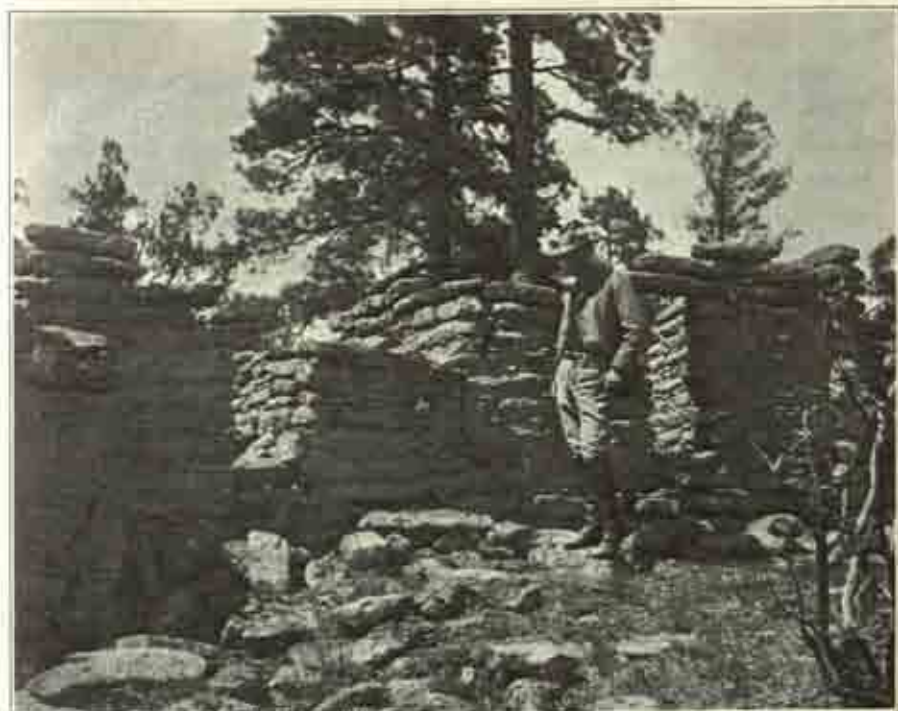
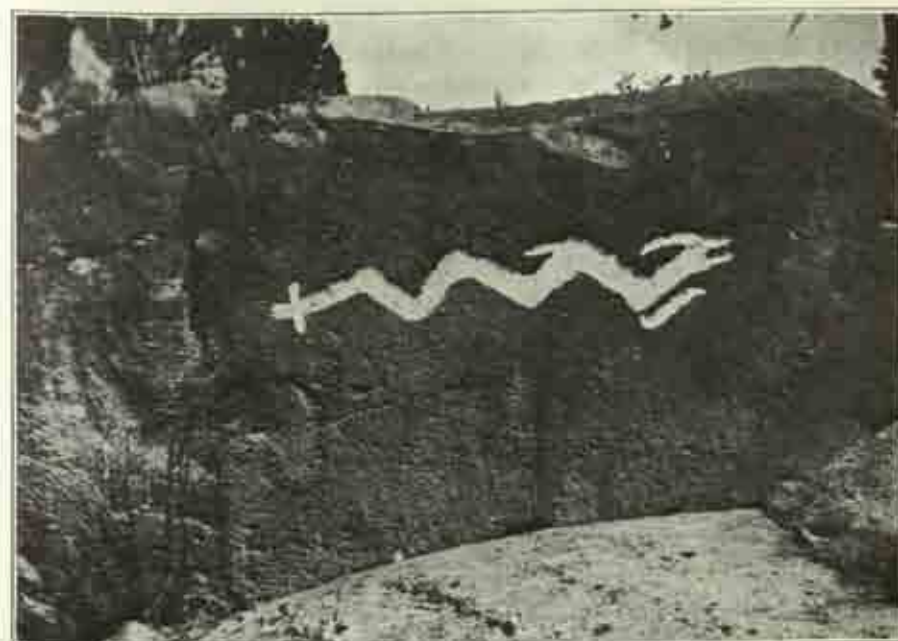


FIG. 15. — Map of mesa and ground-plan of Tchrege.



RUINS OF PUEBLO ALTO



PETROGLYPH OF PLUMED SERPENT ON TOHREGA CLIFF

saw-logs were to be seen growing within the ruins. A case of this is seen in plate xxvi, 1. No cemeteries have been found about the small pueblos—no burials of any kind, in fact. One kiva is usually found, occasionally two, rarely three. These were all round kivas, almost entirely subterranean. None of their timbers are preserved. The pottery is quite strictly utilitarian and bears but little ornamentation.

THE PUYE GROUP

This is the best known section of Pajarito Park. It was visited and briefly described by James Stevenson¹ in 1880 and by Powell² in 1885, and was the subject of some investigation by Bandelier in the early eighties. Since then almost every worker in southwestern archeology has seen something of the Puye. Several brief accounts of it are extant, among which may be mentioned one by the late Hon. George H. Wallace³ and an official report by Mr. James D. Mankin.⁴ No serious study of the archeology of the group has yet been published.

The group embraces the villages of Puye and Shufinne, a large number of scattered small pueblos, and a vast number of cliff-dwellings.

1. PUYE (Tewa: "berry")

The settlement consisted of the large pueblo on the top of Puye mesa (plate xxv, 1,) and the extensive tributary cliff-village. The pueblo was a huge quadrangular structure, next to Tchrega the largest in the park. My plan of Puye is not at this moment accessible. It was the most compact, the most regular of all the large pueblos. The quadrangle had but one entrance, this being at the southeastern corner in the eastern side. The four sides are so connected as to form practically one structure, though it is not to be

¹ *Collections of 1880*, by James Stevenson; Second Ann. Rep. Bur. of Amer. Ethnology.

² *Report of the Director*, by J. W. Powell; Seventh Ann. Rep. Bur. of Amer. Ethnology.

³ *A Day in the Cliff Dwellings*, by George H. Wallace; Land of Sunshine, Los Angeles, Cal., June, 1900.

⁴ *Report on the Ancient Cliff Dwellings in New Mexico and the Proposed Establishment of the Pajarito National Park*, by James D. Mankin; MS. report in the General Land Office, Washington, 1900.

inferred that it was all built at one time. It presents no new constructive architectural features.

There are in this building many evidences of reoccupancy after having been once abandoned. Doors and windows previously used are found closed with masonry and plastered over. The last floor is laid upon a foot or more of debris accumulated upon an original floor and not removed in the remodeling. The pottery between these two floors is noticeably different from that above the upper floor. Round kivas, mostly subterranean, are found both inside and outside the court.

The cliff-village at Puye was a very extensive one. This mesa is a mile and a quarter in length and a great part of the south face is literally honeycombed with dwellings, mostly of type B. A ledge midway up the face of the cliff divides it into two parts. In some places the lower part contains three levels of dwellings, the bottom series being in many instances below the talus. The dwellings above the ledge are more scattered, but are also disposed in three levels. They are not generally so well constructed as those in the lower part and are in a more ruinous condition. There is rarely communication between dwellings in different levels; when such connection exists it appears to be accidental. The porches illustrated in plate xxiii, 3, were a prevalent feature here. Two round excavated kivas are found in a ledge in front of the cliff. A number of caves, of unusual size for this locality, evidently served the purpose of kivas for the inhabitants of the cliff-village. I have not noticed what were obviously cave kivas in other parts of the park.

2. SHUFINNE

On a high mesa (plate xxv, 2) which rises abruptly from the plateau about three miles to the northwest of Puye, on the other side of Santa Clara cañon, was the small pueblo of Shufinne, with an accompanying cliff-village. This was contemporary with Puye and was eventually absorbed into it. Both the pueblo and the cliff-village at Shufinne were rather inferior in construction.

3. OTHER SITES

Numerous other small pueblos are scattered over the Puye territory, the history of which is merely a repetition of the process of

concentration noticed in the Tchregu group. West and south of Puye are numerous open-front caves, and practically every cliff for some miles to the south is honeycombed in its southern face with dwellings.

The oft-published tradition of the Santa Clara Indians that the pueblo and cliff-village at Puye were the home of their ancestors is well known. This tradition has been so often repeated to inquirers that any Santa Clara Indian immediately assents to it. A close examination of the tradition, however, reveals the fact that it refers to an occupancy of these domiciles within historic time and which lasted only a few years. It was simply a reoccupancy, as no new domiciles were built, but both pueblos and cliff-dwellings were remodeled and considerably modernized. Evidences of this late occupancy are everywhere plain, especially in the repairs of the houses. There are also many fragments of modern Santa Clara pottery, though not of their now prevailing solid red and black ware, which is of very recent origin. Santa Clara Indians tell of one family having occupied these dwellings as recently as fifty years ago. It is not my purpose to enter upon any specific exposition of the traditionary history of the villages herein described, though much of it has been obtained. The subject will be referred to again in a general way toward the close of this paper.

PICTOGRAPHS

The pictographs of the former inhabitants can be studied from the rock pictures and pottery decorations. Petroglyphs are found throughout the entire park, but nowhere in such numerous and well-preserved specimens as at Puye. These are among the best executed of all petroglyphs in the Pueblo region; moreover, they are of more serious designs than in many other places, and many of them could have been executed only with much labor. They would thus seem to possess rather higher significance than is to be attached to such archeological remains in many places. No study of the petroglyphs will be attempted in this paper. The illustrations presented give a fair idea of the range of designs. By significance these might be grouped as religious, totemic, and legendary; by form as outline, intaglio, and relief.

Figure 16, *c*, pictures an ancient Tewa legend which in modern times has been developed into the "Montezuma" myth of Pecos,

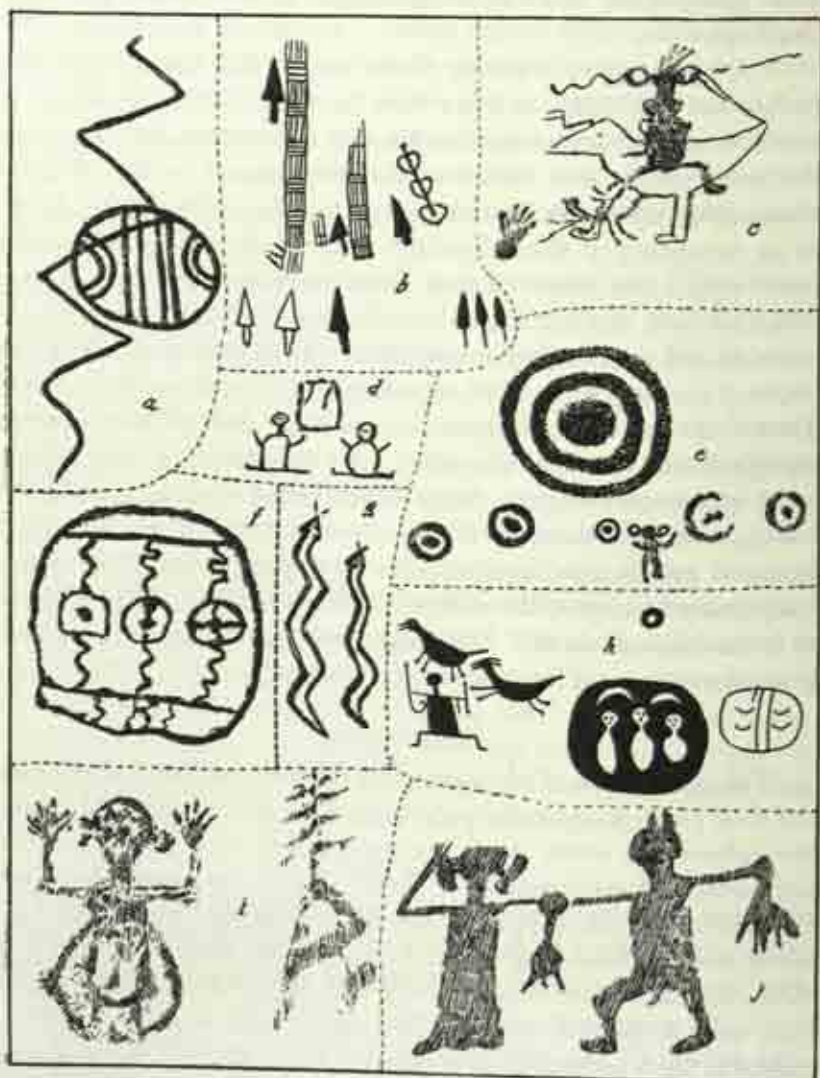


FIG. 16. — Petroglyphs on the Puye cliffs.

Taos, and other pueblos. The figures marked *c*, *i*, and *j* are noteworthy as illustrating the custom of dressing the hair in whorls, still

prevalent among the Hopi women in Arizona. Figure *h* (central design) represents a very fine piece of work in low relief; the design is about three feet in diameter. Relief sculpture was still further developed in the well-known "stone pumas" of Potrero de las Vacas in the Tyuonyi group, about 25 miles south of Puye. The highest attainment in sculpture in this region is shown in plate xxvii, a stone idol from Puye. It is of hard, heavy stone that could be worked only with considerable difficulty. Plate xxvi, 2, illustrates a fine pictograph in intaglio from Tchrega, indicating the existence of the "plumed serpent" cult at this place. The pictographs shown in figure 17 are introduced to illustrate the prevailing method of drawing animal and human figures. Those marked *a, b, c, d, i* are incised

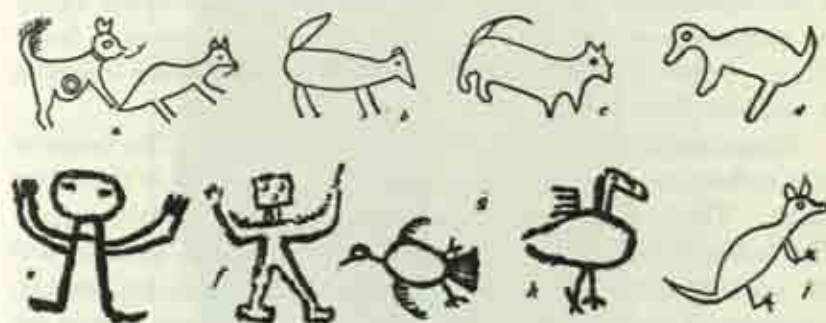


FIG. 17. — Petroglyphs on the Puye cliffs.

with a sharp tool; *e, f, g, h* are pecked. No discussion of the pictography of the pottery will be entered into here. The paleography of the region is of great interest and value, pointing to a remote development of rites and ceremonies, which still prevail among the Pueblo Indians, designed to insure the food supply by invoking the favor of their deities on crops and the chase; publishing in ancient editions of books of stone and clay the age-long anxiety of the food quest; recording the psychic activity of primitive man in the arid region as mainly a sustained appeal to deities for sustenance.

SUBSISTENCE

The question of subsistence was probably neither more nor less troublesome here than in other parts of the Southwest. The proportion of arable land to population seems exceedingly small.

Agriculture was doubtless the principal resource, and it would appear that areas not at present capable of producing any crops at all were formerly productive. An example of this is seen in the once thickly populated portion of Mesa del Pajarito, that formerly must have produced corn without irrigation, but which now produces nothing. The little valley of Puye is now unproductive, even the frugal Mexican settlers who attempted to establish homesteads having given up, whereas it must have once produced the necessary grain for fifteen hundred people. However, it is to be remembered that in those early days the chase yielded a far greater proportion of the food supply than now. At Puye is to be seen the remains of a well-built irrigating ditch several miles long. This ditch is one of the improvements introduced from the Rio Grande valley during the comparatively late reoccupancy of Puye by the Tewas of Santa Clara. I have discovered no evidences of pre-columbian irrigation in Parjarito Park.

Game was abundant in the adjacent mountains. The bones of wild turkey, deer, antelope, and bear occur plentifully in the refuse heaps. The Rio Grande contributed something to the food supply. The bones of the catfish (*Amiurus*) are found in the mounds, and the pectoral spines of this fish were used as domestic implements, specimens of these having been found with other bone awls in the burial mounds. Communal hunts were held, and the Tewas point out several perpendicular cliffs where game was slaughtered by being driven over the brink. A number of pit falls have been discovered at points where game trails converged. One of the best of these is on a narrow neck of the mesa above Navakwi, at the convergence of four trails. It was so placed that game driven down the mesa from toward the mountains or up the trail from either of two side cañons could hardly fail to be entrapped. It is an excavation in the rock which could have been accomplished only with great difficulty, as the cap of tufa is here almost as hard as sandstone. The pit is bottle-shaped, except that the mouth is oblong. It is 15 feet deep and about 8 feet in diameter at the bottom. The mouth of the pit is about six feet in long diameter by four in the short. This trap has been used in modern times by the San Ildefonso Indians.



STONE IDOL, PUYE PUEBLO.

MORTUARY CUSTOMS

Four modes of disposing of the dead have been found at Tchrega and Tsankawi, namely, in communal mounds, in caves or crypts, in intra-mural chambers, and under fireplaces in living rooms. The latter includes only infant burials. Intra-mural burials were found at both places, usually accompanied by a small quantity of domestic pottery and many animal bones. These mortuary chambers in the pueblos were from three to four feet in width and of the same length as the adjacent rooms. How far this mode of burial was practised is impossible to conjecture, as only a few rooms have been excavated. If the dead were disposed in any established position it can not now be determined because of the ruinous condition of the walls.

The main cemeteries lie just outside the courts and consist of mounds measuring 50 to 100 feet in diameter. At Tchrega the earth for the mound was brought from a distance, as no soil existed on the mesa top at that place. As the central portion of the mound had been excavated by other parties, no complete record of it can be made. It seems to have contained about one hundred interments. The dead were disposed in two levels. The soil of the original mound was about three feet deep. Its capacity appears to have been about doubled by the addition of a second layer of earth of equal depth after the first stratum was filled.

The cemetery at Tsankawi was constructed in the same manner and contained thirty-two interments. In both, the skeletons were in an advanced stage of decay, only twenty-three crania being preserved. The prevailing position of the dead was face downward, with the knees drawn up under the body as far as possible. The position is exactly that which would be obtained by kneeling, allowing the body to settle down upon the feet, then falling forward with the face

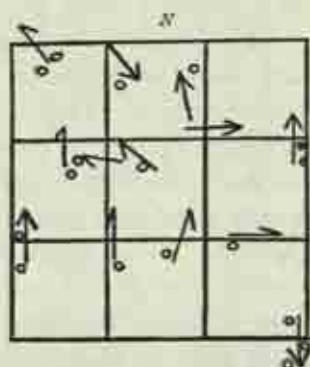


FIG. 18. — Section of burial mound at Tsankawi.

to the earth. No attention was paid to orientation in burial, as will be seen by reference to figure 18, which shows the disposition of the dead in a number of six-foot squares in the Tsankawi cemetery. A dart indicates where a skeleton was found; the direction of the dart shows the direction of the body, the barbs being at the feet. When both barbs of the dart are shown it indicates that the skeleton was found in the regulation position, as described above; when only a single barb is shown it indicates that the skeleton rested on one side. The small circles show the relative positions of food bowls. Cotton cord and fragments of plaited yucca fiber were found about the loins and neck in many cases. Bone awls, whistles of turkey bone, polishing stones, and some food bowls were found with the skeletons, but none of these occurred with sufficient regularity to reveal an established mortuary custom. With some interments no utensils of any kind were found, but this absence was rare and may have indicated the deposit of perishable articles with the dead. It may be stated that, as a general rule, these people buried articles of domestic use with the dead. This is known to apply only to cemetery burials, but it probably holds good for intra-mural interments.

Cave burial as here practised is exceedingly mystifying. Mortuary caves are found in every way identical with the domiciliary caves of type B. They were posterior chambers to pueblo-like cliff-dwellings, as seen in plate xxiv, 1 (lower part), and were simply receptacles for large numbers of disjointed bones. The rooms are literally filled with unrelated bones to a depth of several feet. No semblance of an entire skeleton is ever found. The bones are covered with dirt of such impalpable fineness that our workmen found it almost impossible to excavate. No utensils, no artifacts of any kind are found in these chambers.

I have but little to suggest in explanation of these crypts. The number of interments found in cemeteries is very small for the populous villages which they accompany and the obviously long period of occupancy. The crypts may antedate the cemeteries, or they may have been mere receptacles for bones removed from or washed out of the cemeteries above. If used for original burials, the present condition of the bones may be due to disturbance by wolves and coyotes, which are very numerous here.

CONCLUSION

1. I am compelled to regard it as conclusive that there is evolutionary and chronological sequence to be seen in the construction and occupancy of the domiciliary structures of Pajarito Park. The open-front dwellings that I have called type A are unquestionably a more archaic form than any of type B or C. As pointed out, a single constructive process, that of excavation, was employed in type A, types B and C involving several additional constructive processes and advanced skill. The improvements of an advanced nature which are occasionally found in type A may be regarded as evidences of late temporary reoccupancy. It is not unusual to find Mexican herders living in them. In many dwellings of type B at Puye we find devices which are manifestly inventions of Pueblo life in the Rio Grande valley and which were introduced here during the comparatively modern reoccupancy to which I have alluded. The Tewas regard the open caves as much the older. Their best traditionists look upon them as antedating all their tribal traditions, holding that they were in existence when their "ancients" first came to this region. They are distinctly pretraditionary. It does not follow that the open-front dwellings of other regions are equally archaic. Domiciles of this type, but of a higher order of construction, are very numerous in Verde valley, Arizona, and neither Fewkes nor Mindeleff appears to ascribe to them a greater age than to the adjacent pueblo ruins.

2. The numerous small pueblos are more archaic than the great combined cliff and pueblo villages. This is established by the character and condition of the ruins, the pottery, and Tewa traditions. Isolated cliff-dwellings of type B may be contemporaneous with the small pueblos.

3. The large composite villages of Tchirega, Tsankawi, Navakwi, Otowi, Puye, and Shufinne were contemporaneous; that is, they belong to the same epoch. In the same sense one would speak of the modern villages of Pecos, Pojoaque, Nambe, and Powhoge or San Ildefonso as contemporaneous, though the first two are now extinct.

4. These large communities were the result of a concentration for mutual aid of neighboring clans that had long been diffused

over a considerable area. They were formed rather rapidly, perhaps in a generation. At any rate it was not a movement extending over some centuries and absorbing clans and phratries coming at widely separated periods and from far distant quarters, as has been shown by Fewkes, Stephen, and Mindeleff to have been the case with the Hopi. It was an integration of related clans and phratries diffused over one geo-ethnic center, crowding together for mutual assistance against a common foe. If students of the Navaho will tell us at what time that tribe poured into the intermontane region and commenced to worry the peaceful Pueblos, we can approximately date the construction of the great pueblos and cliff-villages of Pajarito Park. Tewa traditions tell of long undisturbed peace prior to the coming of these marauders; after this a tendency to concentration for some time, and then a throwing off of detachments by emigration, amounting at last to complete abandonment of these sites. We have here quite an exact parallel to the movement pointed out by me in a recent paper¹ as having occurred in the upper Pecos valley, caused by the arrival of hostile nomads from the plains. The evolutionary sequence there proposed would apply to Pajarito Park, as follows (stated in reverse chronological order):

1. *Epoch of Concentration*.—Large pueblos of Tchrega, Tsankawi, Navakwi, Otowi, Puye, and Shufinne, with their accompanying cliff-villages (types B and C).
2. *Epoch of Diffusion*.—The scattered small pueblos and isolated cliff-dwellings of type B.
3. *Pretraditionary Epoch*.—The cliff-dwellings of type A.

5. How far this evolutionary order will hold good for other regions depends upon geological, climatic, and other environmental influences. In speaking of the aboriginal ruins in Verde valley, Arizona, Mindeleff² says:

"Here remains of large villages with elaborate and complex ground plan, indicating a long period of occupancy, are found, and within a short distance there are ruins of small villages with very simple ground plan, both produced under the same environment; and comparative

¹ *Studies on the Extinct Pueblo of Pecos*; Amer. Anthropologist, July-Sept., 1904.

² *Aboriginal Remains in Verde Valley, Arizona*, by Cosmos Mindeleff; Thirteenth Ann. Rep. Bur. of Amer. Ethnology, p. 187.

study of the two may indicate some of the principles which govern the growth of villages and whose results can be seen in the ground plans. Here also there is an exceptional development of cavate lodges (with open fronts), and corresponding to this development an almost entire absence of cliff dwellings."

Dr Fewkes later discovered and described cliff-dwellings of a high order (type C, plate xxiv, 2) in Verde valley. This authority says:¹

"In Verde valley, villages, cliff houses, and cavate dwellings exist together and were, I believe, contemporaneously inhabited by a people of the same culture."

6. The influences which governed the growth of pueblo clusters and which are sufficiently apparent to me to serve as a basis for laws of village development are as follows:

1. Site; influencing morphology of dwellings as to compactness, regularity, etc.
2. Accession of population from without; determining growth by addition of new buildings.
3. Evolution from within, determining growth by addition of cells to the maternal home.

Dr Fewkes has pointed out to me what seems to be another important influence in pueblo development, and which he has promised to elaborate, i. e., the influence of the sun.

The subject of the depopulation of the Pajarito plateau cannot be treated within the limits set for this paper. It was principally a question of subsistence.

¹ *Archæological Expedition to Arizona in 1895*; Seventeenth Ann. Rep. Bur. of Amer. Ethnology, p. 537.

ABORIGINAL URN-BURIAL IN THE UNITED STATES

By CLARENCE B. MOORE

So little exploration of places of aboriginal burial has been conducted in this country, compared with what remains to be accomplished, that nothing final can be written as to the methods and extent of aboriginal urn-burial within the limits of what is now the United States. Nevertheless, certain data on the subject may be of interest to some.

We shall take up the record of urn-burial, beginning with the Pacific coast, and shall follow the custom eastward.

Near Santa Barbara, southern California, Doctor Yarrow¹ found, among ordinary inhumations, urn-burials in vessels of stone, some of which, at least, were with articles of iron, showing that the custom of urn-burial in this region extended into post-Columbian times.²

The form of urn-burial varied. Doctor Yarrow describes, among other instances, the finding of an olla with parts of the cranium of a child; a large olla containing bones and covered on top with the epiphysis of a vertebra of a whale; a large steatite olla containing the skeleton of an infant, wrapped in matting; an olla containing a skull (particulars not given); a mortar covered by the shoulder-blade of a whale, containing the skull of an infant, covered by an abalone shell; an olla containing the bones of a child. In addition, we find a custom where skulls, accompanied by their skel-

¹ *United States Geographical Surveys West of 100th Meridian*, vol. VII, "Archæology," edited by Prof. F. W. Putnam, p. 35 et seq.

² *Baron Erland Nordenskiöld*, speaking of very recent urn-burials in South America, says: "They bury their dead in giant pots, as is usual with the Guarani people. These pots they bury in a corner of the rancho, which — at any rate, on the death of a master of the house — is set on fire. This manner of burial will, of course, soon disappear. I have myself dug up a double pot containing a skeleton, which it was stated had been buried in 1899. It cannot have been much longer ago, since in the spring of 1902 there was a perceptible smell," — *Travels on the Boundaries of Bolivia and Argentina*, *Geographical Journal*, May, 1903.

etons, were covered by large stone mortars, orifices down. In one instance a skull was covered by a copper (brass?) pan,¹ inverted.

The placing of inverted mortars of stone over skulls accompanied by their skeletons is closely related to a custom we shall refer to later, as practised in Arizona and New Mexico.

At Forestdale, eastern Arizona, among other burials, Hough² found cremated remains in gray vases, not of stone, as in lower California, but of earthenware, as are all vessels subsequently treated of in this paper, "which were luted with clay, stopped with a stone, or covered with an upturned bowl." "A remarkable fact connected with the interments of this class," says Dr Hough, "is that the vases are usually set on the bones of an infant. No explanation derived from historical or present observances of any of the Pueblo tribes can be given of this strange custom, which appears to have been of sacrificial character."

The Hemenway Expedition, under Cushing, found, near Phoenix, Arizona, burial-urns used as receptacles for cremated human remains.³ Certain of these vessels, which are now in the Peabody Museum, Cambridge, Mass., had each a small bowl, inverted, for a cover.

Near Solomonsville, southeastern Arizona, Fewkes⁴ found an urn-burial of cremated human remains.

Doctor Fewkes says: "Evidences of cremation were common, consisting of calcined human bones in mortuary ollas, with ashes, evidently of bones, buried on certain low mounds adjoining the houses. It was apparently the ancient custom to burn the dead on certain pyral mounds and then to gather up the remains of the burnt bones and deposit them in small, rudely decorated vases. A circular disc, made of pottery, was luted to the orifice of these vases and

¹ I am indebted to Mr C. C. Willoughby for the information that a skeleton now in the Peabody Academy of Science, Salem, Mass., was found in Essex county, Mass., with the skull placed in a brass kettle. The kettle, however, lay on its side, and was not over the skull, mouth down.

² *Report of the U. S. National Museum*, 1901, p. 292.

³ *Compte Rendu of the Seventh Session of the International Congress of Americanists*, Berlin, 1889, published 1890. See also Matthews in *Memoirs Nat. Acad. of Sciences*, vol. VI, Seventh Memoir, pp. 149-150.

⁴ *Two Summers' Work in Pueblo Ruins*, by Jesse Walter Fewkes, 22d Report Bur. Amer. Eth., part 1, pp. 171, 175 et seq.

the whole was buried in an upright position near the edge of the mound upon which the burning took place."

I am unable, in this hastily prepared paper, to give satisfactory reference to any instance of urn-burial of cremated remains in New Mexico, though one might, with reason, expect evidence of the custom there. The instance cited in a certain book intended for popular reading, and by Doctor Yarrow,¹ are unsatisfactory.

Another form of what possibly might be called urn-burial, recalling the use of inverted mortars on the Pacific slope, obtained in southwestern United States, namely, the placing of an inverted bowl over a skull. The skull, however, was present with its skeleton and was not buried alone, apart from the skeleton, under a mortuary bowl, as we shall see was the case in northwestern Florida.

This custom, in the Southwest, of placing bowls over skulls which were with their skeletons, was not general even when practised, the placing of the bowl over a skull being occasional only. Cushing and Hodge² noted this custom near Phoenix, Arizona, as did Fewkes³ in one instance at Sikyatki in northeastern Arizona.

Professor Duff has described the occurrence of the same custom in the Mimbres valley, southwestern New Mexico,⁴ and Prof. Edgar L. Hewett⁵ noted that the same custom prevailed in cemeteries in the Pajarito Park country, northwest of Santa Fé.

What might be called a collateral branch of urn-burial is described and figured by Pepper⁶ as occurring in southeastern Utah, where circular baskets were found laid over burials.

Continuing eastward, we note that urn-burial was practised occasionally in Mississippi—at least, C. C. Jones makes a general statement to that effect.⁷

¹ Doctor Yarrow (*First Ann. Rep. Bur. Eth.*, 1879-80, p. 137 et seq.) quotes E. A. Barber (*Amer. Nat.*, 1876, vol. x, p. 455 et seq.) as authority for the discovery of burial-urns in New Mexico. In point of fact, Doctor Barber, in his *Ancient Pottery of Colorado, Utah, Arizona, and New Mexico*, describes the pottery of that entire region in a general way, and nowhere refers to the finding of burial-urns in New Mexico.

² F. W. Hodge, in private letter.

³ *Seventeenth Ann. Rep. Bur. Am. Eth.*, part II, p. 654.

⁴ *American Antiquarian*, Sept.-Oct., 1902.

⁵ F. W. Hodge, in private letter.

⁶ *Journ. Am. Mus. of Natural History*, vol. II, no. 4, Guide Leaflet No. 6, New York, 1902. Also referred to in Mason's *Aboriginal American Basketry*; Report U. S. Nat. Museum, 1902.

⁷ *Antiquities of the Southern Indians*, p. 456.

Proceeding northward into Tennessee, we find recorded¹ an interesting urn-burial from Hale's Point, consisting of a heavy casket of earthenware in two irregular, quadrangular parts made in a way that the sides of one come down a short distance below the top of the other. "This is one of the very few vessels," says Professor Holmes, speaking of the United States, "that would seem to have been constructed especially for mortuary purposes." Within the casket were the decaying bones of a very small child.

In a mound in Roane county, Tenn., it is said² that an adult skeleton lay in a boat-shaped vessel of soft clay, nine feet long.

Mr William McAdams³ tells of mounds in Calhoun county, Illinois, where partly burned human bones and ashes lay in large sea-shells, and, in two instances, in shells of turtles.

Mr Henry Gillman⁴ gives exact details of what he considered a unique discovery at that time, being cremated human remains found in an urn, in a mound near Fort Wayne, Mich.

From the Andross village site, near Saginaw, Mich., Mr Harlan I. Smith⁵ reports the finding of a vessel 3 feet 9 inches in circumference, and about 2 feet in height, before it was broken, under the following conditions: "While a pioneer was plowing on the site, the foot of one of his oxen suddenly sank into a hole. On investigation the farmer found that the ox had broken through the bottom of an urn which had been turned mouth downward over the head of a human skeleton. . . . It is reported that a number of similar urns have been found near Detroit, and one was dug up at Point Lookout, on the west side of Saginaw Bay; but unfortunately all these specimens have been broken or lost, so that the Andross urn is probably unique."

In this case we note that the details of the discovery are based on hearsay testimony.⁶

¹ W. H. Holmes, *Ancient Pottery of the Mississippi Valley*, Fourth Ann. Rep. Bur. Eth., 1882-83, p. 381.

² Cyrus Thomas, *Report on Mound Explorations of the Bureau of Ethnology*, Twelfth Ann. Rep. Bur. Ethnology, p. 359 et seq.

³ *Proc. A. A. A. S.*, 1880, p. 712 et seq.

⁴ *Proc. A. A. A. S.*, 1876, p. 315.

⁵ *The Saginaw Valley Collection*, Supplement to American Museum Journal, vol. 1, No. 12, Nov.-Dec., 1901, p. 21.

⁶ See also *American Antiquarian*, 1879, p. 164, as to urn-burial in Michigan.

Returning now to the Gulf coast, the Mobile and the Alabama rivers, Alabama, were investigated by me.¹

Going northward, in the mound on Little river were two burials of unburnt bones of infants, each in a vessel, which, to judge by fragments around, had been surmounted by another vessel.

At Matthew's landing, among many ordinary inhumations, was a single urn-burial, being a large vessel covered by an inverted platter. Within were the uncremated bones of a number of infants, carefully stowed away. Here we are introduced to a new feature in urn-burial in the United States, namely, plural uncremated burials in a single urn.

In the famous cemetery at Durand's Bend, above Selma, were numerous great vessels, many covered by shallow bowls inverted; some, by large but imperfect vessels in a reversed position. Most of these vessels held single skeletons of infants, very badly decayed, but in one instance, at least, parts of the skeletons of two infants were present.

There were also two great vessels, each enclosing parts of a skeleton of an adult, without the skull. As the bones barely covered the bottoms of the vessels, lack of room cannot have been the motive for a partial deposit.

In one striking instance, two skeletons, one of an adult, the other of an adolescent, had been carefully packed away in one receptacle. On top, side by side, lay the skulls.

In all directions in the cemetery at Durand's Bend were unenclosed inhumations of the usual character.

Explorations made by me on the boundary between Alabama and Florida, and eastward along the northwest coast of Florida,² yielded numerous bowls of large size, inverted over lone skulls or skulls accompanied by a few scattered bones. In two cases only, on the Florida coast, was the regular form of enclosed urn-burial met with: once where a great bowl, capped by a large inverted

¹ *Certain Aboriginal Remains of the Alabama River*, by Clarence B. Moore; Journ. Acad. Nat. Sci., Phila., vol. xi. See also *Shell Heaps on Mobile River*, Smithsonian Report, 1878, pp. 290, 291.

² *Certain Aboriginal Remains of the Northwest Florida Coast*, parts I and II, by C. B. Moore; Journ. Acad. Nat. Sci., Phila., vols. xi and xii.

fragment of another vessel, held the decaying parts of a skull and certain other bones. Again, at Ocklockonee bay, the easternmost limit of urn-burial in Florida, none having been noted in the peninsular part of the state, I found a single urn-burial, containing the bones of a child, in a deep bowl surmounted by another bowl inverted. With the bones were two bracelets of brass. Farther to the westward, also, on the Alabama line, I found evidence of contact with Europeans, with certain burials covered by inverted bowls. We see, then, that in southeastern United States also, urn-burial survived into the historic period.

For further examples of urn-burial in the United States, we must go to the Altamaha river,¹ in Georgia, to points along the mainland of the Georgia coast, and to the sea-islands which border that coast.²

In Alabama, and along the northwest Florida coast, cremated remains in urns were not found by me. On the Altamaha river, however, I found pots containing quantities of fragments of charred and calcined human bones. These pots were covered wholly or in part by other pots inverted over them. In one instance, a great pot of yellow ware, decorated all over with a modification of the swastika, stamped on the clay when soft (stamped decoration being characteristic of south Appalachian ware), lay inverted over a great unenclosed mass of partly-cremated fragments of human bones, among which were tobacco pipes and pearls.

Also along the Altamaha were pots, each turned over uncremated bones of an infant, lying on the sand, without enclosing vessel.

Along the mainland of the Georgia coast I met with vessels inverted over piles of charred and calcined bones; and cremated remains in urns, some of which were covered by surmounting vessels, some by fragments of pottery. Here again, as in all other

¹ *Certain Aboriginal Mounds of the Altamaha River*, by C. B. Moore; Journ. Acad. Nat. Sci., Phila., vol. XI. See also *A Primitive Urn-burial*, by Dr J. F. Snyder, Smithsonian Report, 1890, p. 609. Also notice of an urn-burial from Oconee river, a tributary of the Altamaha, Ann. Rep. Bur. Eth., 1879-80, p. 138 and figure.

² *Certain Aboriginal Mounds of the Georgia Coast*, by C. B. Moore; Journ. Acad. Nat. Sci., Phila., vol. XI. See also C. C. Jones, *Antiquities of the Southern Indians*, p. 454 et seq.

examples of urn-burial with which I have had to do, the urns were among unenclosed burials, and never in mounds or cemeteries by themselves.

Among the sea-islands of Georgia the form of burial placed in the urns seems to have varied.

On Creighton island were jars, capped by inverted vessels, containing unburnt skeletons of infants, single skeletons presumably.

On Sapelo island,¹ in the principal mound, were uncremated single skeletons and parts of skeletons, of adults, in urns. In a smaller mound, not far distant, the urns contained, each, the uncremated remains of an infant, with one interesting exception. A burial in an oblong vessel, covered with fragments of pottery, consisted of part of a skeleton of a woman, which completely filled the vessel. Below, in the sand, were many other bones belonging to the same skeleton.

On this island the vessels were variously covered, some by other vessels, some by sherds, some by decaying slabs of wood.

The urn-burials of St Catharine's island yielded uncremated remains, belonging to adults in all cases but one, where bones of an infant were present. Certain urns were covered by other vessels inverted; some were unprotected, as is shown by the accompanying illustration (plate XXVIII).

Ossabaw island, rich in archeological remains, yielded uncremated bones of infants, in urns,² while other urns contained cremated remains, usually of adults. Some enclosing urns were capped by other vessels, some by sherds, while some were without covering.

In my mound work along the southern part of the coast of South Carolina³ and its outlying sea-islands no instance of urn-burial was discovered *in situ* by me. I was shown there a vessel,

¹ In summing up results in my report on the Georgia coast, unfortunately I have erroneously said that bones of adults only were found in urn-burials on Sapelo island. Fortunately the records in my report are full and correct.

² In addition to my report on the mounds of the Georgia coast, see *Aboriginal Pottery of Eastern United States*, by W. H. Holmes; Twentieth Ann. Rep. Bur. Am. Eth., p. 136.

³ *Certain Aboriginal Mounds of the Coast of South Carolina*; Jour. Acad. Nat. Sci., Phila., vol. XI.



URN-BURIAL FROM A MOUND ON ST CATHARINE'S ISLAND, GEORGIA. (ABOUT ONE-THIRD SIZE)

said to have been found in level ground near the South Carolina coast, similar to those used for burial along the coast of Georgia, in which a thoroughly reliable person said he had found human remains. Such evidence, however, is far from final.

C. C. Jones says, in a general way, that urn-burial was practised in South Carolina, but he, perhaps, like Foster,¹ got his information from a loose statement made by Squier and Davis.² Nevertheless, it is likely that urn-burial obtained to a certain extent in South Carolina, as that region is contiguous to Georgia, where we know the custom prevailed.

This list of forms of urn-burial and of localities in which the custom was practised within the limits of the United States, will be increased, no doubt, by additional references brought forward by others and by the results of further investigation.

So far as this record goes, however, we note that urn-burial occasionally was practised in the southern part of the United States, from ocean to ocean, though as yet a continuous line of occurrence has not been traced. Urn-burial seems to have been almost unknown in the north.³ Perhaps the much greater use of pottery

¹ *Prehistoric Races*, p. 199.

² Squier and Davis, *Ancient Monuments of the Mississippi Valley*, p. 167, say: "In the mounds on the Wateree river near Camden, South Carolina, ranges of vases, filled with human remains were discovered." On p. 108 of the same work is a detailed description. In one mound, which was two-thirds washed away by the river, Dr Blanding, according to his account which is given, saw "layers of earth, pottery, charred reeds, etc. Some few of the vases were entire, containing fragments of bones and were well arranged in tiers, one above the other." Old-time statements must be taken with considerable allowance. Moreover, even Dr Blanding does not speak of the urns as having been used for burial purposes. Fragments of bones often fall into vases which have been placed in the neighborhood of skeletons.

³ Doctor Yarrow, in *Mortuary Customs of North American Indians* (Ann. Rep. Bur. Eth., 1879-80), in the part devoted to urn-burial, page 137 et seq., figures four vessels, three from Indiana, one from Kentucky, which he says are taken from Foster's *Prehistoric Races*, and describes them as "burial urns." It is a point of fact, Foster makes no assertion that these urns were used to contain human remains, but describes the three from Indiana (pp. 144 and 247) as "sepulchral urns" found "filled with black mould." The diameter of the largest vessel is about 6 inches! The vessel from Kentucky is equally small and is given by Foster (p. 248) as coming "from an ancient grave."

Foster (op. cit. p. 200) says: "Professor Swallow informs me that from a mound at New Madrid, Missouri, he obtained a human skull, enclosed in an earthen jar, the lips of which were too small to admit of its extraction; it must, therefore, have been moulded on the head after death." The Eighth Annual Report of the Peabody Museum gives

in the south than in the north may account for this in part, though under this hypothesis one might look for urn-burials in Missouri, Arkansas, and neighboring states.

The placing of cremated remains in urns seems to have been practised in part of the southwest and in the extreme southeast, but in the region between records as to its occurrence are most exceptional.

Plural burial of uncremated remains seems, so far, to have been recorded from Alabama alone.

details of this alleged Missouri urn-burial, taken from reports furnished by Professor Swallow; and Conant (*Footprints of Vanished Races in the Mississippi Valley*) speaks of the vessel as containing "the upper portion of a human skull and one vertebra." In a foot-note in the Peabody Museum Report, Professor Putnam says the vessel contains "a few fragments of a human cranium and the vertebra of a deer." It is interesting to note the evolution of this Missouri urn-burial. At a meeting of the Missouri Academy of Science, held in 1857 (*Trans. Missouri Acad. of Sci.*, St. Louis, vol. 1, 1856-1860, p. 36) Professor Swallow personally describes the finding of the urn-burial "in the upper part of the larger mound. . . . On taking it up, the top portion of a human skull was seen inside, lying across the mouth of the jar, with the convex side downward." The diameter of the jar is given as "about ten inches." Sixteen years later Professor Swallow had something to say about this same urn-burial to the A. A. A. S. (*Proceedings A. A. A. S.*, No. 22, B. 401, 1873). The fragment has become a skull. Professor Swallow says: "The mouth of the jar was so small that the skull could not be removed whole. This skull was taken out in the presence of several gentlemen from a depth of thirty feet below the undisturbed surface of the mound." The skull is contemporaneous "with the early mound-builders, the elephant and the mastodon." It lay near the "charred remains of many victims." This interesting relic which, from a fragment, became an entire skull, which came from both the top and the bottom of a mound, subsequently was broken, along with the enclosing vessel, by accident to the box in which it was packed, we are told by the Peabody Museum Report, which, as has been said, got its information from Professor Swallow. The vessel, pieced together, is now at the Peabody Museum and contains a few fragments of an adult skull and the vertebra of a deer. The inside measurements of the vessel, I learn from Mr. Willoughby, are, height $4\frac{3}{4}$ inches, aperture $4\frac{1}{2}$ inches, maximum diameter 6 inches.

In Professor Starr's carefully-prepared "Bibliography" of the archeology of Iowa (*Proc. Davenport Acad. Nat. Sci.*, vol. VI, pp. 19 and 55) are two references. One refers to the *Cedar Rapids Gazette*, Oct. 14, 1887, in which is described work by Mr. B. Morgan in a mound near Richland, Keokuk county, Iowa, where "burial-urns," vessels nine feet in circumference, are said to have contained human bones. The other reference, when looked up, shows that some years previous to the newspaper account, in an abstract of correspondence from Mr. Morgan, describing this same investigation of the mound near Richland, which appeared in the Smithsonian Institution Report, 1880, p. 445, no mention is made of the measurement of the vessels nor of their having been used for burial purposes.

It is not probable that urn-burial was practised exclusively in any locality within the United States. As above said, I have never found burials in urns except in conjunction with other forms of burial, and I have been able to learn of but one account where urn-burials alone are said to have been met with, and to this statement I attach but little importance.¹

Within the limit of a paper necessarily so brief as this, space is wanting particularly to describe the enclosing vessels of earthenware belonging to urn-burials. Fortunately, in Professor Holmes' exhaustive memoir, *Aboriginal Pottery of Eastern United States*,² the matter is fully discussed, so far as a large part of the United States is concerned, and I can do no better than to refer the reader to him.

¹ Squier and Davis, *op. cit.*, p. 167, speak of a cemetery, devoted to urn-burial only, on St Catharine's, an island of the Georgia coast. I have conducted field work on St Catharine's island for a considerable period with a large force of men, and in view of the fact that neither there nor on any island of the Georgia coast did I meet with cemeteries of the class described, and considering the loose method of mound work and of the reports on it that prevailed in former times, one may well discredit this case cited by Squier and Davis on the authority of another.

² Twentieth Ann. Rep. Bur. Am. Eth., pp. 104-110 incl., 130-136 incl. et al., and numerous plates. For Professor Holmes as to urn-burial, see pp. 37-39 incl. of the same work, reading "Florida" in place of "Georgia" under figure 11.

SOME POWHATAN NAMES

By WILLIAM WALLACE TOOKER

Many of the conclusions reached by Mr William R. Gerard in his article on "The Tapananek Dialect of Virginia"¹ are derived from exceedingly slender evidence based largely on false translations; radicals are named from the author's own conceptions, but which cannot be found in the language; terms are quoted from various dialects, transliterated, and given his own phonetic values without regard for the original so long as the sounds approach the real word. Mr Gerard quotes dialects that have no real existence, like "Tap," "Rap," "Nap," thereby creating confusion, for being founded on error they do not represent the true status of such changes; and he ignores the work of fellow students by substituting therefor erroneous derivations.

From the point of view of the present writer the substitution of "Tapananek," for "Powhatan" is objectionable. "Powhatan," which Mr Gerard says is inappropriate and loosely used, had its origin with the birth of the colonial settlement of Virginia, when Captain John Smith tells of neighboring tribes speaking Powhatan's language.² Since then retained, it has become permanently established in the mind and speech of the American people, and for that reason alone is far better than the corrupt "Tapananek" or any other designation that may be proposed.

Mr Gerard discusses "the *T*-dialect of Virginia," which he thinks corresponds with the *t* that, "in certain positions," characterizes the Cree as a linguistic group, and from his deductions reaches the conclusion that the Powhatan dialect belonged to the Cree group of Algonquian languages, and, at an early period, the people who spoke this dialect found their way from Canada to Virginia.

¹ *American Anthropologist*, April-June, 1904.

² Smith, *History of Virginia*, pp. 55, 351. Where Smith's works are quoted herein, Arber's English reprint is the edition cited.

As will be shown in my analysis of Mr Gerard's derivations, some of these words he has certainly mistaken, and others can be found in the Natick, Narragansett, Mohegan, and Lenape, as well as in the Powhatan; while others may be erroneous forms¹ due to typographical error or to mishearing on the part of the colonists, not to any change in the utterance of the native speaker. The fact is, the Powhatan dialect (I refer also to geographical names), as noted by our two authorities, Smith and Strachey, was closer in its family relationship and vocabulary² to the Natick of John Eliot and to the Narragansett of Roger Williams than it was to the Cree or to any other northern dialect, although in their grammatical structure all the Algonquian dialects are practically the same. In proof of this relationship, besides the parallels given in the following pages, I submit a few common words from three dialects which show it plainly. Of course, being in error as to his derivations, Mr Gerard must necessarily be in error as to his grammatical conclusions on which they are based.

Comparisons from Three Dialects

POWHATAN	NATICK	CREE
<i>auhtab</i> , a bow.	<i>ahtomp</i> .	<i>atchābiy</i> .
<i>apome</i> , the thigh.	<i>apome</i> (Narr.).	<i>oppwām</i> .
<i>aussab</i> , a net.	<i>hashab</i> .	<i>ayāpiy</i> .
<i>coan</i> , snow.	<i>k8n</i> .	<i>kona</i> .
<i>mushins</i> , the eye.	<i>muskesuck</i> .	<i>miskijik</i> .
<i>musken</i> , the nose.	<i>mutchan</i> .	<i>miskiwan</i> .
<i>mettone</i> , the mouth.	<i>mutt8n</i> .	<i>miton</i> .
<i>mepit</i> , a tooth.	<i>meepit</i> .	<i>mipit</i> .
<i>meskott</i> , the leg.	<i>muhkont</i> .	<i>miskat</i> .
<i>messeate</i> , the foot.	<i>musseet</i> .	<i>misit</i> .
<i>meihtawok</i> , the ear.	<i>mehtauog</i> .	<i>mittawohay</i> .
<i>peitaoh</i> , froth.	<i>pehtean</i> .	<i>pistew</i> .

¹ Such as Smith's *attatop*, 'a bow,' which Strachey writes *auhtab*, under B, and *hontoppe*, under H, which surely cannot be dialectal variations, but errors of the ear or of the press.

² Trumbull remarks: "The language of the Powhatans was nearly the same as that of the tribes of southern New England. Judging from the specimens given by Captain John Smith and from a few others, gleaned from early accounts of the Colony of Virginia, the Powhatan and Massachusetts did not differ more from each other than either differed from the Delaware." — *Historical Magazine*, 1870, vol. VII, 2nd ser., p. 46.

<i>poponaw</i> , winter.	<i>poponae</i> .	<i>pipon</i> .
<i>tapacoh</i> , night.	<i>tuppaco</i> (Narr.).	<i>tibiskaw</i> .
<i>wtchepwoissuma</i> , the east.	<i>wutcheptwoiyeu</i> .	(no cognate.)
<i>wehsatonowan</i> or		
<i>wysotonooan</i> , the beard.	<i>weeshitt8un</i> .	<i>niyistowan</i> .
<i>woutwh</i> , an egg.	<i>woou</i> .	<i>wäwi</i> .
<i>wehaikauk</i> , scales of a fish.	<i>wuhhogki</i> .	<i>wahākay</i> .
<i>wahchesao</i> , nest of a bird.	<i>wadtchat</i> .	<i>watjistun</i> .

Mr Gerard derives *Appamatuck* from "*A'pāmā'tékú*, 'curved river,' a designation for the part of a tidal river in which a bend exists; verbally, *a'pāmā'tékú*, 'the river makes a curve,' 'turns about.' "

The "*Appamatuck*" on the "*Tappahanock*" river quoted by him was taken from Smith's first book¹ and was inserted there by mistake, for such a town is not referred to in any of Smith's subsequent descriptions of the river, nor does it appear on his map, a fact which leaves only the James river town to be considered. Its possible transference in after years need not concern us here.

Appamatuck is mentioned eighteen times in Smith, and always as a country, place, or people, except in four instances, or really in two, as they are repeated. Where the river is mentioned like the "pleasant river of *Apamatuck*" and "we discovered the river and people of *Appametuck*," or with the English plural "*Apametucks* river," it is because, as the context shows, the river was in their country. The bestowal of the name on the stream was due to the colonists and not to the natives, and the same is true of all the names of rivers noted on Smith's map. Captain Gabriel Archer² describes the first visit there in June, 1607, as follows:

"We went a shore at a place I call *Queene Apumatecs* bowre. He³ caryed vs along through a plaine lowe grownd prepared for seede, part whereof had been lately Cropt: and ascending a pretty Hill, we sawe the Queene of the Country cominge in selfe same fashion of state as *Pawatah* or *Arahatec*; yea rather with more maiesty: she had an vs her before her who brought her to the matt prepared vnder a faire mulbery tree, where she satt her Downe by her self. Captayne Newport stayed here some .2.

¹ *A True Relation*, etc., 1608.

² Smith, pp. xlix-l.

³ The guide Nauraus, "who had learned me so much of the language, and was so excellently ingenious in signing out his meaning."

houres and Departed. Now leauing her, *Nauiraus* Dyrected us to one of King *Pamaunches* howses some .5. myle from the Queenes Bower."

The picture of the *mulberry tree*, with the 'Queen' sitting on a *mat*, gives us a clue to the etymology of the name, which was undoubtedly bestowed at the time by *Nauiraus* the interpreter. Among the variations of the term are *Apumatec*, *Appamatuke*, *Apamatuc*, and *Appametuck*, which I derive from *appu*, 'he (or she) sits,' 'abides,' 'remains,' 'rests,' and *-metuc*, or *matuck*, 'a tree,' hence the 'resting tree,' or, as Archer delightfully calls it, 'a bower,'—an etymology paralleled by the following cognates: Natick *appu-metug*, Narr. *apru-mihtuck*, Lenape *appit-mehittuck*, Abn. *api-metek*, Cree *apiw-mistick* (Lacombe), *appu-mistick* (Howse), Nip. *api-mitik*.

Of all the examples of "curious speculation" with which Mr Gerard favors us, his derivation of the word '*Coiacohanauke*,' or better '*Quiyoughquohanock*,'¹ is the least founded, when compared with what it actually is. He says "it stands for *Kaiâkuhâ'nek*,"² 'gull-stream,' "but he does not fully quote Strachey, who remarks:³ "*Coiacohanauke*, which we commonly (though corruptly) call *Tapanauke*, and is the same which Capt Smith in his Map calls *Quiyoughquohanock*, on the south shore or Salisbury side." This was one of their ceremonial places, where certain religious rites were performed, from which fact the name was applied. Smith early wrote:⁴ "*The Quiyoughquosicke*, which is a superior power they worship." His brief vocabulary gives "*Quiyoughcosucks*"⁵ or "*Quiyoughcosoughs*, Pettie Gods, and their affinities" (= *Quiyoughqu-suck* 'black-boys';⁶ *quiyoughqu-* 'a boy,' *-suck* 'black' or 'dark-colored'), a word related to the Narragansett *tiaquongussu* 'he is low and short'; *tiaquonguschick* 'men of low stature'; Natick (Cotton) *tiohkoosue* 'he is short'; Quiripi *tiaoquiah* 'short.' Smith says:⁷ "They sent one of their *Quiyoughkasonucks* [priests] to offer peace, and redeeme their Okee." Again¹ Smith was held in "such estimation

¹ Smith, p. 475.

² It did not designate a stream, but a 'King's house or town.'

³ Strachey, p. 56.

⁴ Smith, p. 22.

⁵ Ibid., pp. 45-382.

⁶ Ibid., p. 373.

⁷ Ibid., p. 393.

amongst them, that those Salvages admired him more than their owne *Quiyoughkosucks*." This name for the "Pettie Gods and their affinities" cannot be ignored in considering the derivation of the longer term, which has the same stem and must have the same concept. The *quiyoughqu-osucks*, to use the best notation, were therefore 'the lesser priests,' or 'black-boyes,' who were taught or chosen to be such; hence *Quiyoughqu-ohan-ock*, 'the place or country where the lesser priests or boys were beaten or initiated into the mysteries of the cult,' a compound of *quiyoughqu-* + the verb *-ohan*² 'to beat' or 'to strike,' together with the locative *ock* 'place' or 'country.'

Smith³ corroborates this derivation as follows:

"In some part of the Country they haue a yearely a sacrifice of children.⁴ Such a one was at *Quiyoughcohanock* some ten myles from James Towne, and thus performed.

"Fifteene of the properest young boyes, betweene ten and fifteene yeares of age they painted white. Having brought them forth, the people spent the forenoone in dancing and singing about them with rattles.

"In the afternoone they put those children to the roote of a tree. By them all the men stood in a guard, every one having a Bastinado in his hand made of reeds bound together. This made a lane betweene them all along, through which there were appointed five young men to fetch these children: so every one of the five went through the guard to fetch a childe each after other by turnes, the guard fiercely beating them with their Bastinados, and they patiently enduring and receiuing all defending the children with their naked bodies from the vnmercifull blowes, that pay them soundly, though the children escape. All this while the woman weepe and cry out very passionately, providing mats, skins, mosse, and dry wood, as things fitting their childrens funerals.

"After the children were thus passed the guard, the guard tore down the trees, branches and boughs, with such violence that they rent the body, and made wreaths for their heads, or bedecked their hayre with the leaues. What else was done with the children, was not scene, but they

¹ Ibid., p. 395.

² A verb that appears in several Powhatan names in varying forms, such as "*Nak-cha-min*, parched corn ground small," and "*Vshucc-oh-men*, to beat corn into a meal."

³ Smith, pp. 373-374.

⁴ Smith (p. 373) on the margin has: "Their solemn Sacrifices of Children which they call Black-boyes." This I regard as a free translation of the word *Quiyoughqu-muck*. The only dialect I can find in which the word *suck* 'black' or 'dark-colored' appears as an affix is the Nanticoke of Vans Murray, which will account for its use in the Powhatan.

were all cast on a heape, in a valley as dead, where they made a great feast for all the company.

"The *Werowance* being demanded the meaning of this sacrifice, answered that the children were not all dead, but that the *Okee* or *Devell* did sucke the blood from their left breast, who chanced to be his by lot, till they were dead; but the rest were kept in the wilderness by the young men till nine moneths were expired, during which time they must not converse with any: and of these were made their Priests and Coniurers.

"This sacrifice they held to be so necessary, that if they should omit it, their *Okee* or *Devill*, and all their other *Quiyoughcosughes*, which are their other gods, would let them have no Deere, Turkies, Corne, nor fish: and yet besides he would make a great slaughter amongst them.

"To divert them from this blind Idoletry, we did our best endeavours, chiefly with the *Werowance* of *Quiyoughcohanock*, whose devotion, apprehension, and good disposition, much exceeded any in those Countries."

Mr Gerard speculates freely regarding the country of this people and the name "*Tapahanock*," but no such name properly belonged to their river, country, or town. Strachey, as I have quoted under the foregoing name, says it was "commonly (though corruptly)" so called. Smith mentions *Tapahanock* twice only as applied to this place, and that exclusively in his earliest work, *A True Relation*, etc., hence he must have learned later that it was wrongly, or, as Mr Gerard remarks, "erroneously" bestowed. The facts, on close study of the early "Relations" and "Observations," seem to be that on the entrance of the colonists into the James river, in the spring of 1607, the neighboring Indians living northward on the adjacent streams flocked to the banks of the James and established transient habitations there in order to resist the landing of the explorers;¹ and so, as Archer² relates in his story of the first voyage up the river, to which I have before alluded, they met the "*Wyroans of Pamaunche*"³ (*Opechancanough*) on the south side of the river about five miles from Appamatuck, where he was temporarily residing on land of which "the kyng of Wynauh is the

¹ "With their Bowes and Arrowes, in a most warlike manner; with their swords at their huckles beset with sharp stones, and pieces of yron able to claue a man in sunder." (Smith, pp. lxx-lxxi.) On their return to the fort they found it had been assaulted by 400 Indians, and that many of the colonists were injured and one had been killed. (Ibid., p. 7.)

² Smith, pp. l-li.

³ "This Wyroans Pamaunche I holde to inhabite a Rych land of Copper and pearle. His Country lyes into the land to another Ryver." (Smith, p. li.)

possessor hereof." In a description of the same voyage, Percy¹ and Wingfield² relate they also met the "*Wyrowance Tapahanah*," as he called himself, "with all his traine, as goodly men as any I haue seene of Sauages or Christians," where "when we came to *Rapahannos* Towne hee entertained vs in good humanitie," which it was afterward learned was in the country of *Quiyoughquohanock*, and so the name *Tapahanock*, which really belonged to "a kingdome vpon another Riuer northward," was for a time wrongly applied to *Quiyoughquohanock*, and was so used until the colonists learned of their mistake. Thus Mr Gerard's statements in regard to the *Tapahaneks* of the James river will bear revision.

As to³ "*Rapahanock*, by many called *Toppahanock*," Mr Gerard further remarks:

"Finally, then, *Tápêhá'nêk* and *Rápêhá'nêk* are (as may be seen under the root *tap* in the Glossary) dialectic forms of the same word, and mean 'the stream that ebbs and flows' (lit., that 'alternates in flow'), the definite and specific form of *Tápêhá'ne* and *Rápêhá'ne*, 'a stream that ebbs and flows.' In the *N*-dialect the word would have the form of *Nápêhá'nêk*."

The foregoing corresponds with Heckewelder's etymology, viz., "*Lappi-hanne*, 'the stream with ebb and flow.'" This is unacceptable for many reasons, especially when we consider that all streams hereabout are tidal waters.

The name *Rapahanock* did not originally refer to the stream, but to the most noted town or country whose inhabitants dominated those waters. The following quotations indicate a transference of the appellation from land to water.

Early in 1608 Smith⁴ wrote of an occurrence of 1607: "From hence, this kind King conducted me to a place called *Topahanocke*, a kingdome vpon another Riuer northward."

Five years, more or less, afterward, Strachey wrote:⁵ "The third navigable river by the Naturalls of old was called *Opiscatumeck*, of late *Toppahanock*, and we the Queen's river."

¹ Ibid., pp. lxi-lxx.

² Ibid., pp. lxxvi-lxxvii.

³ Smith, p. 419.

⁴ Ibid., p. 18.

⁵ Strachey, p. 37.

The suggestion that the last two syllables, *-han-ock*, stand for Del. *-hanné* 'a stream,' is not acceptable for the reason that *-ock* (= Natick *ohke*), which is a very persistent affix in all forms of the name given by Smith, signifies 'land' or 'country,' also that the Powhatan equivalent for *-hanné* is *-achoung*,¹ = Mass.² *-tchuan*, = Abn. *-tsda'n*, 'rapid stream,' 'flowing water.' The prefix '*toppa*' or '*rapa*,' = Natick *tāpi* or *tāupi*, = Moh. *tupon*, = Lenāpé *tepi*, = Cree *tepi*, = Nip. *tebi*, = Ojib. *dēbi*, = Abn. *tēbat*, 'enough,' 'sufficient,' 'plenty,' is found in several other Powhatan terms like *tapo*,³ or *tapa-antam-minais*,⁴ *ut-tapa-antam*, *rapa-antam*, and *toppa-woss*,⁵ to which words I shall again allude; and so the two notations *toppa* and *rapa* can easily be accounted for as colloquial or dialectal variations, which, together with the verbal root *-ān* (= Natick *ān*), 'more than,' 'exceeding,' 'surpassing,' + *-ock* 'country,' 'land,' gives us *toppa-ān-ock* or *rapa-ān-ock*, 'the country of exceeding plenty,' a name probably applied to that country by the tribes residing on James river.⁶

Smith writes,⁷ and he, as is evident, refers to the country bordering the stream: "It is an excellent, pleasant, well inhabited, fertile, and goodly navigable river." In fact, according to Smith's map, there were on the banks of the river, at the period of discovery, more native towns than on any other stream in Virginia.

In a foot-note Mr Gerard remarks:

"In the Niantic dialect it becomes *Ya'pēhā'nek*, which, abbreviated first to *Yamphank*, and afterward changed to *Yaphank*, has been transferred as the name of a stream to that of a village in Suffolk county, on Long Island, N. Y."

Mr Gerard gives no authority for the above derivation, and it is not identical with the preceding name. The most exhaustive re-

¹ Ibid., p. 25.

² Trumbull, *The Composition of Indian Geographical Names*, 1870, p. 12.

³ Strachey, p. 57.

⁴ Ibid., "Dictionary."

⁵ Smith, pp. 45, 381.

⁶ This is the Powhatan numeral seven, *toppawoss*, = "Cree *tepa-kup*, = Abn. *tu'ba-was*, = Moh. *tupou-was*, and Montauk (L. I.) *tu'pa-wa*, 7, i. e., 2 + (or 2 of the second hand). The root, in the sense of 'equal,' and of 'enough,' 'sufficient,' is found in all Algonquian languages," etc. — Trumbull, *On Numerals in American Indian Languages*, p. 18.

⁷ Smith, p. 119.

search and inquiry fail to reveal any earlier notation than that given in the Indian deed of 1664, granted by the "*Sacham of unchachage Tobacus*,"¹ for a tract of land bounded "on the Este with a river called *Yam-phanke*," and again repeated in an Indian deed, dated 1688, for '*Yamphank neck*,'² viz., "south by a smole River called *yamphank*," and so on down to-day with slight changes by dropping the *m*, and sometimes by inserting *c*, before the *k*. The stream is situated near the present hamlet of Brookhaven, and is nothing more than an ordinary creek, flowing southeasterly into a larger stream now known as Carman's river. The name *Yamphank*, = *yaⁿp'hanek*, 'to the bank or side of the stream,' corresponds with the *Lenape yapi* 'side,' 'bank,' 'edge,' + *-hanek* 'at a stream,' and was so bestowed because the 'bank of the stream,' bounded the first tract sold, and then retained so that the boundaries would be fixed in the Indians' mind, as is the case with many other Indian names. *Niantic* is objectionable as a designation for Long Island dialects, since the name *Yamphank* belongs to the dialect which Thomas Jefferson in his vocabulary calls the *Unquachog* or *Pusspatok*,³ and is the same which Gallatin calls the *Montauk*. The last is really the best for several reasons, but *Niantic*⁴ belongs to Connecticut and not to Long Island. About fifteen miles east of *Yamphank* creek is another stream, once called *Rapahamuck*, a name similar to the Powhatan term except in its affix *-amuck*, 'a fishing-place.'

Warraskoyac, as Smith almost invariably wrote the name, was a town near Smithfield,⁵ on Pagan river. Our essayist says:

"Spelled also Waraskweag [not so in Smith], for *Warakik*, 'swamp in a depression' (of land). Judging from the name of the stream, the village was near what in the South is called a 'cypress brake' — a basin-shaped depression of land situated near the margin of a creek and filled with fallen cypress trees."

¹ *Records of Brookhaven*, vol. 1, pp. 10-11.

² *Ibid.*, pp. 70-71.

³ *Pusspatok*, where Jefferson obtained his vocabulary, is a small reservation less than five miles from *Yamphank* creek.

⁴ Perhaps by this term Mr Gerard means the *Narragansett*; if so, he is still further astray, for the *Narragansett* cognate of the Powhatan *tappa* is *tauba*, 'it is enough.'

⁵ Tyler, *Cradle of the Republic*, p. 10.

This is assumption, and it is strange that Mr Gerard could not determine its true etymology, for its main stem is identical with the Cree cognate. *Warraskoyac* < *wannasque* (= Natick *wannasque* 'top,' 'end,' 'point'; Abnaki *sanask̄iḥi* 'le bout'; Cree (Lacombe) *wannaskusiw* 'un bout,' (Howse) *wannuskootch* 'end'), 'top,' 'end,' 'extremity,' together with the locative *-ack*, gives us *wannasqu-ack* 'the top or point of the land,' where probably the village was situated. Smith says: "A Bay wherein falleth 3 or 4 prettie brookes and creekes that halfe intrench the Inhabitants of *Warraskoyac*." The same stem, in a variety of forms, occurs throughout New England, as in Suffolk county, New York, in a record of 1696:¹ "*Wanasquattan* on ye poynt of hilles"; another as a boundary, in 1677, as *Warrasketuck* 'the ending creek,' varied in some early deeds as *Wannasketuck*.

Onawmanient, Mr Gerard states, "is evidently personal, and the word stands for *Onā māniut*, 'he who paints' (i. e., himself). The term was perhaps applied by the Potomac river Indians to the warriors of the locality, individually, from the extraordinary and fantastic manner in which they decorated themselves with war-paint." In this he is again mistaken, as the place termination plainly indicates. All names of places referred to by Smith, or that appear on his map, with the terminal *-anient*, or *-manient*, have nothing of a personal application about them, for *-anient* is the Powhatan equivalent of the Lenāpé *-aney-ink* or *-anink*, Natick *-may-ut* or *mayet*, 'on a path or trail.' It occurs in *Mattapanient*, or *Mattapanyent*,² as three places so named on Smith's map, i. e., 'a stopping place on a path,' 'a portage,' and in *Tauxenent*, 'little path,' a king's residence on the Potomac. Var. *Onawmanient*, Smith's map.

Onaw = Natick *wauonn* 'he goes astray,' 'wanders,' 'is betrayed'; Mass. (Wood) *waawnew* 'you have lost your way,' and *-manient* 'on a path,' hence 'a path where they were led astray or were betrayed' — a name probably bestowed by their guide at the time. Smith writes:³ "Towards *Onawmanient*, where all the

¹ Smith, p. 346.

² Huntington, *R. I. Town Records*, vol. 2, p. 188.

³ Smith, p. 601.

⁴ Ibid., p. 417.

woods were layd with ambuscado's . . . (and exchanging hostage) James Watkins was sent six myles up the woods to their Kings habitation. We were kindly vsed of those Salvages, of whom we vnderstood, they were commanded to betray vs, by the direction of Powhatan." Also:¹ "Such another Lope Skonce would I haue had at Onawmanient." Thus did the name designate the path and not the village or the people.

Orapikes is not difficult of correct analysis, but Mr Gerard writes: "The name apparently of a deep pond or small body of water (-*pikēs*) in a depression of land (*áro*, for *wáro*)." This name I translated more than thirteen years ago,² and see no reason now to modify the etymology. The name varies as *Oropikes*, *Orapaks*, and *Orapakes*, and was applied to a place in the wilderness where Powhatan immured himself in order to escape the proximity of the settlers. Smith remarks:³ "But now he abandoned that and liueth at *Orapikes* by *Youghtanund* in the wilderness." Again: "He retired himself to a place in the deserts at the top of the river *Chickahamans* betweene *Youghtanund* and *Powhatan*. His habitation is there called *Orapacks*, where he ordinarily now resideth."

Mr Gerard is correct in regard to the termination *-pikēs*, 'a water-place' or 'water-land,' but in error as to the prefix. *Oroh-* is equivalent to the Natick *toauh*, *toouu*, or *toutueu*; Narragansett *touiu* 'wild,' 'deserted,' 'wilderness,' 'solitary,' + *pe-ack-es*, 'a little water-place,' a termination with a descriptive prefix frequently applied to marshy and swampy tracts of land, hence a 'solitary water-place, or swamp.' The same prefix occurs in the name of a dismal tract of wild land in the town of Islip, Long Island, namely *Orowoc* (= *touiu-ock*, 'wild land'), and is still retained to designate *Orowoc* brook at the village of Bayshore. The Virginia name probably described a portion of The Wilderness which became so well known during the Civil War.

Werowocomoco is also easy of identification, yet Mr Gerard derives the term from the Cree elements "*wrówaká'* *māku*, 'fertile land';

¹ Ibid., p. 601.

² *Some Indian Names of Places on Long Island, N. Y., and their Correspondences in Virginia, etc.*; Magazine of New England History, vol. 1, pp. 154-158, Newport, R. I., 1891.

³ Smith, pp. 17, 80.

a tract about two miles in breadth on the east side of what is now known as Timber Neck bay, on York river." The late Dr J. H. Trumbull¹ translated this name correctly thirty-four years ago, viz.:

"*Werowocomaco*, on the North side of the river Pamaunkee (York), was one of the residences of Powhatan, and where Captain John Smith was carried as a prisoner. The name means, 'the *werowance* house,' or 'the house of the Chief,' who was called '*werowance*' or '*weroance*' by the Powhatans, and '*sachem*' by the northern Algonkin tribes of New England. '*Werowocomoco*' is the equivalent of the Narragansett '*sachimma-comock*,' 'a Prince's house (Roger Williams), and the Massachusetts '*sachimo-comaco*,' for so they call the Sachems place, though they call the ordinary house '*witeo*.'" (E. Winslow, in *Good News* from N. England.)"

In corroboration of this, Strachey writes:²

"He hath divers seates or howses; his chief when we came into the country, was upon Pamunky river, on the north side or Pembroke side called *Werowocomoco*, which by interpretation, signifies Kinge's-house."

Wynauk is derived by Mr Gerard from "*winâk*, 'strong-scented wood,' in the Roanoke, Virginia, and Lenape dialects, the name of the sassafras tree." This was also Heckewelder's etymology.

Years ago Dr J. H. Trumbull³ gave a derivation of this name, which I accept fully:

"'*Weanock*,' '*Wyanoke*,' '*Wynauk*,' a low meadow point, on the James river, about twenty miles above Jamestown, was the 'going around place,' or 'place about which the river' 'wound itself.' Eliot would have written this name '*waen-ohke*,' or '*weenohke*'—from '*waenu*,' 'going around,' 'winding about,' and '*ohke*' 'place.' By doubling the first syllable, the word becomes intensive or frequentive. We find this in the Abnaki *wéwiouniwi*, '*tout à l'entour*,' 'all about;' and in the Chipeway name of the site of Detroit, '*Wâweatun*' or '*Wâwiâton*;' with place termination, '*wâwedatun-ong*,' at the place of going around, or 'winding about,'—'indicating,' as some suppose, 'the circuitous approach to the Indian village.' The root '*waen*' or '*ween*,' 'winding about,' is found in many local names in New England."

¹ *Historical Magazine*, 1870, 2nd ser., vol. VII, p. 48.

² Smith (p. 377) writes: "But this word *Werowance*, which we call and construe for a King, is a common word, whereby they call all commanders: for they haue but few words in their language, and but few occasions to use any officers more than one commander, which commonly they call *Werowance*, or *Cauowour*, which is Captain."—W. W. T.

³ Strachey, p. 49.

⁴ *Historical Magazine*, 1870, 2nd ser., vol. VII, p. 48.

Mr Gerard presents his ideas as to the etymology and meaning of several Powhatan names of which I have given the results of exhaustive studies that have been accepted by many Algonquian scholars, who are capable of judging impartially, and which are well corroborated by Smith. I do not intend to discuss these etymologies fully at this time, merely referring those interested to my essays for the full origin and derivation of the names.

Mr Gerard derives *Massawomek* from *Mā' cherwō' mik*, 'great-plain people,' but presents no facts to corroborate the derivation. I translate it¹ 'those who travel by boat,' *massow-omeke*. It was by this means that the Iroquois became known and feared by the tidewater natives of Virginia. Smith met seven boat-loads of these people at one time, and he remarks that "the *Massawomeks* had so many boats, and so many men that they made warre with all the world."

It is also asserted by Mr Gerard that *Chickahominy* stands for "tshikehā'mēn 'a clearing, literally,' 'swept off,' scraped off,'" which is as far removed from the true meaning as Heckewelder's 'turkey-lick.' *Chickahominy* was not a place name, but the designation of a people who contributed corn to the colonists under Smith, thus saving them from starvation. I give its etymology² as *chick-aham-min-anough*, 'coarse-pounded corn people,' or, in brief, 'hominy people.'

Pamaunkee, he says, is *pēma'ki*, 'sloping hill,' or 'rising up-land'; but there is nothing to support this derivation. Strachey gives *Pomotawh*, 'hill or mountain,' lit. 'a sloping hill'; as also does Lederer³ in the form *Paemotinek*, a name not cognate with *Pamaunkee*. In fact, in its full form, the name⁴ means 'a place of secrecy in the woods,' which was one of Powhatan's 'places of superstition,' where some of his secret rites were performed.

The next etymology which Mr Gerard presents is:

¹ See *The Names Patowomeke and Massawomeke*, *American Anthropologist*, vol. VII, 1894, pp. 174-185, also *Algonquian Series*, vol. VIII.

² See *American Anthropologist*, vol. VIII, 1895, pp. 257-263; also *Algonquian Series*, vol. IX.

³ *Discoveries*, p. 9.

⁴ See *The Mystery of the Name Pamaunkey*, *American Antiquarian*, vol. XVII, 1895, pp. 289-295; also *Algonquian Series*, vol. IX.

"*Aitowh* (*etbu*, or *etôhu*), a ball. The prefix *ai* is probably miswritten for the usual Virginia prosthetic *â*; and, if so, the word would have been *âtôhu*, an apocopated form, say, of *âtôhuwân*, = Cree *tôhuwân*, a ball < *tôhuwêu*, 'he plays ball,' < root *tôhu*, which is a Cree radical, and, in Ojibwe, occurs only as a particle in words relating to the Canadian game of 'lacrosse.'"

This derivation of the Powhatan *aitowh* deserves credit in a measure, but Mr Gerard does not go far enough into the subject to show the exact status of the radical. The word did not signify 'a ball,' 'a round thing,' as does the more common term (i. e., Cree *pitikomigan*, Lenape *p'tukhican*, Natick *petuhki*), but 'a bauble,' 'a plaything.' This is quite evident in the Cree *tôhuwân* 'boule,' 'a ball,' which Lacombe qualifies by the word in parenthesis (*jouet*), 'a plaything.' It also appears as a particle in the Cree term *kwaskwenetowan*, for playing football, as well as in the Ojibwe *pagaadowewin*, 'Indian ball-play,' played with crosier and ball (lacrosse), to which Mr Gerard refers. In the Narragansett (Roger Williams), however, the equivalent for the Powhatan term is more fully displayed in the word *pauochâutourwin*, "a Bable [= bauble] to play with," from *pauochan* 'to play,' and *-âutow* 'a bauble,' 'a plaything.' Trumbull¹ offered a suggestion, with a query, that *autowwin* = Natick *ohleanun*, 'to possess,' 'a belonging.'

Attaangwassuwk (Strachey), 'a star,' Mr Gerard believes to be a plural form, but his mistake is evident when we compare the name with its cognates, for the long form is seemingly *attuang*, 'a star,' + *-wassuwk* (= Natick *wohsumuk*, 'bright' or 'shining,' Lenape *waselen* 'bright'), hence 'a shining star' or 'he appears shining.' In a foot-note under this name Mr Gerard remarks that "Howse's interpretation of Cree *âtchâk*, as 'other Being,' and Trumbull's explanation of the Natick *ânâ'kwûs* as 'he appears,' 'shows himself,' may be mentioned merely as examples of curious speculation." When it is considered how much speculation our essayist has indulged in, one can only regard the two well-known authorities which he cites as being nearer correct than he. In fact Trumbull's *anôgqs* 'star' (not *ânâ'kwûs*), which he derives from *anôgqussu* 'he appears,' is in accord with both Eliot and Cotton. Trumbull remarks: "In distinction from the sun, which rises or comes forth

¹ *Natick Dictionary*, p. 120.

and sets, the stars appear in their places when the absence of the sun and moon makes them visible." In total contradiction of Mr Gerard, I find in the Cree (Lacombe) "Esprit, *atchâk*, qui aussi veut dire âme," which corroborates Howse; while in the Abnaki (Rasles) I find "étoile, *ni édañt*, elle paroît," which confirms Trumbull. The transliteration of *anógqs* into *āna'kwús*, and all other changes of this character, are very objectionable, for as Eliot wrote these words two and a half centuries ago, so should they be written to-day.

Mr Gerard considers the Powhatan "*attemous*, dog, = Prairie Cree *ā'ttēmús*," as a cognate of the Natick *ānū'm*, Narragansett *āy't'm*,¹ Lenapé *ārū'm* or *ālū'm*, etc., in which he is evidently mistaken. I agree with Trumbull, who considered the two forms as derivatives from distinct elements; i. e., those words which have the *t* in "certain positions," like the Powhatan *attemous*, Cree *atim*, Abn. *atiē*, Pequot *ahteah*, indicate that the word is related to the Natick verb *adchu* 'he hunts,' while those with the form *anū'm*, *alū'm*, or *arū'm* are from the verb *annumañ* 'he holds with his mouth.' This is proven by the Abnaki, in which language they are considered as distinct words by Rasles, who gives the forms *atiē* and *aremds* as two names for 'dog.' Consequently Mr Gerard's remarks under this paragraph should be revised. In a footnote Mr Gerard writes: "Another Lenape name for dog, probably the introduced species, is *mōwekāncū*, 'he eats bones,' a very apposite term." On the contrary, the word signifies 'he cries or howls in the dark,' diminutive *mōkannetit* 'whelp of a dog' (*mōē* = Natick *mōū* 'to cry,' 'mourn').

"*Cattapeuk*, spring (season)," was copied by Strachey from Smith's names for the seasons, and Mr Gerard calls it "a loan-word from a dialect in which the form was *karāpeek* < *kar*, 'fine,' 'beautiful,' = Lenape *kar*, *kal*, = Abnaki *kal*, = Nap. *kwan*, + the participial formative *-āpeek* denoting 'time when,' " hence, "'when the weather is fine.'"

No such roots as *kar*, *kal*,² or *kwan*, with the meaning of

¹ Mr Gerard gives *āy't'm* as the Niantic cognate. If he means the Narragansett this is correct, but if the Unquachog or the Montauk is intended, it is wrong, for Jefferson gives *arū'm*.

² The Lenape *kal* or *kol*, "is from *kī*, expressing the 2nd person; *al* is from *wulit*, and conveys the idea of good." *Mem. Hist. Soc. Penn.*, vol. XII, p. 397. See also my remarks under "Ottawm."

'fine,' 'beautiful,' are found in any of the dialects mentioned, consequently Mr Gerard's conclusions here are also erroneous. *Cattapeuk*, 'sowing-time,' 'planting season,' corresponds with other names for the seasons mentioned by Smith and other authorities. In connection with *cattapeuk* Mr Gerard remarks, concerning the supposed root *kwan*, that it is "found in a Virginia name for rainbow, 'quannacut (Strachey), for *kwannakāt*, 'it is of a beautiful aspect.'" As a matter of fact the Powhatan term for 'rainbow' differs but slightly from the terms given in other dialects. Some of these, as Dr A. F. Chamberlain² has shown, and as is exemplified by other terms furnished me by Dr A. S. Gatschet, have the signification of 'he (the *manitou*) covers the rain (with his mantle),' 'the good covering,' 'the goblin's mantle,' 'he stops the rain,' 'the rain-stopper.' A similar concept is conveyed by the Powhatan *quannacut* (= *quann* 'long,' *-acut* 'mantle'), = Natick *-āqut*, *-aqut*, *-ogqut*, ' (when he is) clothed or covered,' or ' (which) he is clothed with,' 'a mantle;' Narragansett *auhaqut* 'a mantle.' *Quannacut* ' (he is in his) long mantle,' corresponds to the Natick *ukquanogquon*, from *uk*, prefix of the third person singular, *quan* 'long,' *-ogquon* 'covering,' 'clothing,' 'a mantle,' i. e., 'he is in his long mantle.'

Under the term *cattapeuk* Mr Gerard gives the Lenape *-āpeek*, 'time when,' which he finds in *macht-apeek*, 'bad-time,' 'war time,' lit., 'it is bad once more' or 'again.' The Natick cognate he gives as *-a'pek*, which he evolves from *ahquompak*, 'time when,' a compound from *ahque* 'he leaves off,' and the suppositive and indefinite *nompak* 'again' or 'once more,' hence *ahquompak* 'time,' 'a fixed time,' 'a period.' As will be observed, *nompak*, not *a'pek*, = Lenape *-āpeek*, both words being adverbs of time. *Nompe* is frequently used with a numeral and with other words to denote repetition, 'times,' as in *nishwudt nompe* 'to the third time,' *mščekut nompe* 'oftentimes.' Without discovering the identity of the Lenape *lappi* with *-apeek*, or *ahquompak*, Mr Gerard makes another element by transferring the Lenape *lappi* to his "Tōp," and "Tāp," as 'rāp'

¹ Lenape *quiltau* 'to sow,' Narr. *gutta*, Abn. *kikat*, Ojib. *kitige*, Cree *kistik*, Nip. *kitike*, all 'to sow' or 'to plant.' In his list of seasons, Loskiel, *Hist.*, etc., mentions "April as the planting month; Indian corn being planted towards the end, or in the middle of April."

² *Am Ur-Quell*, 1893.

and 'lâp,' and the Natick *nompe* as *na''p* with a fictitious Niantic *ya''p*, and gives as a cognate the Cree *tâp*, which is another element entirely, having no connection whatever with either the Lenape or the Natick terms. The Cree equivalent of the two terms is *cyâbi* 'encore,' 'once more,' = Ojibwe *neiâb* 'again,' 'once more,' a fact that overthrows all of his derivations, so far as his supposed radicals 'tâp' and 'râp' are concerned. This necessarily includes the derivation of *uttapaantam* and *tapaantaminais*.

As to the latter name, Mr Gerard remarks:

"*Tapaantaminais*, a string of cylindrical copper beads ('bugles'). The word is from the root *tap*, 'in alternation,' 'in succession' (on a string), and, apparently, *-â'n'to* (for *-ânito*), 'strange,' 'mysterious,' *-min*, 'bead,' and the diminutive suffix *-és*.

This is quite erroneous, for the term in no way described the chain or its links as Strachey supposed and as Mr Gerard has taken for granted. No Indian would have called a 'long link of copper' a 'bead,' nor have applied to it the diminutive termination. The probability seems to be that Strachey¹ asked the name for the chain, and that the Indian woman whom he was visiting at the time,² while holding it out for his inspection, said to him, "*Tâpaantaminais*,"³ i. e., 'she bought it with corn.' The word is cognate with the Natick *tâpa-antam*, 'enough-minded with,' 'he (or she) is satisfied' or 'contented with it' (= Lenape *tepelendam*, 'contented,' = Cree *tepe-yittam*, 'il est satisfait'), and the noun generic *-minais* (Natick pl. *minncash*) 'corn' or 'grain,' hence *tâpa-antam-minais*, 'he (or she) satisfied or contented with corn.' These chains, with long copper links, tubes or cylinders,⁴ were no doubt manufactured by the colonists for the purpose of trading with the natives, and that is how the woman obtained this particular chain. At the beginning of this trade Smith captured their '*okre*,' to which previous reference has been made, and he told them⁵ "if onely six of them would come

¹ There are several similar errors made by Strachey, among them "*Metuc* a bridge," the 'bridge' being probably 'a tree' (*metuc*) thrown across a creek.

² Strachey, p. 57.

³ The tilde over the *m* marks the omission of the *m* following.

⁴ Thomas, *Twelfth Report Bureau of Ethnology*, fig. 209 and text. Abbott, *Primitive Industry*, fig. 396 and text.

⁵ Smith, p. 393.

vnamed and loade his boat, he would . . . restore them their *Okee*, and giue them Beads, Copper, and Hatchets beside; which on both sides was to their contents¹ performed, and then they brought him Venison, Turkies, wild foule, bread, and what they had."

Uttapaantam, 'deer,' and *rapaantam*, 'venison,' Mr Gerard informs us, means "' he chews once again,' and distinguishes the deer (the only ruminant with which the Virginia Indians were acquainted) as the ' cud chewer.' " These two words have quite a different meaning, for the termination *-antam*, as in the previous name, is a characteristic formative expressing a disposition of the mind, and was of common use in both Powhatan and Natick; it therefore furnishes additional evidence of the linguistic affinity of the two dialects. In the Powhatan it occurs also in *tsepaantamen*,² 'to kiss,' i. e., 'to be separately-minded'; *kemaantun*, 'speak softly,' i. e., 'be secret-minded'; *naantam*, 'a wolf' (= Natick *neuantam*, Narr. *noantam*), i. e., 'he grieves,' 'he is sorrow-minded,' referring to his 'mournful howling'; hence *uttapaantam* and *rapaantam*,³ when applied to deer and to venison, indicated food that 'enough-minded,' i. e., 'satisfied' or 'contented them,' and not that which 'he chews once again.'

The following, from Mr Gerard's paper, presents some curious ideas in speculative analysis:

Cutssenepo, *cuchenepo*, woman (nickname); by assibilation of *t* < *kātēnēpō*, a loan-word < Rap. *kērēnēpō* (contracted to *krēnēpō*), for *kērēnēpēu*, water-carrier, lit., 'she carries water'; < root *kērēn*, = Lenape *gēlēn*, = Natick *kēnūn*, 'to carry,' and the intrans. vb. suffix *-pēu*, denoting (according to the root) action in, upon, with, or by water."

This is entirely gratuitous, and although Trumbull⁴ stated that he was unable to make anything of the name, it is comparatively simple. Smith's⁵ name for 'man,' *nemarough*, to which further

¹ "Content" seem to have been a common term among both parties, for Pory says (Smith, p. 568): "The next day, he presented me with twelue Beuer skinner and a Canow, which I requited with such things to his content, that he promised to keepe them whilst hee liued, and burie them with him being dead."

² *Tiepa* is a Lenape form (= *tēpiwē* or *tēpat*, 'separately'), rather than the Natick *chippi*.

³ Written *Ropantā* by Strachey.

⁴ *Algonkin Names for Man*.

⁵ Smith's Vocabulary, p. 44.

reference will be made, really means 'my brother.' This leaves no name for man, but following is *crenepo* 'a woman,' which is surely the Lenape (New Sweden, Campanius) *renappi* 'man'; Abnaki (Rasles) *arenanbe* 'homme.' Strachey's *cucheneppo* or *cutsseneppo* has the same suffix, *-nepo* (=Natick *neepoh*, 'he stands erect'), a generic for man occurring in all Algonquian dialects. The prefix is cognate with the Narragansett *kutchinnu* 'an middle-aged man,' lit. 'he (or she) is growing old.' Therefore, in the Powhatan dialect *cucheneppo* (= *kutchin-nepoh*) would be 'a middle-aged man or woman,' for the generic would apply to any adult, although used generally to designate an adult male. In some dialects it is used in feminine appellations. The more familiar term for an Indian woman, squaw (Powhatan *usqua*), is given by Strachey in *wirona-usqua* 'woman-queen,' and in several other terms.

Again Mr Gerard writes:

"*Cuttoundg* (*kātū^uju*), 'to bark' (Strachey); lit. 'he makes a noise'; a doublet of Rap. *kārūsu*, 'he speaks,' found in the iterative form *kākārūsu*, 'he speaks at some length'; a word that has descended to us, in the spelling '*cockerouse*,' as the title of a Virginian *wirōdante*'s counsellor."

Cuttoundg, like many of the sounds uttered by animals, including birds, as noted in the Algonquian language, is of onomatopoeitic origin; hence to attribute its derivation to a verb signifying 'to make a noise,' or 'to speak,' is a mistake, and to make *Cawcaw-wassough*¹ 'a captain,' appearing in the same *Dictionarie* and meaning 'one who advises,' 'urges,' or 'encourages,' a derivative from 'bark of a dog' is equally erroneous.

The name of the sachem of Pamaunkee, *Kekataugh*, Mr Gerard translates 'he harangues,' 'makes speeches,' failing to observe that this name is identical with the Powhatan numeral 'nine' (*kekataugh*² = *ēka-takwahau*) and that it means 'one remains,' or 'he is one left,' i. e., one less than ten.

Regarding some of the letter changes, he remarks:

"Two curious exceptions to rule (5) are found in the dialect that was spoken in the vicinity of Jamestown. I refer to the words *mā^utsihōre*,

¹ See Chamberlain, *Algonquian Words in American English*, *Journal of American Folk-Lore*, vol. xv, pp. 240-267.

² Trumbull, *On Numerals in American Indian Languages*, p. 28.

'it hangs badly,' the name for a skin mantle; and *pákāhikārt*, 'it is brayed,' whence, by aphæresis, we have our word 'hickory.' In both of these words the *r* of the suffix would be regularly *t*. The effect of the change in the first-mentioned word is to make it ambiguous, since the suffix *kore* in the same dialect denotes 'flaming' or 'blazing.'"

Excepting the derivation of 'hickory,'¹ which has long been known, Mr Gerard's conclusions are based on conjecture. In another place he gives the Ojibwe *matshigode*, 'petticoat,' as the equivalent of Smith's *matchcores*, when in reality there is no affinity between the two. *Matchcores*, 'skins or garments,' *matchkore*, (Strachey), 'a stag's skin,' is from the Powhatan *match*, *mach*, *mash*, or *maco*, 'great,' 'large'; while *-cores* (pl.) = Narr. *-acōh* 'their deer-skin (mantle),' hence 'a great (mantle) of deer-skin.' Smith² says: "The better sort use large mantles of Deare skins."

The term *pawcohiccora* was neither the name for the tree nor for the fruit, but of a "milk which they use to put into some sort of spoonmeate;"³ "milk made of walnuts, *pocohiquara*"⁴ "walnut milk, *pawcohiccora*."⁵ *Pawcohiccora*,⁶ *pokahiccora*, or *pocohiquara*⁷ (= Natick *poqua-hogk8nie*, Lenâpé *poqui-hackeny*) signifies '(that which is) made from broken or pounded shells.'

Mr Gerard notes: "*Matatsno* (*metētānō*), the tongue, < *m*, indef. prefix, + *tētānō*, = Wood Cree '*tēthānii*, = Prairie Cree '*teyānii*, = Ojibwe '*dēnānii*, = Menomini '*tā'nunlu*." In a footnote he remarks: "The second *t* here corresponds to the Cree *th*,

¹ See Chamberlain, *Algonquian Words in American English*, op. cit., pp. 240-268.

² Smith, p. 361.

³ Harriot, p. 28.

⁴ Strachey, *Dictionary*.

⁵ Smith, p. 353.

⁶ Ibid., p. 57.

⁷ Smith (p. 353) tells us: "When they need walnuts they breake them betweene two stones, yet some part of the shels will cleave to the fruit. Then doe they dry them againe vpon a Mat over a hurdle. After they put into a mortar of wood, and beat it very small: that done they mix it with water, that the shels may sinke to the bottome. This water will be colored as milke, which they call *Pawcohiccora*, and keepe it for their vse." Strachey (p. 129) says: "The third sort is [of walnuts], as this last, exceeding hard shelled, and hath a passing sweet karnell; this last kind the Indians beat into pieces with stones, and putting them, shels and all, into a mortars, mingling water with them with long wooden pestells pound them so long together untill they make a kind of mylke, or oylie liquor, which they call *pocohiccora*."

y, r, l, and n series of linguo-dentals." In this he is also mistaken, for the reason that he does not quote the Powhatan word correctly. Strachey gives it as "*mexatsno*," which is evidently a typographical error for *menatano*,¹ corresponding more nearly to the Narragansett *mecnat* 'the tongue' than to the Cree *miteyaniy*.

The next term which Mr Gerard discusses is "*nimatewh* (*nimā'teü*), a man, = Rap. *nimā'rou* (for *nimā'reü*), = Mohegan *nimā'neü*; a loan-word from the Rap. dialect, with change of *r* to *t*." Trumbull² more logically concluded: "For 'man' Smith has *nemarough* (by a misprint, probably for *nematough*) and Strachey, *nimatewh*. This is the equivalent of *nemat* (Strachey); and so in the Massachusetts dialect 'my brother,' 'or mate,' with the verbal formative (Mass.) *nemat-ou*, 'he is my brother, or mate.'"³

Again, Mr Gerard has "*nahapue* (*nāhāpiu*), 'to dwell' (Strachey); lit. 'he (or she) is well (or comfortably) seated (or placed),' = Cree *nāhāpiu* = Nipissing *nāāpi*, = Ojibwe *nāābi*. The adverbial prefix *nāh*, *nā*, 'well,' 'properly,' 'skilfully,' is found only in the Cree and Ojibwe groups." But it does not occur in the Powhatan term, for *nah* is the prefix of the third person, corresponding to the Natick *noh-apit* 'he that dwells,' 'abideth,' 'remains'; in proof of which Smith, in his Vocabulary, gives *nehawper* 'he staid,' and Strachey duplicates it in his "Dictionarie," as *nehapper* 'sit down,' 'sit further.'

Another mistake is:

"Ottawm (*otā'm*, apocop. < *otā'mān*) defined by Strachey as 'earth,' but really a name for colored clay such as is used by the Indians as a body pigment: = Rap. *orā'mān*, = Nap. *onā'mān*, = Ojibwe *onā'mān*, = Shawnee *oldmān*, = Caniba *ura'mān*, = Menomini *onāmān*, = Lenape *wurāmān*, *wulāmān*, = Narragansett *wunām*, = Prairie Cree *wiyd'mān*."

Strachey did not define the word as 'earth,' but as 'the earth,' a distinction with some difference. The correct quotation is, "The earth, *aspamā*,³ *ottawm*." The first *aspamā* = Lenape *achpinum*, 'our abode,' 'our habitation'; the second *ottawm* = Natick *ohtauum*, 'our possession,' 'our inheritance,' which carries out native ideas.

¹ It also corresponds better with other Powhatan terms for parts of the human body.

² Trumbull, *Algonkin Names for Man*.

³ Long mark over the *a* signifies the omission of the *m* following.

Of the above supposed cognates for the Powhatan term, Mr Gerard remarks: "The root of these works is *thâm, tâm, yâm, râm, lâm*, and *nâm*; the suffix *-ân* is a formative, which is always discarded when the terms are used attributively; and the prefixed vowel is simply expletive." It will be seen, however, that no such roots appear in any name for 'red paint' which he quotes. Dr Brinton¹ gives a synopsis of the true root, of which Mr Gerard takes a portion, together with a portion of the formative, and calls it a root. The true roots from the cognates quoted (excepting the non-existent 'Râp.' and 'Nâp.') are Mass. *wun* or *8n*,² Del. *wur* or *wul*, Ojib. and Men. *on*, Shawnee *ol*, Cree *wiy*, Can. *ur*, Abn. *8r*,—a root appearing in many compounds denoting 'pleasing sensations,' of which the Natick, Lenape, and Powhatan offer many examples. The formative is *-amâm*, hence *wunâm*, *wulâmân*, or *onâman*, 'red-painting,' 'vermilion,' from *wunne*, 'handsome,' 'fine,' 'good.'

Our essayist further remarks: "*Otâ'santâsu* means, possibly, 'wearer of leg-coverings,' the reference being to the breeches and long hose worn by the newcomers." In contradiction to this, Smith records:³ "*Mosco* changed his name [to] *Vttasantasough*, which we interpret Stranger, for so they call vs." In his Vocabulary he gives the same name for 'English.' Strachey, in his Dictionary, has it "*Uttasantassowaih*, stranger," varied as "*Tassantasses*, that is strangers." Compare Narr. (R. W.) *eenantowash* 'speak Indian.' I would interpret the name (= Natick, *kuttass-antowash*) 'he speaks a strange language,' i. e., 'he speaks a language (different from those speaking).' At the time of the occurrence noted, *Mosco* was acting as Smith's interpreter and guide, and had performed the same function previously.

Mr Gerard likewise writes:

"*Paqwantewun (pâkwa"tehûn)*, 'leather that covereth their hips and secretts' (Strachey). This word is cognate with the Cree *pâkwâ'tehûn*, a girdle. The root *pâkw*, 'to wind about,' or 'around,' is confined to the dialects of the Cree group. The particle *-a't* (Cree *-ât*) denotes repetition, and, when used as a prefix, is the exact equivalent of Latin *re-*. The nominal suffix *-hûn* (Ojibwe *-ôn*, *-hôn* = Natick *hûn*, = Abnaki *-hûn*) is from the intransitive (sometimes reflective) verb

¹ *The Lenape and their Legends*, p. 109.

² Chamberlain, *Algonquian Words in American English*, op. cit., p. 265.

³ Smith, p. 430.

suffix *-húw* (Ojibwe *-ô*, *-hō*, = Natick *hōu*, = Abnaki *-hú*), denoting the action or manner of wearing some article of apparel or bodily adornment (ear-rings, bracelets, finger-rings, etc.), or of carrying some object that aids or affords relief to the body or some part of it (as a cane, tooth-pick, etc.). The word describes an article of attire which, owing to the part of the body upon which it was worn, had to be frequently changed in order to assure cleanliness.¹

The above shows simply an accidental similarity which sometimes occurs between remote dialects, for there is no etymological connection between the two names. No Indian would have called a girdle an apron, or vice-versa, as the above would lead us to understand. Moreover, the Cree term is not given its true phonetic value as rendered by Lacombe, viz., "*pakwáttehun*." The Powhatan *paqwanteuwun* is from the term represented by the Natick *pahke* 'clean,' 'pure,' and *-ahtau-un* 'it hides'; Narragansett "*Autah & autawhun*, Their apron," of which Roger Williams remarks: ("Except their secret parts, covered with a little Apron, after the patterne of their and our first Parents) I say all else open and naked." Hence *paqwanteuwun* = Narr. *pahk-autawhun*, 'a clean apron.' The particle *un* is the nominative of the impersonal verb, when the object for which it stands is expressed by the verb, i. e., *-autawhun* 'it hides.'

Bagwanchybassen 'a girdle' Mr Gerard changes to the Cree *pākwa² tshpīsun* and gives a wrong etymology, for the Powhatan name is the same as the Natick *puttukquobbesin* 'it bindeth (me) about' (= Abnaki *pedegābis8n* 'ceinture'), from *puttuckqui-au* 'it girdles,' and *mobe* 'hip,' with the intransitive active or simple suffix *-ussu*. *Puttukquobusseog* 'with your loins girded.'¹

Again he has —

"*Puttawas (pūtewās)*, a feather mantle; from a root *pūt*, which is possibly a weak form of the Cree root *pust*, 'to put on,' 'invest' (said of apparel), a radical which has no cognate in any other Algonquian group of dialects: > *pūtēu*, 'he (or she) puts on,' > an. adj. *pūtēwūs*, 'put on'; 'a put-on', 'a vesture.'"

This conclusion does not seem to be based on a knowledge of the different dialects. Compare the Narragansett "*pētacans*, an English wastcoate" (Williams), a name which Trumbull derived

¹ Eliot, Exodus, xii, 11.

from *puttogwhussu* 'he is hid,' 'covered,' from *petau* 'he puts into,' and *-acquash* 'clothes.'

As to the Powhatan *outacan* 'a dish,' after quoting its transliterated equivalents from eleven dialects, which reveal the persistence of the form, Mr Gerard continues:

"These names for one of the most primitive of aboriginal household utensils are of a very peculiar formation, and may, perhaps, be regarded as radical words. The prefixed vowel is simply expletive, and the suffix *-agan* denotes a 'utensil.' This leaves as a basis for the formation of the word an active verb consisting of a consonant and one vowel, *e*, or perhaps two vowels, *eu*. This would make the root of the word simply a consonant!"

On the contrary, the Narragansett *wunnaug* 'a tray,' pl. *-anash*, and the Natick *wunonk* 'a dish,' *uŋnonganit* 'in my dish,' *wunnon-ganit* 'in the dish,' Trumbull derives from *wonogq*, 'a hole,' 'dug out,' = *wonogkeu* 'it has a hollow,' *wunnaugan* 'a hollow utensil' — a derivation which is very acceptable, for it would apply equally well to the birch-bark dish and to the wooden platter. But the name seems to have been applied especially to wooden utensils, for in the Otchipwe (Baraga) we find "*onagan*, dish," "*onagānike* (*nind*), I make a dish, or dishes (especially of wood)." Furthermore, we find in the Lenape the name "*ulakanahunshi*, elm tree," from "*ulakanahen*, to make dishes (wooden dishes, Anthony)+," *-munshi* 'tree.' There are other names from the same element, viz., Narr. *wunnauanounuck*¹ 'a shallop,' dim. + *-ese* 'a skiff,' from *wunnau* 'a shallow vessel,' and *-anounau* 'to carry,' + *-uk* 'that which.' The word sometimes appears as a place-name to denote a 'hollow' or a 'bowl'-shaped hill, like '*wunnegunset*,' in Connecticut.

Finally there is given "*wintuc*, *wintuccum* (*wintūk*, *wintūkiw*), a ghou!, = Cree *wittkōw*, = Ojibwe *windgō*; in the mythology of the Crees and Ojibwes, a gigantic monster in the form of a man, who feeds upon human flesh." In a foot-note Mr Gerard remarks: "This word is printed 'fool' in the [Strachey] *Dictionarie*, through the misreading, by a copyist, of a word written 'gool' for 'ghoul.'"

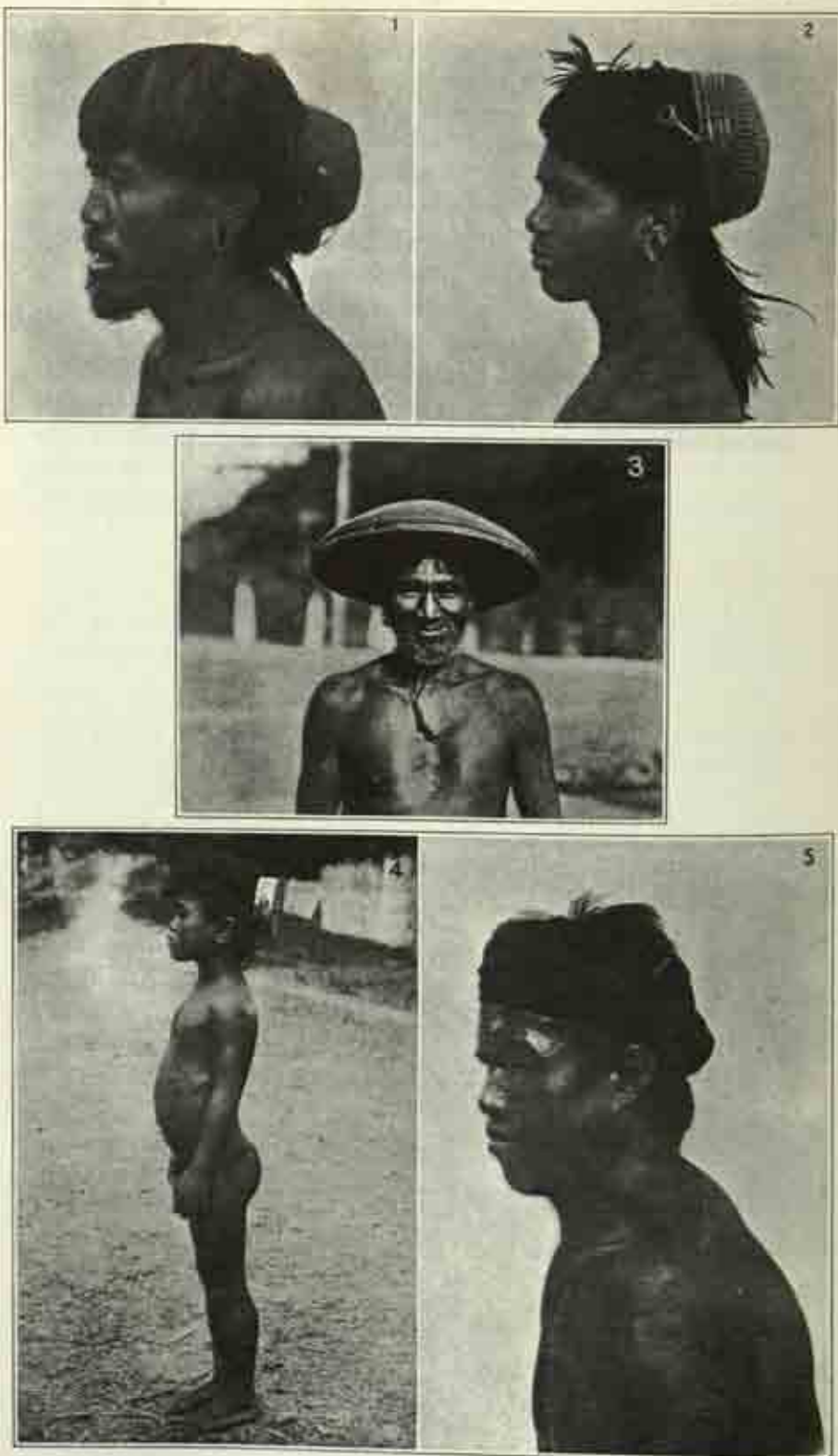
Neither Strachey nor the copyist made a mistake, for the word

¹ Roger Williams, says: "Obs: Although themselves have neither, yet they give them such names, which in their Language signifieth carrying vessels."

means 'a fool,' and not 'ghoul.' *Wintuc* = Lenape *wil-tak*, 'head-heavy,' 'a fool,' 'a sot,' 'drunkard'; *wintuccum* = Mass. *ween-tuhkekun*, 'he is head-heavy,' 'he is a fool.' Von der Donck¹ writes: "In the Indian language, which is rich and expressive, they have no word for drunkenness. Drunken men they call fools."

This concludes our examination of Mr Gerard's principal interpretations, but it does not include all of his errors, which may be found in nearly every paragraph. I regret the necessity of thus criticising the labors of a fellow-student, but consider it my duty to do so owing to the character of his work and to my own familiarity with Powhatan names, to the study of which I have devoted the last sixteen years.

¹ *Collections N. Y. Hist. Soc.*, 2nd ser., vol. I, p. 192.



IGOROT HATS

1, 2. The pocket hat, the *ti-so-ed*. 3. The rain hat. 4. Boy wearing a tin butter-can as a hat. 5. The headband.
 (Photo by Martin. Courtesy of the Ethnological Survey for the Philippine Islands.)

BONTOC IGOROT CLOTHING¹

By ALBERT ERNEST JENKS

MAN'S CLOTHING

Up to the age of six or seven years Bontoc Igorot boys are as naked as when born (see plate XXIX, 4). At that time they put on the *suk'-lâng*, the basket-work hat worn on the back of the head, held in place by a cord attached at both sides and passing across the forehead and usually hidden by the front hair. The *suk'-lâng* is made in nearly all pueblos in the Bontoc culture area. It does not extend uninterruptedly to the western border, however, since it is not worn at all in Agawa; and in some other pueblos near the Lepanto border, as Fidelisan and Genugan, it has a rival in the head-band. The beaten bark head-band, called *a-pong'-ot*, and the head-band of cloth are worn by short-haired men, while the long-haired man invariably wears the hat. The *suk'-lâng* varies in shape from the fez-like *ti-no-od'* of Bontoc and Samoki, through various hemispherical forms to the low, flat hats developing eastward and perfected in the last mountains west of the Rio Grande de Cagayan. Barlig makes and wears a carved wooden hat, either hemispherical or slightly oval.

The men of the Bontoc area also have a basket-work conical rain hat; it is water-proof, being covered with beeswax. It is called *seg-fi'*, and is worn only when it rains—at which time the *suk'-lâng* is often not removed.

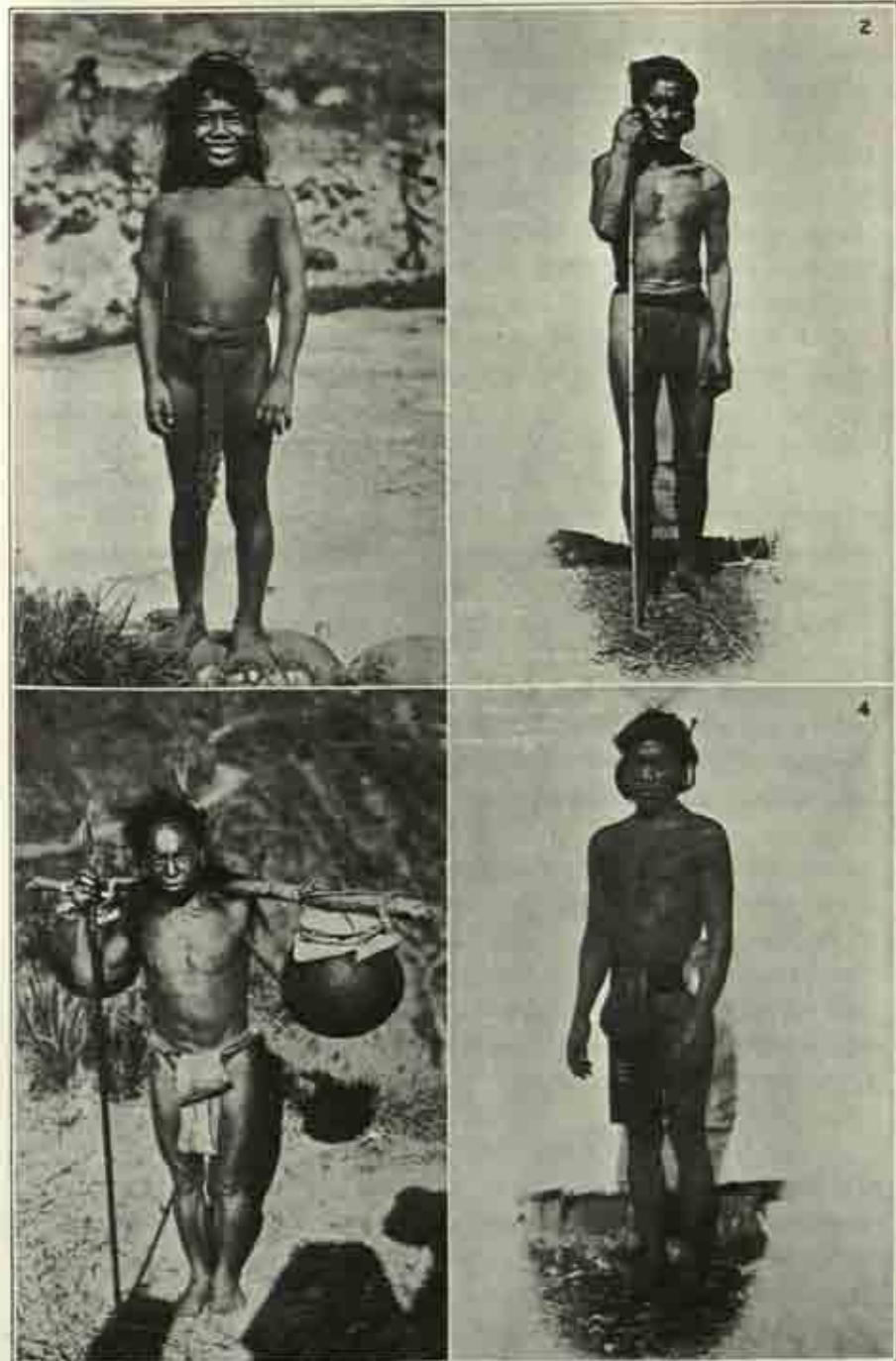
About the age of ten the boys frequently affect a girdle. These girdles are of four varieties. The one most common in Bontoc and Samoki is the *song-kit-an'*, made of twisted bark-fiber threads

¹ The Bontoc Igorot people are agricultural head-hunters who live in the village of Bontoc in the sub-province of the same name of the province of Lepanto-Bontoc in northern Luzon of the Philippine islands. The Bontoc culture area is in the center, geographically and culturally, of the entire Igorot area of Luzon. It contains about 75,000 people of the 300,000 or 400,000 who make up the "Igorot" or "Mountain People" who occupy practically all the mountain area of Luzon north of latitude 16° N.

braided into strings, some six to twelve in number and about twelve feet long; they are doubled and so make the girdle about six feet in length. The strings are the twisted inner bark of the same plants that play a large rôle in the manufacture of the woman's skirt. This girdle is usually worn twice around the body, though it is also employed as an apron, passing only once around the body and hanging down over the genitals (see plate xxx, 1). Another girdle worn much in near-by pueblos is called *i-kiu'*; it is made of six to twelve braided strings of bejuco. In length it is constructed to fit the waist, has loops at both ends, passes once around the body, and fastens by a cord passing from one loop to the other. Both of these girdles are made by the women. A third class of girdles is made by the men; it is called *ka'-kot*, and is worn and attached quite as is the *i-kiu'*. It is a twisted rope of bejuco, often half an inch in diameter, and is much worn at Mayinit. A fourth girdle, called *ka'-ching*, is a chain. Frequently it is a dog chain of iron purchased on the coast; oftener it is a chain manufactured by the men and consists of large open links of commercial brass wire about one-sixth of an inch in diameter. It is worn by the woman on the left in plate xxxi, 1. This woman is unmarried, and I presume the girdle she wears is the temporarily stolen property of some young man she is trying to allure to the *o'-lag*, the place of "trial marriage."

At about the age of puberty, say at fifteen, it is usual for the boy to possess a breech-cloth, or *wa'-nts*. However, the cloth is worn by a large percentage of men in Bontoc and Samoki, not as a breech-cloth, but tucked under the girdle and hanging in front simply as an apron. Within the Bontoc area fully fifty percent of the men wear the breech-cloth simply as an apron (see plate xxx, 2).

There are several varieties of breech-cloths in the area. The simplest of these is of flayed tree bark, both white and reddish-brown, and sometimes the white ones are colored with red ocher. It is made by women extensively in the Bontoc culture area. Some of the other breech-cloths are woven of cotton thread by the women. Much of this cotton is said to be the tree cotton which the Igorot themselves gather, spin, and weave. Much also comes in trade from the Christian Ilokano at the coast. Some is purchased



IGOROT BREECH COVERINGS

1, The girdle, *soog-kil-an'*. 2, Man wearing breech-cloth as an apron. 3, Man wearing cloth bag as an apron. 4, Man wearing the bladder bag. (Photo by Martin. Courtesy of the Ethnological Survey for the Philippine Islands.)

in the boll, and some is purchased after it has been spun and colored. Many breech-cloths are now bought ready-made from the Ilokano.

Men generally carry a bag tucked in the girdle, and very often these bags are worn in lieu of the breech-cloth apron — the girdle and the bag-apron being the only clothing (see plate xxx, 3, 4). One of the bags commonly worn is the *fi-chong'*, the bladder of the hog or carabao; another is *ka'-tat*, the bladder of the deer; the other, *cho'-kao*, is a cloth bag some eight inches wide and fifteen long. These cloth bags are woven in most of the pueblos where the breech-cloth is made.

Old men now and then wear a blanket, *pi'-tay*, but the younger men never do; they say blankets are for the women.

Some few of the principal men in many of the pueblos throughout the area have in late years acquired either the army blue woolen shirt, a cotton shirt, or a thin coat; and these they wear during the cold rain and wind storms of January and February, and on special social occasions.

During the period of preparing the soil for transplanting rice the men frequently wear nothing at the middle except the girdle.

In and out of the pueblo they work carrying loads of manure from the hog-pens to the fields, as little concerned or noticed as though they wore their breech-cloth.

All the Igorot, men, women, and children, sleep without breech-cloth, skirt, or jacket. If a woman owns a blanket, she may use it as a covering when the nights are cold. All wear a basket-work night-cap, called *kut'-lao*; it is made to fit closely on the head and has a small opening at the top. It may be worn to keep the hair from snarling, though I was unable to get any reason from the Igorot for its use, save the common explanation that it was worn by their ancestors.

WOMAN'S CLOTHING

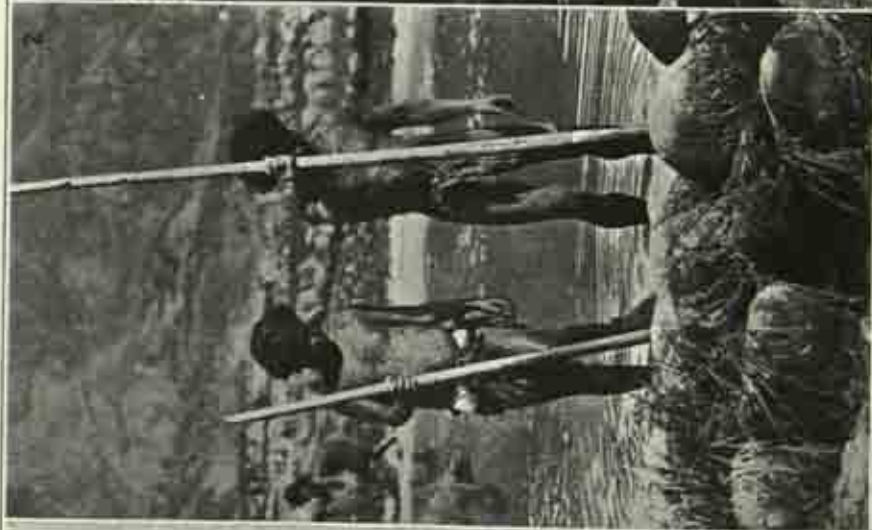
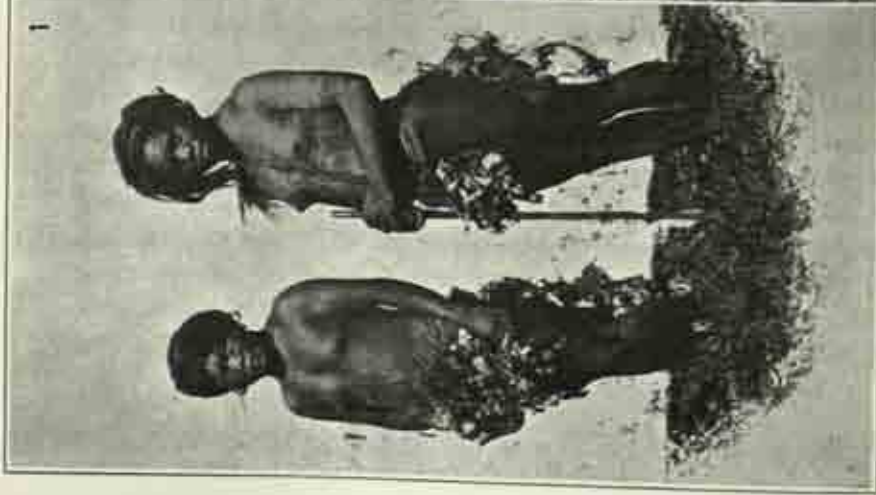
From infancy to the age of eight and very often ten years the little girls are naked; not infrequently one sees about the pueblo a girl of a dozen years entirely nude. However, practically all girls from about five years, and also all women, have blankets which are worn when it is cold, as it almost invariably is after sunset, though

no pretence is made to cover their nakedness with them. During the day this *pi'-tay*, or blanket, is seldom worn except in the dance; I have never seen women or girls dance without it (see plate xxxii, 1). The blankets of the girls are usually small and white with a blue stripe down each side and through the middle; they are called *kūl-pas'*. In Barlig, Agawa, and Tulubin the flayed tree-bark blanket is worn; and in Kambulo, east of Barlig, woven bark-fiber blankets are made which sometimes come to Bontoc.

Before a girl puts on her *lu-fid'*, or woven bark-fiber skirt, at about eight or ten years of age, she at times wears simply the narrow girdle, later worn to hold up the skirt. The woman's skirt is both short and narrow (see plate xxxii, 2). It usually extends from below the navel to near the knees; it opens on the side, and is frequently so scant and narrow that one leg is exposed as the person walks, the only part of the body covered on that side being under the girdle or *wā'-kts*—a woven band about four inches wide passing twice around the body. The woman sometimes wears the braided bejucó girdle, *i-kt'*, worn by the men (see woman on right in plate xxxi, 1).

The skirt or *lu-fid'*, and the girdle or *wā'-kts* are the extent of woman's ordinary clothing. For some months after the mother gives birth to a child she wears an extra girdle wrapped tightly about her, over which the skirt is worn as usual. During the last few weeks of pregnancy the woman may leave off her skirt entirely, wearing simply her blanket over one shoulder and about her body. Women wear breech-cloths during menses.

During the period when the water-soaked soil of the sementera is turned for transplanting rice, the women engaged in such labor generally lay aside their skirts. Sometimes they retain a girdle and tuck an apron of camote leaves or of weeds under it before and behind (see plate xxxi, 1, 2). I have frequently come upon women entirely naked climbing up and down the steep stone terrace walls of their sementeras while weeding them, and also at the clay pits where Samoki women get their earth for making pottery. In May, 1903, it rained hard every afternoon for two or three hours in Bontoc pueblo, and at such times the women when out of doors uniformly removed their clothing. They worked in



IGOROT LOIN COVERINGS

1, Camote-vine aprons of soil turners. 2, Man and girl wearing leaf aprons while turning the soil. 3, The lengthening shirt. (Photo by Martin, Courtesy of the Ethnological Survey for the Philippine Islands.)

the fields and went therefrom nude to their dwellings, wearing on their heads while in the trail either their long basket-work rain protector or a head-covering of camote vines — under which reposed their skirts in an effort to keep them dry. Sometimes while passing our house en route from the field to the pueblo, the women wore the girdle with its camote-vine apron, called *pay-pay*. Often no girdle was worn, but the women held a small bunch of leaves against the body in lieu of an attached apron; sometimes, however, their hands were occupied with their burdens — and their nudity seemed not to trouble them in the least.

The women remove their skirts, they say, because they usually possess only one at a time, and they prefer to travel naked in the rain and while working in the wet sementeras rather than sit in a wet skirt when they reach home.

Few women in the Bontoc area wear jackets or waists. Those to the west, toward the province of Lepanto, frequently wear short ones, open in front without fastening, and having quarter sleeves. Those women also wear somewhat longer skirts than do the Bontoc women.

In Agawa and near-by pueblos to the west, and in Barlig and vicinity to the east, the women make and wear flayed bark jackets and skirts. From Barlig bark jackets and skirts for women come in trade to Tulubin; they are not simply sheets of bark, but the bark is strengthened by a coarse reinforcement of a warp sewed or quilted in.

Many of the woman's skirts and girdles woven west of Bontoc pueblo are made also of the Ilokano cotton. The skirts and girdles of Bontoc pueblo and those found commonly eastward are entirely of bark production. Four varieties of plants yield the threads; the inner bark is gathered and then spun or twisted on the naked thigh under the palm of the hand. All weaving in Igorot-land is done by the woman with the simplest kind of loom, such as is scattered the world over among primitive people.

ORIGIN AND PURPOSE OF CLOTHING

The reason for the Igorot's adoption of the scant clothing which he wears does not appear in any of the five motives which are com-

monly assigned for the adoption of clothing, namely, need for clothing as a protection against climatic conditions; desire for "dress" or decoration; sense of shame; desire to attract curiosity by concealing a part of the body; and imitation of more cultured peoples.

In regard to the adoption of clothing as a protection against the climate, it must be noted that none of the man's clothing affords any protection whatever; that the skirt of the woman is very scanty, covering only a small part of the person, and that not the sensitive lungs or stomach—over which the blanket is worn as clothing. It barely covers the abdomen, the buttocks, and, imperfectly, the thighs. In the heavy rains the wearer comes far short of using her skirt as clothing—she removes it to keep it dry.

The clothing certainly was not adopted for esthetic reasons, since all of their own manufacture is uniformly of as lifeless and dirty a color as any cloth ever invented. Now and then a few threads of a very dull brown are woven into the skirt and girdle, but they are scarcely noticeable.

Even to-day the Bontoc men and women exhibit no shame before their fellow Igorot when, while at work in the sementeras, they remove their clothing to keep it clean or dry. At no time does the woman manifest shame regarding her always naked breast. As a psychological phenomenon shame induced by nakedness is impossible to a naked folk who see only naked people. The sense of shame alone never caused a primitive people to adopt its first form of covering for the person.

There are common social facts standing abruptly in the face of the theory that the clothing was adopted to create sexual feeling. Girls to-day effect the skirt before puberty. The Igorot do not notice the nudity of their children, and the skirt is worn by the girl before there is any natural manifestation of womanhood. All unmarried women and men, and the majority of married ones, pull out the pelvic hair, and the reason assigned by them is that they do it in order that they will not be noticeable when they work or travel naked; they wish to appear like the children, they say. Again in this connection we must note the extraordinary social institution, the *o'-lâg* (this is a trial-marriage institution), with its free-



CLOTHING OF IGOROT WOMEN

1. Women wearing the blanket in the dance. 2. The woman's skirt.
(Photo by Marlin. Courtesy of the Ethnological Survey for the Philippine Islands.)

dom and liberty of intimacy between the sexes. In reality there appears to be little need for women in Bontoc to allure men through their curiosity.

It does not seem probable that the clothing is commonly an imitation of other people, as of the Christian Ilokano. It is of Bontoc manufacture; all the plants yielding the bark from which the thread is spun are in the Bontoc area — nothing is borrowed, apparently. To-day the Bontoc women prefer their own skirts to those of cotton they are able to buy from the pueblos to the west; and the Bontoc skirt is widespread throughout the area — of which it seems to be a natural product. Of course, the present woven bark skirt was very probably everywhere preceded by the skirt of flayed bark which is still worn in some pueblos of the area.

The use of the girdle around a man's waist as a means of attaching to the otherwise naked person some light but considerable possession would be very natural. A stick pushed through under the girdle, just as the battle-ax is carried to-day, is secure; it can hardly work out unnoticed. I believe the girdle was first worn to secure some such possession. Afterward the permanency of the girdle ensued, not only as a means of carrying possessions, but because of the feeling of strength it is commonly believed to give. It was worn from the response — universal among men who lift burdens, who go long distances afoot, and who frequently miss a meal — to girt up one's loins. The Igorot says he wears the girdle because it makes him stronger, and with it he can travel faster and farther.

When small things were needed to be borne about constantly, the bag (say, first, the bladder of a slain animal) would come into service. It could readily be carried tucked under the girdle; a good place to put it is directly in front — just where the Bontoc man usually carries his; at either side it is in the way of the hands and arms, and would be more readily lost by being pulled off in the forest; at the back it is not so accessible. The bag undoubtedly preceded the breech-cloth, since to-day many of the old men in the culture area wear nothing except the girdle and the bag hanging in front of the body, and the breech-cloth is worn more often as an apron than as a breech-cloth. The partial hiding of a man's genitals

by the bag-pocket would in time become conventional, hence the use of the breech-cloth as an apron, since it is generally no more of a covering than is the bag. From the partial covering to the more complete covering with the breech-cloth, worn as a breech-cloth, is a natural step; and doubtless contact with the Spaniards in Bontoc and with others wearing more clothing than a scanty apron had to do with this completer covering.

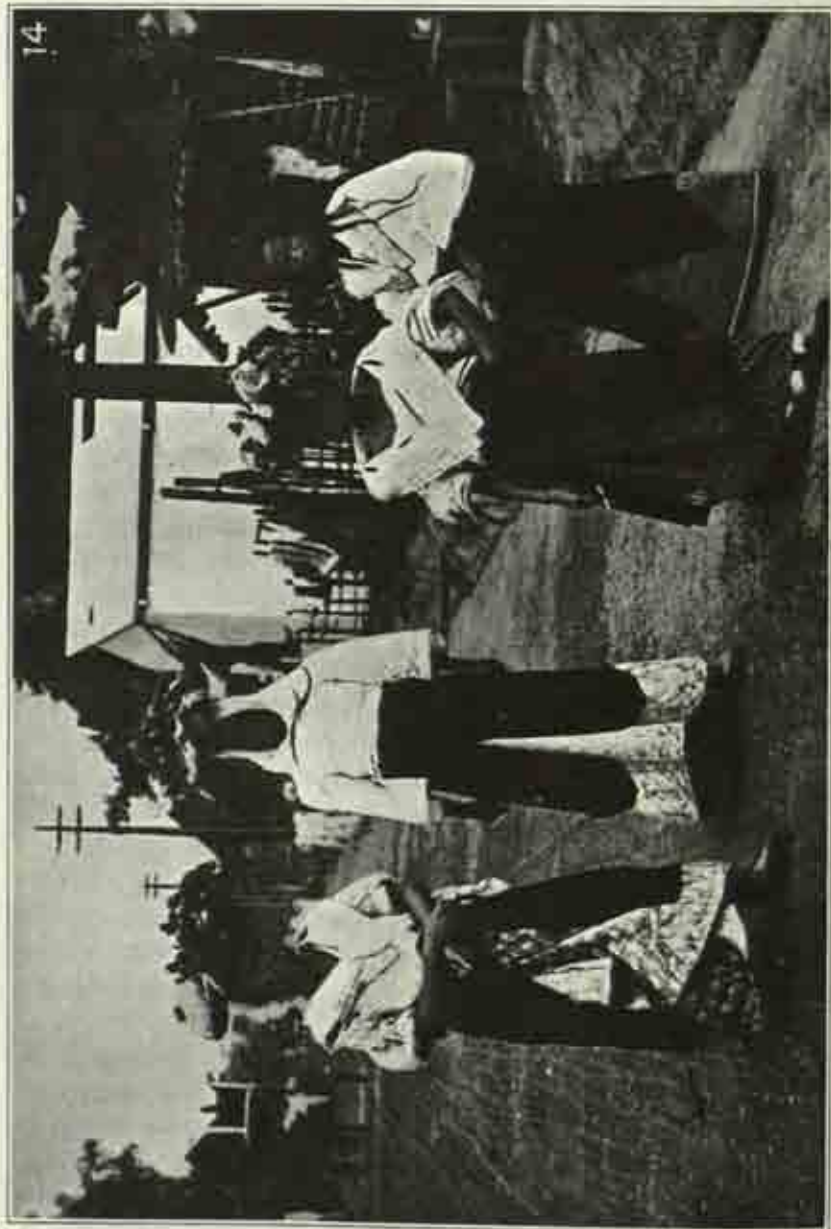
From what the little basket-work hat developed can not be said; perhaps it came from a simple string around the head to hold the hair from falling. It is worn entirely by long-haired men. The long hair of the Bontoc man is not only bound close to his head by the *suk'-lång*, but the long ends are generally tucked under and into the hat, thus further confining it. The short-haired men at the western side of the area use the head-band to confine the hair which otherwise would be constantly in the face, as it is cut six or eight inches long. The short-haired man of the Quiangan area, with his "mushroom" hair-cut, wears neither hat nor head-band, since his hair is not long enough to disturb him.

It is believed the *suk'-lång* may have developed as a pocket from the narrow head-band, since the man's pipe is invariably put away in the *suk'-lång*, as also are his tobacco and matches, if he has them. The man who wears the head-band habitually tucks his pipe under it also, as he sometimes does small amounts of tobacco, but it offers little space for such effects.

The decoration of the *suk'-lång* with dog's teeth, pearl shell from the sea coast, human hair, army buttons, brass wire, etc., and the red, yellow, brown, and black colors employed in its weaving, is an after-development. The typical hat of Bontoc pueblo is uncolored and unadorned, except that it often has two or three small brass-wire rings attached to the outer surface.

The woman's rain-protector had its origin in utility as a clothing; so, also, probably the blanket owes its origin to the need for clothing.

The jacket worn west of Bontoc pueblo is believed to have been adopted largely in imitation of other people of a higher culture. Where it is worn among the Igorot to-day in the Bontoc area there is an utter absence of shame regarding the exposure of the breasts.



TAGALOG WOMEN WEARING THE TAPIS
(Photo by Martin. Courtesy of the Ethnological Survey for the Philippines Islands)

In some Igorot sections it may have originated independently as a clothing, but there is no evidence that it originated either in response to a feeling of shame or from a desire to attract the attention of men.

The skirt and the girdle are woman's most constant clothing. There is an explanation which offers a reason why the Bontoc woman might have adopted her skirt; it is a reason which seems to me not at all improbable; if it applies there, it may elsewhere.

To-day the woman during menses wears a breech-cloth; during the time she wears it she will not remove her skirt either to keep it clean or dry. If at any time, even at the ford across the river, where both sexes uncover themselves as a matter of course, men should see women wearing only the breech-cloth, they would ridicule them, consequently women are sensitive about exposing themselves with it. They say the breech-cloth is worn for cleanliness. May it not have been worn periodically for cleanliness before the skirt was worn? If so, then, as now, man's attention would have been drawn to the woman at a time when, almost universally, primitive people consider their women unclean and unattractive. Inasmuch as no tabu is placed on woman by the Bontoc Igorot at these periods of her life (she works, eats, and sleeps as usual), the fact of her condition, whether with or without the breech-cloth, would be observed by her usual companions. As it is to-day, the skirt keeps her secret by hiding the breech-cloth.

A reason for the skirt, then, that seems to harmonize with all the facts and conditions of its use, and the use of the breech-cloth, is that it was adopted to hide an embarrassing condition after the breech-cloth was worn periodically for the sake of personal cleanliness.

The Christianized Tagalog woman of Manila to-day wears a "*tap'-ts*" — a dark colored, generally black, skirt, open at the side or in front, extending from the waist to below the knees (see plate XXXIII). The "*tap'-ts*" is worn over her other skirt or skirts; it is her outer garment, and to-day a woman is almost never seen on the street without it. She seldom avails herself of the breech-cloth during menstruation, but wears instead the dark-colored "*tap'-ts*" for the avowed purpose of concealing any possible obtrusive evidence of periodicity. This "*tap'-ts*," so named, is worn by the Christianized Tagalog, Ilokano, and Bikol women of Luzon, as well

as elsewhere in the archipelago by some other Christian women. Among the Ilokano women of the Ilokos provinces it is frequently the only nether garment worn. The Igorot of Ilokos Sur and of Lepanto-Bontoc provinces, and the Tinguian, at least of the province of Ilokos Sur, wear the *tap'-ts* as the sole nether garment. And the *lu'-fid*, the Bontoc skirt, is the primitive "*tap'-ts*"; it is simply considerably less ample than the one worn in Manila, both in length and breadth. It is also less ample than the *tap'-ts* of the Tinguian and the Lepanto Igorot, who have doubtless been influenced by the longer garment of the neighboring Ilokano. In fact, the Bontoc skirt is now also gradually lengthening, through the same influence, though still woven of the same bark fiber and still the product of Bontoc home industry. The lengthening skirt is shown in plate xxxi, 3.

Here, then, we have the *tap'-ts*—a nether garment—worn by the women of the primitive Malayan stock of the archipelago. With some it is the only nether garment worn, with others it has survived for three centuries even after the wearer dons beneath it several European garments, as white underskirts and an overskirt. It survived because, as the Tagalog says, it has to-day a specific function—one which, it is maintained, was the cause of its adoption by the primitive Malayan woman. It is doubtless also worn to-day by some Tagalog women chiefly because it is customary; this would inevitably be true if its use was persisted in after several nether garments were commonly worn.

In conclusion, it is believed the first clothing of the Bontoc area had its origin in a utility other than protection against the climate; it had its origin outside the desire for "dress," outside the sense of shame, or the desire to attract attention to sex life, and it did not originate in imitation. The man's clothing originated in utility—a convenience for carrying with him, attached to his body, constantly desired possessions. The woman's clothing originated because of a monthly condition.

Some time in the development of primitive woman the fact of menstruation first caused some of them to clothe their bodies. In the Philippine archipelago alone some women seem to have answered that demand by the use of the breech-cloth, others by the apron, others by the pantaloons, and still others by use of the skirt.

PUBESCENCE—A PRELIMINARY REPORT

By C. WARD CRAMPTON

At any one of the ages of ten to sixteen years, great variation may be noted in all measurements of boys, bodily and mental. The averages, means, and percentile grades so often used to designate the values of these groups afford us but little evidence of the character of the series. Most series of measurements of any one year exhibit, in addition to a wide range of variation, an atypical curve of frequency, suggesting a bimodal type and hence the inclusion of two or more sub-groups in the series. This is due, in very great part, to the difference in age at which boys arrive at puberty; for example, the group of the age 14.5 will include those who have and those who have not yet reached puberty. This was noted by the writer about four years ago, after several years' experience in taking measurements of male adolescents, when means were sought to separate these two classes and to compare their characteristic features for statistical purposes.

To this end an indication was sought by which the advent of puberty could be marked definitely. This was found to be difficult, if not impossible, for the approach of sex maturity is gradual, covering several months. The best indication at hand, and one that could be easily recognized, is the appearance and growth of the pubic hair. This again is a slow process, and admits of classification into stages, as follows:

1. Pre-pubescent. No pubic hair.
2. Pubescent.
 - a, Hair present, straight (not curled or kinked), unpigmented.
 - b, Hair present, straight (not curled or kinked), pigmented.
3. Post-pubescent. Hair present, kinked and curled.

This classification gives three stages by which we may determine three groups. The division of the second class (the pubescent) into two sub-groups has not been worked over, as the data are not yet sufficient to enable a determination of their different

characteristics. This classification, we believe, is a fundamental one and one on which all measurements of these ages (9 to 18 years) should be based. It is an index to the physiological age, and as such is more significant than the age in years. It should be taken into consideration in all classifications for statistical and educational purposes.

The tentative results of the present study are based on observations of more than 1,200 students in the first year grade of the High School of Commerce, New York City, and for the greater part are records of different students. The mean age for the class is 14.5; the total variation is from 11 to 18 years. The year groups of ages 13, 14, and 15 were alone large enough to warrant extended work on them, and the present report is confined to these alone.

The frequency of each pubescence group in each age is as follows:

Pubescent Stage	Year		
	13.5	14.5	15.5
1	144	98	33
2	81	142	62
3	52	178	177

The percentage of each pubescence group in each age group is shown in the following table:

Pubescent Stage	Year		
	13.5	14.5	15.5
1	51%	23%	12%
2	29	34	22
3	18	42	65

From this table the average ages and standard variabilities of the appearance of the second and third stages have been computed. They are: Second stage, 13.5 ± 1.6 years; third stage, 14.7 ± 1.7 years.

A convenient and simple way of arriving at the pubescence value of any age for the purpose of comparing statistics taken in

different countries, in city and country, etc., is the following: Assign the values one, two, and three, respectively, to the three pubescence groups. Multiply each of the percentage frequencies by their values and find the total for each year. This gives us what we may term the average of pubescence for the age. The result also can be produced by the usual method of obtaining the average.

We would thus find for the early years, before the possible dawn of pubescence, 100 percent of the individuals in the first group; the index would then be 100. Similarly in the adult ages, where all the individuals were in the third group, the index would be 300. In the pubescent ages mentioned above, the index, worked out in a similar manner, would be for thirteen, 165; for fourteen, 226; for fifteen, 249.

Applying this method to the results of an investigation into the birth-place of the parents of the students, the following results were obtained:

PARENTS BORN IN THE UNITED STATES

Pubescent Stage	Year		
	13.5	14.5	15.5
1	50%	21%	8%
2	33	36	22
3	17	42	69
Puberty Index	165	219	248

PARENTS BORN IN GERMANY

Pubescent Stage	Year		
	13.5	14.5	15.5
1	58%	36%	28%
2	29	30	24
3	12	33	48
Puberty Index	150	195	219

From this study it is apparent that pubescence is later in those boys whose parents were born in Germany. A similar result has already been determined with reference to the date of menstruation in girls.

On arranging the results of the series of measurements of the last two years, somewhat definite and striking facts were obtained. It was found that the average measurements of weight, strength, and height were less in each age for the pre-pubescents than for the pubescents, and these were again less than the average of the post-pubescents. These variations are shown in the following tables:

VARIATION IN WEIGHT

Age	Pub. Stage	No. in Group	Average (kilos)	Standard Deviation
15.5	1	116	34.92	5.26
	2	53	39.32	8.08
	3	49	41.48	8.20
	(all)	218	37.43	7.36
14.5	1	76	35.53	5.32
	2	108	39.02	5.60
	3	132	47.50	7.78
	(all)	316	41.73	8.23
15.5	1	28	38.49	5.61
	2	45	39.38	5.60
	3	132	49.54	7.04
	(all)	205	45.77	8.31

VARIATION IN STRENGTH

Grip of Right Hand (in kilos)

Age	Pub. Stage	No. in Group	Average (kilos)	Standard Deviation
13.5	1	93	28.15	6.65
	2	53	31.24	6.51
	3	34	35.88	10.10
	(all)	180	30.50	7.83
14.5	1	67	28.28	6.32
	2	94	31.28	6.43
	3	115	41.44	9.48
	(all)	276	34.79	9.65
15.5	1	23	29.78	6.58
	2	40	31.75	5.65
	3	125	43.24	9.92
	(all)	188	39.14	10.31

VARIATION IN HEIGHT

Age	Pub. Stage	No. in Group	Average (cm.)	Standard Deviation
13.5	1	109	145.52	4.61
	2	54	148.12	7.97
	3	40	155.25	8.62
	(all)	203	149.59	7.68
14.5	1	77	146.26	6.22
	2	107	148.17	6.81
	3	130	159.38	8.05
	(all)	314	153.21	8.02
15.5	1	27	148.79	8.60
	2	44	152.61	7.17
	3	131	161.31	6.47
	(all)	202	157.34	8.40

Marked differences are observed between the pre-pubescents and the post-pubescents in these three ages and in all three measurements, as is shown by the following table:

DIFFERENCES IN AVERAGE

Age	Weight (kilos)	Height (cm.)	Strength (kilos)
13.5	6.56	9.73	7.73
14.5	11.97	13.12	12.16
15.5	11.05	12.53	13.56

The differences are significant, though the series be a small one, and the standard deviation high.

The foregoing is a report of only the primary results of an extended work along the same lines, including other measurements and also the evidence of mental development; they therefore mark only the first stage. With the accumulation of data the figures will doubtless be changed somewhat, but hardly to the degree of vitiating the importance of the large differences herein given. The report is presented at this early stage of the investigation in order that the method outlined may become available for general use.

BOOK REVIEWS

Aboriginal American Basketry: Studies in a Textile Art without Machinery. By OTIS TUFTON MASON. From the Report of the United States National Museum for 1902. Washington: 1904. 8°, pp. 171-548, 248 plates.

This is the crowning work of a life devoted to the study of the arts native to America. The thanks of all students of textile art are due to Professor Mason for the volume he has given them, and they should congratulate themselves that such a mass of information is now at their disposal. A man of less courage and determination, had he suffered the ill-health which has been the lot of the author during the last six years, would not have attempted such a work, or having attempted it would not have felt bound to complete it. Not only should it be recognized that a good piece of work has been well done, but that it has been done under great difficulties.

The subject treated is susceptible of two quite different points of view. One is that of the vertical plane, the development in time of textile art from its crudest beginnings to the most finished and complicated products. Such a point of view leads to a science of textiles. It considers to what extent and in what way the form, structure, and ornamentation of the product has been conditioned by the materials employed, the processes of manufacture resorted to, the use for which the article is intended, and the skill and esthetic stage and tendency of the artist. A larger consideration calls for a survey of the various products of the art in an orderly sequence from the fish-weir to the finest laces and woven fabrics. The laws which have brought about this development are to be discovered and set forth. The devotee of such a science holds the individual specimens in high regard.

The other view is the horizontal one—the geographical distribution of different types of the art over the surface of a continent or the globe. Such is the point of view of the mere ethnologist, who may care nothing for the structure of man as it is studied by the anatomist, nor for the works of man as they are viewed by the student of art, nor yet for the growth and development of language to which the student of linguistics devotes himself. The ethnologist studies all these, not for themselves, but for the light which they shed on man himself, his origin, and his distribution.

Whichever of these views is taken, the subject matter dealt with is the same, namely, the material objects, usually museum specimens, and information collected concerning them. Professor Mason has succeeded in presenting a large amount of material. The specimens, as wholes, have been shown by means of very many plates, in the making of which recourse has been had to whichever process of reproduction would give the desired result without much regard to the expense involved. The individual specimens have been subjected to minute study, and all their technical characters set forth by lucid explanations and numerous text-figures. In this matter of deriving information from the specimen itself, especially in regard to technique, our author evidently has no equal.

The information collected concerning these specimens has been given in several chapters. One of the most important of these is that on the materials employed in basketry, written by F. V. Coville, a botanist of eminence who has especially interested himself in the uses which the natives of America have made of the plant world. Other chapters are devoted to the harvesting and preparation of the materials, the Indian's view of his decorations, and the uses to which baskets are put. Very much of this information is made available for the first time. It has accumulated at the National Museum incidental to the acquiring of the specimens themselves, has been obtained by a wide and long-continued correspondence carried on for the purpose by the author, or has been quoted from various works. It is a matter of regret that some of this information is not wholly trustworthy. Except where the name and standing of the person quoted is sufficient guaranty, the student who would use this information must verify it, or have it verified by a trained investigator in the field.

The general arrangement and treatment given this material by the author seems to indicate that he has the first point of view as the controlling influence in his work rather than the second. This is borne out by the sub-title which he has given his paper, "Studies in a Textile Art without Machinery." When looked at from this standpoint, the result, as worked out in the first section of the paper, brings a feeling of satisfaction to the reader and the student, and it is hoped to the author as well. Unless some future investigations bring to light new forms of basketry and new methods of manufacture, Professor Mason's treatment of basketry as a textile art will remain the one adequate presentation of the subject.

As much cannot be said of the part of the paper which treats of the ethnic varieties of basketry. Professor Mason seems to have lacked for such a treatment the proper point of view and the necessary experience.

Perhaps, too, he did not have at hand all the material required. For the treatment of the subject according to the first view, a specimen of each and every type of basket as to material, size and shape, manner of making, and ornamentation is required; for the second it is necessary to have all these and to have them from every culture area in which they are found, or at least to know whether they exist in such culture areas or not. It is doubtful whether either studies or collections have reached the stage that would furnish this material. The culture areas should be marked off with as great definiteness as possible, and with regard, at first at least, to basketry only. The man who does this work must understand first and above all things that while men may be classified according to their physical characteristics, material products, and language, that these bases of classification must be kept separate from each other. Because the Navaho happen to speak a language akin to that heard in Alaska, one must not expect them to have skulls of the same shape nor houses of the same character.

But it is nothing against the present work that one point of view has predominated the other in its treatment, nor is it anything to be laid to the charge of the author that he is a man who loves the specimens which he handles and has come to understand from them how they were made and why—that he has the vertical view with its relation to man's present and future. He needs no other commendation for his work than that which the work gives.

P. E. GODDARD.

Life and Culture of the Hupa. By PLINY EARLE GODDARD. University of California Publications; American Archaeology and Ethnology, Vol. 1, No. 1. Berkeley: 1903. 8°, 88 pp., 30 plates.

Hupa Texts. By PLINY EARLE GODDARD. University of California Publications; American Archaeology and Ethnology, Vol. 1, No. 2. Berkeley: 1904. 8°, 290 pp.

In the considerable development of anthropological investigation which has taken place in this country during the last two decades, the Indians of California and Oregon have received scant attention as compared with those of the Plains or the Southwest. Since Stephen Powers' *Tribes of California*, which appeared in 1877, almost nothing, until very recently, has been published on the Indians of this area. Powers' work, while creditable under the circumstances, was the result of a hasty investigation of an immense area by one trained more in the school of journalism than of science. Therefore, although containing

much that, in its general outlines, later and more detailed study confirms, it includes many inaccuracies and misleading or highly colored statements. With the publication of Dr Goddard's two papers on the Hupa, however, we have what it is to be hoped is the beginning of a series of careful studies of the different stocks of Indians in the California-Oregon area. The papers form the first volume of the publications of the new Department of Anthropology of the University of California—a department which was founded and whose work has been carried on by the liberality of Mrs Phoebe A. Hearst.

In the first of the two papers Dr Goddard has given an admirable although brief account of the general culture of the Hupa, an isolated section of the much scattered Athapascan stock, residing in the valley of the lower Trinity in northwestern California. After describing briefly the environment in which the Hupa live, and giving a summary of the history of their contact with the whites, an account of the houses, dress, food, occupations, and social and religious life of the people is presented. The type of the Hupa house is common to several other stocks in the immediate vicinity, and recalls somewhat the type characteristic of the coast northward to Columbia river, and even the more elaborate and larger houses of the Northwest coast. Besides the dwelling house, however, the Hupa have a larger sweat-house, or assembly house, which with its earthen roof suggests the circular, earth-covered lodges found widely throughout California and other parts of the country.

The clothing of the women is very characteristic of this culture-area, consisting of both aprons and skirts of buckskin, often profusely ornamented with long fringes, which are themselves decorated with grass braiding, beads, pine-nuts, dentalia, and abalone. Although a considerable portion of the food supply of the Hupa was obtained by fishing or hunting, vegetable foods were very important, and of these the acorn, as throughout California, takes first place. In describing the preparation of the acorn-flour, it is to be noted that Dr Goddard speaks only of *flat* stones as being used with the milling-baskets, and nowhere are the stone mortars, commonly supposed to be used for this purpose, referred to in this connection. It is thus evident that here, as almost throughout California, even in the regions where hundreds of these mortars exist, that they are not used for pounding acorns or seeds, in fact are not used for any but ceremonial purposes by the present Indians, nor have they been so used within traditional times.

The basketry of the Hupa is exclusively of the twined variety, and the materials used and process of manufacture employed are described in

some detail. Except for some geometrical carving on the handles of spoons the art instincts find expression only in basketry designs. These designs are almost wholly geometrical. The individual figures and combinations of these have names, many of which have animal meanings, such as "rattlesnake nose"; others are merely descriptive, as "sharp and slanting." A number of these designs occur among other stocks in different parts of the coast region, but a discussion of them must await the appearance of the paper on the designs of this whole area, announced as in preparation by Dr A. L. Kroeber. The media of exchange and measures of value are dentalia and woodpecker scalps. This subject is of special importance here, owing to the great extent to which money and wealth influence the social structure.

The Hupa possess many elaborate regulations for women at puberty, child-birth, etc., many of which regulations are common to a number of the stocks lying to the eastward. Marriage was formerly a matter of pure purchase, and on the purchase price paid for his mother, a man's standing in the community largely depended.

The social organization was loose, the village was the only unit, and no trace whatever is to be found of a gentile system. The head-man of the village was he who was the richest, and his son, by inheriting his possessions, became head-man after him, unless some other person in the meantime had secured a larger share of wealth. In their games, village played against village. The main gambling game was that familiar over quite a large area in this portion of the coast, in which one of a numerous bundle of small, thin sticks is marked with a ring about the center, and the position of this "ace," whether in one or the other of the halves into which the whole bunch is divided, must be guessed.

The theory of disease among the Hupa seems to be on the whole the usual one, but one of the methods of cure is apparently unique. In addition to the shamans who extract "pains" by sucking, etc., there are others who by the repetition of certain formulæ are supposed to effect a cure. These formulæ consist as a rule of the recounting of the first case of the trouble among the "first people," of the search for a medium of healing or cure, the recovery of the first patient, and a prayer to the inventor of the cure. The formula is generally accompanied by the use of some herb, which, however, is either non-medicinal or is used so that it can produce no medicinal effect. In the Hupa Texts a considerable number of these formulæ are given, and they form one of the most interesting of the contributions which Dr Goddard has made.

In their care of the dead the Hupa employed burial almost exclu-

sively. Property and money were buried with the body as a rule, and further offerings were placed about the grave. The greater ceremonies of the people are confined to three dances, known respectively as the Winter Dance, the Summer or White Deer Skin Dance, and the Fall or Jumping Dance. In the second of these, quite elaborate ornaments were used, consisting chiefly of woodpecker scalps attached to strips of buckskin, and a netted strip worn as a head-dress, often fringed with feathers. Skins of white deer were also an important feature of the dance. These various dances were supposed to have been instituted by the gods, and are always held in a certain sequence at definite spots along the river. This close association of the ceremonies with definite places is quite characteristic of this culture-area.

The myths of the Hupa, given as texts with translation, in the second paper, are of great interest, as no material has heretofore been accessible from this region. A characteristic feature of Hupa mythology is the virtual lack of any true creation myths or creator. Yimantuwinayai, "the one lost across the ocean," together with the Kixunai, or first people, come into being spontaneously, and the former merely finds and frees the various foods for the use of mankind, who are to come after the "first people" shall have disappeared from this world. Before these ancestors of the Hupa appear on the scene, Yimantuwinayai and the Kixunai leave for the world beyond the ocean or above the sky, and with the coming of man the mythical times abruptly end. In the tales told of the doings of Yimantuwinayai and the Kixunai occur many incidents which are found quite widely distributed in other parts of this general area, and also of the continent at large. Similarities are most marked in some cases with types more developed to the north, in other cases types familiar in the south or in the basin area may be noted. To the linguistic student the Hupa Texts will be most welcome, as they afford almost the first satisfactory material for a study of any Athapaskan language. When the promised papers on the Morphology and Phonology are forthcoming, these texts will be sure to be studied with the greatest interest. The advisability of such extensive hyphenation as is here used is open to question, and it is to be hoped that in further publications the forms will be given without this unnatural separation, convenient though it may be in some ways.

The account given in these two papers of the life and culture of the Hupa forms the first satisfactory account of a Californian stock which has yet appeared. The culture of the Hupa may be taken as to a large extent typical of that of the whole northwestern corner of the state (occupied by

the Athapascan, Wishosk, Yurok, Karok, and Chimariko linguistic groups), a culture quite sharply differentiated from that of the remainder of the state, but presenting some points of similarity to that found along the coast to the northward. In most respects, however, this northwestern portion of California possesses a unique form of culture, for further details of which these studies by Dr Goddard must make all ethnologists eager.

ROLAND B. DIXON.

Publicationen aus dem Königlichen Ethnographischen Museum zu Dresden. Herausgegeben mit Unterstützung der Generaldirektion der Königlichen Sammlungen für Kunst und Wissenschaft zu Dresden von A. B. Meyer. Band XIV. A. B. MEYER und O. RICHTER. Celebes I: Sammlung der Herren Dr Paul und Dr Fritz Sarasin aus den Jahren 1893-1896. Anhang: Die Bogen-, Strich-, Punkt- und Spiralornamentik von Celebes. Mit 29 Tafeln, 17 Textabbildungen und 1 Karte. Dresden: Verlag von Stengel & Co., 1903.

To those acquainted with the superb folio publications of the Royal Ethnographic Museum in Dresden, it is sufficient to say that Volume XIV does not fall below the highest standard hitherto attained by the series.

As indicated by the title, this work is based on the ethnographic collection made by Drs Paul and Fritz Sarasin during their first expedition to Celebes, and numbering 543 specimens. For means of comparison, the authors have added 666 pieces from the Dresden Museum. The Celebes collections of the museums in Berlin, Leipzig, and Rotterdam were also kindly placed at their disposal. The Sarasin collection, with the exception of about 100 pieces left at the Dresden Museum, is now in the Municipal Museum of Basel.

The title "Celebes I" was chosen because the authors hope soon to prepare a volume describing the Celebes collection, numbering 1,200 pieces, in the Dresden Museum, to be called "Celebes II." The appearance of the latter, and the publication of the material collected by the Sarasin brothers on their second expedition (1901-1903) to Celebes, will add much to a literature even now comparatively rich.

Practically all the names of places occurring in the text are to be found on the excellent map, which is based on the Sarasin orographic map published in 1901.¹ As regards Middle Celebes, the works of N. Adriani and A. C. Kruijt have been accepted as authority on all points relating to geographical and tribal names.

¹ *Materialien zur Naturgeschichte der Insel Celebes*, Bd. IV.

The arrangement of subject-matter and plates is excellent. The main island is divided into North, Middle, East, and South Celebes. North Celebes, for example, is subdivided into seven districts: Minahassa, Bolaang-Mongondou, Bolaang Uki, Bintauna, Gorontalo, Paguat, and Buol. The ethnographic material from each district is treated under such heads as wearing apparel, ornaments, weapons, tobacco and betel utensils, house furniture, hunting and trapping, woven goods, pottery, fishing, toys and musical instruments, religion, and burial. In like manner each plate is limited to a special district and generally to a single class of objects. Again, the various specimens are constantly associated with their page, catalogue, and figure (plate) numbers, so that each can be followed with perfect ease from text to plate, and from either to catalogue or table of contents as the case may be. The text being comparatively full, and the illustrations unusually fine, the volume may be regarded as a good substitute for a well-labeled museum.

There is, however, one criticism to be made of both text and figures, which is suggested by a study of the basketry specimens. American writers, notably Mason, have gone so thoroughly into the art of Indian basketry as to establish firm foundations for a comparative study of the art over all the world. The reviewer was, therefore, somewhat disappointed to find that several of the baskets were figured on so small a scale as to make it impossible to determine the weave. Nor does the text supply the deficiency, as it is silent in regard to this character.

The costliness of plates, coupled with the desire to figure as many specimens as possible, is accountable for the reduction in the size of figures. In one instance (plate xxv, figs. 5, 6), however, the difficulty might have been overcome by showing only the extremities of the adjoining spears, and eliminating as much of their shafts as was of uniform pattern. Another method would have been to show a bit of the basket in detail as a text-figure. This is precisely what was done in one case (text fig. 14) with much success. The statement, on page 119 b, that specimens bearing the catalogue numbers 562, 328, 155, and 394 are all woven in the same manner, is open to question.

The Celebes natives are evidently skilled in the art of weaving—more so than in the potter's art, yet they do not seem to have mastered its range of possibilities to the same extent as have the aboriginal Americans. The materials used by Celebes natives in basket making include bamboo, ratan, liana, palm leaf, bast, grass, and arenga fiber (sago palm).

Since the authors are conversant with the literature pertaining not only to Celebes but also to the whole of Indonesia, the work abounds in

valuable references. Their command and intimate knowledge of the ethnographic materials from those regions is manifested in their ability to point out the distribution of certain types through various island groups—specimens from the Philippines being often referred to by way of comparison. Nowhere does this wide survey of the field in question appear more striking than in the supplement, devoted to a study of the origin, development, and distribution of the motives used in ornamentation. In the closing chapter, the spiral and the widely distributed cruciate floral ornamentation are traced to a common origin, and the hope is expressed that the present contribution, modestly described as a mere mite (*Scherflein*), may serve as a stimulus to similar work among other peoples, and particularly in the field of prehistoric and classical archeology.

GEORGE GRANT MACCURDY.

Traité des variations des os du crâne de l'homme et de leur signification au point de vue de l'anthropologie zoologique. Par M. LE DR A. F. LE DOUBLE. *Preface de M. LE PROFESSEUR EDMUND PERRIER.* PARIS: Vigot Frères, 1903. 8°, xv, 400 pp.

In this treatise the author, who is well known by a similar work on human muscles, endeavors to collate much of the extensive and widely scattered literature concerning variations, and their causes, in cranial bones, to which he adds his own observations, critical remarks, and conclusions. The bones treated are the occipital (pages 1-100), parietal (pages 101-141), frontal (pages 142-215), ethmoid (pages 216-244), sphenoid (pages 245-292), and temporal (pages 293-349). The bones of the face the author has reserved for a future publication. Pages i-xv contain a preface with errata and addenda, and pages 351-367 the conclusions.

In dealing with each bone the author passes over its anatomical description, as well as that of its development and comparative anatomy, commencing at once with the variations in its several parts. References to embryology and comparative anatomy are made in connection with the more important or better known anomalies. The descriptive part of the anomalies or variations themselves is often restricted, or even wholly omitted. The skull as a whole, the most interesting questions concerning its forms, as well as those of its angles, curves, capacity, and compensations, are not included, nor is a discussion of the modifications of cranial bones due to mechanical, pathological, or gross teratological causation to be found. Craniometric data and sexual differences receive but scant attention; much more space, however, is devoted to racial distribution of many of the special features treated. The cranial variations

considered by the author are classified, etiologically, as follows: 1, Reversible variations; 2, Variations due to vascular, nerve, meningeal, tendon, or glandular impression; 3, Nonreversible modifications due to appearance of supplementary bones; 4, Variations of mechanical origin (including variation by adaptation, i. e., progressive adaptations).

Notwithstanding the somewhat encyclopedic character of the work, there will be found in it a number of new and valuable observations. The conclusions of Professor Le Double are generally erudite and often correct; but in some instances—for example, the explanation of the perforation of the olecranon fossa (p. 352), the causes of metopism (pp. 359–361), etc.—they can not be taken as final, and in others the student will regret the lack of detailed substantiation.

On the whole, the work will prove useful, but will not fully satisfy students of the anomalies of the cranial bones, although it is the first and most important effort toward a résumé of the whole subject. An extensive bibliography adds value to the book.

ALEŠ HRDLÍČKA.

North Queensland Ethnography: Bulletin No. 7. Domestic Implements, Arts and Manufactures. By WALTER E. ROTH. Brisbane: Government Print, 1904. 4°, 34 pp., 258 figures in 26 plates.

This pamphlet sustains the great merit of its predecessors. In sixty-nine sections, of greater or less length, the author describes or labels the materials, tools, and processes in wood-working, fire-making, shell and bone work, leather-making, pigments, flint-chipping, netting, spinning, water technic, packing, fishing implements, and throwing-sticks. Each activity is illustrated with excellent outline drawings, making the art perfectly intelligible. The method of these bulletins is most praiseworthy. If in each savage area some one would imitate Mr Roth, one would have under his hand for study and comparison the useful material in all the museums of the world.

O. T. MASON.

Antropometría. Por TELESFORO DE ARANZADI, *Catedrático de la Universidad de Barcelona.* (Manuales Soler, XXXV.) Barcelona: Sucesores de Manuel Soler, 1903. 24°, 184 pp., 21 figs.

This little manual, designed chiefly for beginners, deals in a rather pleasing way with the principal anthropologic measurements and indices. The author endeavors to present also, in condensed form, the chief scientific results of these measurements, but in this he is much less successful. The text is greatly crowded, and it cannot be said that all the data used are beyond criticism.

ALEŠ HRDLÍČKA.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE.—Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending direct to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages. — EDITOR.]

GENERAL

Abraham (O.) und von Hornbostel (E.).

Ueber die Bedeutung des Phonographen für vergleichende Musikwissenschaft. (*Z. f. Ethn.*, Berlin, 1904, XXXVI, 222-236.) More exact investigation of music as a psychological and culture character of human races is desirable. The relations between text and music (difference of spoken and sung language, etc.) can be studied with the aid of the phonograph. Japanese and Siamese music has already revealed interesting facts. A brief syllabus for workers is given on pp. 232-233. The lack of relation among the Arabs between the meter of their poems, which has no *noira*, and music, as Dr Hartmann pointed out, is another curious fact.

von Andrian (F.) Dr Wilhelm Hein. (*Mitt. d. Anthr. Ges. in Wien*, 1904, XXXIV, 84-85.) Brief biography with notes on scientific activities.

Bartelletti (Vetoria) Sugli individui a capelli rossi. (*A. per l'Anthr. e la Etnol.*, Firenze, 1903, XXXIII, 277-281.) General discussion with particular reference (and statistics) to Italy and France. Red hair is an anomaly, having more affinities with the blond than the brunet type, and is a product of the intermixture of blonds and brunets.

Bauer (M.) Beiträge zur anthropologischen Untersuchung des harten Gaumens. (*A. f. Anthr.*, Brnischwg., 1904, N. F., II, 159-184, 1 pl., 1 fig.) Gives details, with measurements, of examination of the hard palate in 214 skulls (European 101, Asiatic 57, African 22, American 10, Australasian and Polynesian 10). R.

concludes that the *terus palatinus* "is neither a fixed race-character nor a specific pathological stigma." The paraboloid form of the hard palate is most common in man, the ellipsoid U-form least. The height index of the hard palate is a new index.

Becker (C. H.) Panislamismus. (*A. f. Religw.*, Lpzg., 1904, VII, 168-192.) Discusses the recent development of "Pan-Islamism" and the chief literature of the subject. In Persia no signs of this movement are to be found, for the sceptical Shiites rule the realm of the Shah. In Sunnite Islam, however, the doctrine of "Pan-Islam" has grown up, stimulated by the interference of the European world in the affairs of Africa and Asia. The long latent *ides* of "Pan-Islam" has now become a *movement*, with a political side that is opportunist.

Bertholon (L.) Note sur les marques supérieures de certains crânes antiques. (*Bull. Soc. d'Anthr. de Paris*, 1904, V^e s., V, 55-56.) Cites Herodotus as to the nomad Libyans burning children on top of the head as a primitive medical process. The Guanches, certain Amerinds, did the same; neolithic man also.

Brown (C. F.) "The Long Hidden Friend," by John George Hohman. (*J. Amer. Folk-Lore*, Boston, 1904, XVII, 89-152.) Reprint, with introduction and explanatory notes, of Hohman's *The Long Hidden Friend* (Carlisle, Pa., 1863), a famous American book of folk-medicine, based on the "Gipsy Book," the "German Centennial Almanac," the "Book of Albertus Magnus," etc.

Chamberlain (A. F.) Proverbs in the making: Some scientific common-places. (*Ibid.*, 161-170.) First section of article listing Nos. 1-205 of "familiar quotations" or "geflügelte Worte" from modern scientific and literary authorities embodying succinct statements of scientific facts and fancies.

— In memoriam: Frank Russell. (*Ibid.*, 208-209.) Brief sketch of life and activities, with list of folklore publications.

— Race-character and local color in proverbs. (*Ibid.*, 28-31.) Compares, under 45 headings (English proverbs), the proverbs of the Yoruba of western Africa and the Negro-English of Guyana. Based on Bowen and Wullschlägel.

— (and I. C.) Studies of a child. I. (*Ped. Sem.*, Worcester, Mass., 1904, XI, 264-291.) Gives linguistic and psychologic data from observation of authors' child: Affirmation and negation, analogy, argument, comparison, definition, fear, imagination, nature-observation, *obiter dicta*, poetry and song, right-handedness, stories, spontaneous words and language, talk, time, etc. Many specimens of the child's "original" language are given; also records of her conversation. This spontaneous speech has quite a primitive aspect.

Clodd (E.) In memoriam. Frederick York Powell. 1850-1904. (*Folk-Lore*, Lond., 1904, XV, 182-184.) Brief appreciation of character and work. Dr Powell was a lovable personality. His knowledge was so great as almost to inhibit productivity of the highest order. At his death he was president of the Folk-Lore Society.

Conradi (E.) Psychology and pathology of speech-development in the child. (*Ped. Sem.*, Worcester, 1904, XI, 328-380.) Résumés, with bibliography of 92 titles, recent literature of the subject: Order of development of different sounds, recapitulation theory, word-invention, first word-meanings, stammering, stuttering, methods of curing stuttering. Author takes an optimistic view of speech-defects.

Dionne (N. E.) Le père Sébastien Rasles jésuite, missionnaire chez les Abénakis, 1657-1724. (*Trans. R. Soc. Can.*, Ottawa, 1903, IX, 117-134.) Contains interesting facts as to the character and

labors of Father Rasles, author of an Abnaki dictionary.

Farnell (L. R.) Sociological hypotheses concerning the position of women in ancient religion. (*A. f. Religw.*, I, pag., 1904, VII, 70-94.) From study of data in classical literature, etc., concerning exclusion of men from ritual, prominence of women in the ritual of the hearth, prestige of virgins dedicated to deity, women as prophetesses, priestesses of male deities, prostitution as part of ritual, interchange of dress between the sexes, Amazons, exclusion of women from temples and cults, male ministrants of female divinities, eunuch-priests, etc., the author concludes that "the matriarchate has not left so clear an impress on classical religion as has been supposed." Moreover, "many of the curious phenomena in the relation of the sexes to cult are not necessarily distinctive indications of any special family-organization," and "the prevalence of a goddess and the prominence of women in the divine service can be due to other causes than matriarchy or gynocracy."

Farrand (L.) The significance of mythology and tradition. (*J. Amer. Folk-Lore*, Boston, 1904, XVI, 14-23.) Address of President of American Folk-Lore Society. Discusses relations of ethnology and comparative psychology, resemblances and differences, problem of dissemination, methodology of folk-lore investigations, value of mythology and tradition for ethnology—totemism, religion, etc.—racial psychology. Dr Farrand concludes that the reactions of a group, their customs and beliefs, can be interpreted only in the light of their collective experience, and hence in the light of their traditions (these epitomize collective experience). Civilization is not necessarily a gauge of mental evolution. Before claiming rank as an independent science folk-lore needs more exactness of method and right use of data.

Gunkel (H.) Die Paradieseserzählung. (*Deutsche Rdsch.*, Berlin, 1904, XXXI, 53-78.) Treats of literary and mythological aspect of story of Paradise as given in the book of Genesis. The legend hails from Mesopotamia, but Paradise itself had no local habitation.

von Hansemann (D.) Ueber die rachtischen Veränderungen des Schädels. (*Z. f. Ethn.*, Berlin, 1904, XXXVI, 373-383, 5 figs.) Author holds that both

for the anthropoids and for man rachitis is a disease of domestication (= civilization), caused in the latter by dwelling in closed spaces, influence of food, clothing, etc. Rachitis is said to be unknown among primitive peoples. In Japan it is absent, but will probably come with the adoption of European houses. In the skull rachitis induces a thickening of the bones. Craniotabes is not a real rachitic phenomena. The thickenings met with in rachitis are hyperostoses not exostoses. Rachitis often localizes in the upper orbital curves. The Neanderthal skull has no rachitic characters.

Hunnell (J. F.) Certain great monuments. (Proc. Amer. Antiq. Soc., Worcester, 1904, N. S., vi, 192-199.) Treats of the "pointed style of architecture," its origin and distribution.

Lang (A.) The origins of the alphabet. (Ftn. Rev., Lond., 1904, 634-645, 7 figs.) Discusses recent discoveries (Evans, Petrie, Don da Verga, etc.). Lang thinks that, in spite of the widespread Mediterranean *signary*, the honor of first evolving true alphabetic writing belongs to the Phœnicians.

— Dr Durkheim on "Social Origins." (Folk-Lore, Lond., 1904, xv, 100-102.) Replies to Dr D.'s critique of author's book. Dr D.'s rejoinder appears on pp. 215-216.

Lehmann (J.) Die Pfahlbauten der Gegenwart, ihre Verbreitung und genetische Entwicklung. (Mitt. d. Anthr. Ges. in Wien, 1904, XXXIV, 19-31, 2 maps, 14 figs.) After general discussion of pile-dwellings, their nature and types (four chief ways of origin: platform on piles inside house as in C. America, Florida, Venezuela, etc.; utilization of roof supports; hut as a whole on one or more piles, Lapland, New Guinea, New Zealand, Africa, etc.; hut on platform borne up by piles), treats of the Malay house, its congeners and distribution, African pile-structures (houses, granaries, etc.),—inhabited pile-dwellings are not very common in the "dark continent." Dr L. gives 11 reasons for the erection of pile-dwellings: Safety and refuge from human enemies, from wild animals, protection from floods, protection from sand-dunes (Portugal), from moisture (northern S. America, Himalayan India, etc.), from stinging insects by night (Congo, marshy regions of white Nile), from dirt and vermin

(Indonesia), on account of inequalities of the ground (Assam), to save room (Siam), for easy access to the water, for pleasure of water-residence (China), for purposes of commanding a wider outlook. The reasons for the pile-dwelling are functions of geographical relations, the structure itself a consequence of these. A good bibliography is appended.

Lönnberg (S.) Primitiva samhällen (Ymer, Stokholm., 1904, XXIV, 129-156, 6 figs., map.) Good résumé of Schurtz's *Altersklassen und Männerbünde* (Berlin, 1902), with critical remarks.

von Luschan (F.) Einige wesentliche Fortschritte in der Technik der physischen Anthropologie. (Z. f. Ethn., Berlin, 1904, XXXVI, 465-466.) Describes briefly the Martin glass-eye color table and another color table (with glass marbles) prepared by the author, containing 35 tones from the color of the most anemic European to that of the darkest African.

Mantegazza (P.) Emilio Zola sul tavolo anatomico. (A. per l'Antr. e la Etnol., Firenze, 1903, XXXIII, 343-350.) Résumé and critique of Arthur MacDonald's study of Zola. Mantegazza, as is well known, opposes the Lombrosian dogmas as to the connection of genius and madness.

— Prime linee di psicologia positiva. (Ibid., 1904, 351-348.) Sections XI-XXIV treating of hate, self-love, marks of the hierarchy, sense of property, sense of the good, the just and the true, the religious sense, the physics of thought, thought in the world of living matter, analysis of thought, logic and associations, liberties and necessities, measure and value of thought, special characters of human thought, the psychic production of the individual. Many references to primitive peoples and to the child. Religions may be classed as atheism, totemism, fetishism, idolatry, pure deism. The psychic hierarchy has five great stages: Anthropomorphic (first childhood), childhood, adolescent, youthful, adult. M. holds that no common man can become a genius by way of education and that no genius of the first order can be prevented from becoming distinguished by the most adverse circumstances. Genius and madness have no close relationship.

- Marett (R. R.)** From spell to prayer. (Folk-Lore, Lond., 1904, xv, 132-165.) Discusses Frazer's ideas of the relationship of magic and religion, the rôle of spell in magic, etc. Cites examples to show how "the spell passes by easy gradations into the prayer, the imperative into the optative." Concurrently with the personification and progressive deification of the instrument, the spell evolves into the prayer. The spoken word is the very type of a spiritual projectile. Author holds that "once personify, you are on the way to worship." Religion is a far wider and more complex thing than magic.
- Martinez (M.)** Investigación de la paternidad. (An. Univ., Santiago de Chile, 1903, cxii-cxiii, 303-336.) Résumés facts concerning the "recherche de la paternité" in various European and American countries.
- Mason (O. T.)** The ripening of thoughts in common: "Common sense is thoughts in common." (Proc. Amer. Philos. Soc., Phila., 1904, XLIII, 148-155.) Discusses topic under heads of biology, speech, industries, fine art, social life, learning and lore, religion. The possession of thoughts in common (coming down the age and gaining impetus as they roll) causes, incessantly and spontaneously, similar words and actions. Telepathic influences in spiritual connections, if they exist, are the effect, not the cause, of striking coincidences. Biologic moving in concert is the natural forerunner of altruism in culture.
- Myers (C. S.)** The taste-names of primitive peoples. (Brit. J. of Psych., Cambr., 1904, I, 117-126.) Treats of taste-names of Indo-Germanic peoples, native tribes of Africa, India, New Guinea, Torres Stra., New Hebrides, etc. Compares vocabularies denoting gustatory and other sensations. Dr M. finds that "sweetness" = "tasting good" — a term applied also to saltness; word for saltness is derived from sea-water; terms for salt and sour tend to be confused; there is no specific name for the bitter taste. He thinks it likely that "the intimate connections between sensations of taste, touch, and emotional tone, to which the vocabularies of primitive peoples thus bear interest, date back to a very early period of phylogenesis." A good paper.
- Newell (W. W.)** The Ignis fatuus, its character and legendary origin. (J. Amer. Folk-Lore, Boston, 1904, xvii, 38-60.) A valuable comparative study, with bibliographical notes, of a Maryland negro legend, "Jack-o'-my-lantern." The dialect and the name of the devil's wife are the only negro elements of importance. Mr N. holds that in the legends of this type (devil overcome), the adversary defeated was, in the older versions, not Satan but death.
- Olbrich (C.)** Das Milchtrinken der Schlangen. (Mitt. d. Schles. G. f. Volksw., Breslau, 1904, 67-72.) Discusses "milk-drinking" of snakes, as "an example of the strong influences exerted upon natural-history tradition by ancient ideas preserved in folk-belief." Cites from the literature of the subject 1587-1901, A.D.
- Penka (K.)** Karl von Uffszay. (Mitt. d. Anthr. Ges. in Wien, 1904, XXXIV, 181-182.) Brief sketch of life and scientific activities of the distinguished Hungarian philologist and ethnologist. Von U. made a speciality of historical anthropology.
- Phillips (J. H.)** Ethics in primary education. (So. Wilm., Hampton, Va., 1904, XXXIII, 202-207. Author argues that: A graduated course of classical selections, beginning with fairy tales and myths, folk-lore, legends, and Bible stories, followed by stories of biography, heroism, and adventure, and leading gradually into the best that literature affords in poetry or in prose, constitutes the most efficient means of ethical development.
- Potter (M. A.)** Additional variants of the father and the son contest. (Folk-Lore, Lond., 1904, xv, 216-220.) Variants from the Hawaiian islands, the Theus-Egeus story, etc., in addition to the examples in the author's recent volume on this theme.
- Powell (F. V.)** Tradition and its conditions. Presidential address, 1904, Folk-Lore Society. (Ibid., 12-23.) Prof. P. thinks that "the transmission-power of tradition has been very much undervalued." But collection must come before systematization, or material will disappear forever. Even bookless communities, however, have social machinery, "schools" (Druids, medieval Erin, etc.) for preserving past knowledge. The

Maori, in their *wharehanga*, or "red house", had a sort of "heathen university", besides "schools" of star-lore and of agriculture. Then there are dramas as remembrancers, historical plays, such as the Polynesian one of Cook and Omai, not forgotten 100 years after the arrival of the famous navigator in 1777. And in many other cases, too, corroboration exists to prove the fact preserved by tradition in some form or other.

St. (L.) C. C. Swart, der erste Kartograph des Nordens. (Globus, Brunschwig, 1904, LXXXV, 245-246.) Résumés address by Dr A. Björnbo on Claudius Claussen Swart (b. 1388) before the Kgl. nord. arch. Ges. of Copenhagen. His is the Clavus map (ca. 1430) of the north, including Greenland,—later copies suggest that he may have even visited Greenland himself. He says of the Eskimo that they may have come from the north pole.

Stavenhagen (W.) Ueber Seekarten. (Ibid., 217-221, 239-245.) Historical sketch.

Usener (H.) Mythologie. (A. f. Religw., Lpzg., 1904, VII, 6-32.) Treats of the nature and relations of religion and mythology, the scope and aims of their investigation, etc. Back of mythological names lies a long period in which they were stamped. The extent of religious ideas is incomparably greater than is generally believed. All the great advances of culture (fire, agriculture) have their myths and their divine cults. A religious bond is absent nowhere. Christian saints follow heathen gods, and the church has simply glorified many primitive ideas. Language and poetry are bound up with mythology and religion. Between folk and revealed religion no essential differences exist from the point of view of creative activity of the poet. Mythology, properly conceived, must clarify our religious consciousness.

Weissenberg (S.) Jüdische Statistik. (Globus, Brunschwig, 1904, LXXXV, 320-323.) Résumés *Jüdische Statistik* (Berlin, 1903, pp. 452) published by the "Verein für jüdische Statistik," founded in 1902 by Dr A. Nossig. The total of the Jews in the world is, in round numbers, 11,000,000, of which considerably over 1,000,000 are in America and over 8,500,000 in Europe. Asia has

somewhat more than half a million. While as a whole in all Europe the Jewish population is on the increase, the rate of increase as compared with that of the rest of the inhabitants has considerably decreased in some regions.

Wilson (L. N.) Bibliography of child study. For the year 1903. (Ped. Sem., Worcester, 1904, XI, 292-327.) Lists, with topical index, 486 titles, many of them anthropological.

Zaborowski (S.) Les protoaryens ont-ils connu les métaux? (R. mens. Éc. d'Anthr. de Paris, 1904, XIV, 207-219.) Discusses Indo-European metal-names. Z. concludes that "the proto-Aryans knew copper as a metal and perhaps bronze (in its worked form), but nothing more." The profusion of terms in the Aryan tongue for "axe" in general and in particular forms is noteworthy in contrast with the paucity of metal-names. Z. seeks to connect Latin *raudus* and its cognates with Sumerian *urad*.

EUROPE

Bérard (G.) Découverte d'un nouvel instrument en pierre polie (galet polissoir) dans les stations néolithiques du nord de l'Arr. de Bressuire, cantons de Chatillon-sur-Sèvre et de Cerizay, Département des Deux-Sèvres. (Ibid., 237-239, 1 fig.) Describes implement found in 11 neolithic stations out of 29 in this region, which author designates as a "polishing pebble." The large number occurring indicates some important rôle in prehistoric industry.

Bericht über die im Jahre 1903 in Österreich durchgeführten Arbeiten. (Stggb. d. Anthr. Ges. in Wien, 1904, 28-60, 27 figs.) Résumés of archeological investigations in Lower Austria (Mattula on "stations" at Retzbach, etc.; von Baillou on Roman-period tumuli at Wiener-Neustadt and their contents), Upper Austria (Straberger), Carinthia (Fränkl), Steiermark (Riedl), coast-country (Marchesetti on *castellieri*, and Moser on the excavations at the Pokula cave), Dalmatia (Bulič), Bohemia (Čermák on finds at Čáslav and Močovic, Rihly on finds in southern Bohemia, von Wienriegl on finds in northern Bohemia, Schneider on finds at Smiřitz, and Lindner on the bronze remains of Schmidgraben and Lhotic), Moravia (Kondelka on sporadic prehis-

- toric finds in Wischau; Mattula on finds in Znaim, Burgberg, Schattau, etc.; Makowsky and Kachak on archeology of Brünn; Bukowina (Romstorfer on minor finds and Kaindl on recent investigations of the neolithic "station" of Seipenitz), Hungary, Darmay de Szent Márton on the Schomlauberg cemeteries and particularly the cemetery of Csab-Rendek.
- Bielenstein (A.)** Das Kochen und der Kesselhaken der alten Letten. (Globus, Brunschwig, 1904, LXXXV, 181-183, 8 figs.) This interesting account of old Lettic iron kettles and pot-hooks is extracted from a forthcoming work by Dr B. on *Die älteste Kulturgeschichte der Letten*.
- Blaschke (E.)** Drei Spiele. (Mitt. d. Schles. G. f. Volksk., Breslau, 1904, 77-79.) Brief account of three Silesian folk-games: Ouder siebna nischtehn, Battler und Scharndarm, Mäster und Gesellen.
- Böckel (O.)** Das Volkslied der polnischen Oberschlesier verglichen mit der deutschen Volkspoesie. (Ibid., 40-65.) Compares, as to material and form, the folk-songs of the Poles of Upper Silesia, as represented by Julius Rogers' *Pieśni Ludu Polskiego w Górnym Śląsku* (Breslau, 1863) and the partial translations of Hoffmann von Fallersleben (1865) and Weiss (1867), with German folk-poetry. Rogers' collection contains 511 lyrics and 35 narrative songs.
- Braun (G.)** Ueber Flaggen von Fischerbooten. (Globus, Brunschwig, 1904, LXXXV, 253-256, 5 figs.) Describes briefly the carved and painted wooden "flags" of the fishing vessels of the Kurische Nehrung, etc. Also the flags of the fishermen of Chioggia, near Venice, which resemble them. These "flags" are of considerable ethnologic interest.
- Burne (Charlotte S.)** Fifth of November customs. (Folk-Lore, Lond., 1904, xv, 106-107.) Author notes that there were more Guy Fox effigies in London than usual in 1903. A procession is briefly described.
- Capitan (L.)** La question des éolithes. (R. mens. Ec. d'Anthr. de Paris, 1904, xiv, 240-241.) Résumés investigations of Rutot. Dr C., who previously was against the "éoliths", here declares his belief that these objects are really tools of man or of anthropoids as Rutot claimed. Dr C.'s own studies and the data in Rutot's *La préhistorique dans l'Europe centrale* (Namur, 1903) have led to this new conclusion.
- von Chlingensperg auf Berg (M.)** Der Knochenhügel am Langacker und die vorgeschichtliche Herdstelle am Eisenbühl bei Reichenhall in Oberbayern. (Mitt. d. Anthr. Ges. in Wien, 1904, xxxiv, 53-70, map, 9 pl.) Detailed description of the grave-mound of Langacker and the "station" of Eisenbühl, discovered and investigated by the author, and the remains there found—pottery in great quantity and much variety, bronze ornaments, needles, arrowpoints, bone weaver's shuttles, clay whorls, etc.
- Clark (M. S.)** Pembroke-shire notes. (Folk-Lore, Lond., 1904, xv, 195-198.) Treats of harvest-customs, "pisccon-led," toothache charm, New Year's, Epiphany, May-day observances, etc.
- Corn-baby, A.** (Ibid., 185, 1 pl.) Brief description of a specimen of what seems to be "a survival in the last stage of decay" of the harvest-doll, or corn-baby, from the neighborhood of Cambridge.
- Dachler (A.)** Nachkommen des Awaren im Heanzenlande. (Stagh. d. Anthr. Ges. in Wien, 1904, 5-6.) Notes that the inhabitants of Rettenbach are popularly regarded as descendants of the Avars.
- v. Duhn (F.)** Sarkophag aus Hagra Triada, Kreta. (A. f. Religw., Leipzig, 1904, vii, 264-274.) Describes the sarcophagus discovered in July, 1903, and now in the Candian Museum. The pictures and ornamentation represent the cult of the dead 1300 B. C.
- Ellis (H. C.)** Monmouthshire notes. (Folk-Lore, Lond., 1904, xv, 221.) Treats of "walking the wheat," blessing the fire, cow-cake, bee-mourning, etc.
- Goldstein (F.)** Die Bevölkerungszunahme der deutschen Städte. (Globus, Brunschwig, 1904, LXXXV, 165-166.) Rural population practically stationary, 1871-1900, now tends to decrease; 54.3 percent in cities. The country tends to increase beyond the need for laborers, not so the towns. The overplus drifts to urban communities, etc.

- Gomme** (Alice B.) The corp creak. (Folk-Lore, Lond., 1904, xv, 102-103.) Cites three instances of belief in the witch-figure charm.
- Graham** (R. C.) On a legend from the island of Tiree. (Scot. Hist. Rev., Glasgow, 1904, i, 113-122.) Discusses the story of "O'Neill, and how his hair was made to grow," which, according to the author, "stands quite alone among the Highland legends." It belongs with the English *The Smith and his Dame*, and may also be related to the legend of St Eloy, a patron saint of the farriers.
- Hippe** (M.) Zwei Breslauer Sagen. (Mitt. d. Schles. G. f. Volksk., 1904, 90-119.) Detailed discussion of "Der Glockenguss" and "Die Hahnkrähe," the former the best-known and most popular folk-tale in Breslau. The oldest version of the first comes from Attendorf in Westphalia. The second seems to have been "made" by Filleborn on the basis of the story of "Henry the Lion of Brunswick."
- Hull** (Eleanor) The story of Deirdre, in its bearing on the social development of the folk-tale. (Folk-Lore, Lond., 1904, xv, 24-39.) Traces the development of this Irish folk-tale during the 600-700 years from the version in the 12th century book of Leinster; to that contained in a Belfast Ms. of the 17th or 18th century. During that period the wild woman of the early tale has become a sort of Lydia Languish; the latter one has parted with the heroic elements of the older romance. Levarcham, the "keener," has turned into an affectionate old nurse. In a modern Highland version the tale is quite remodeled.
- Kahle** (B.) Eine Vorschrift für Taufpaten. (Mitt. d. Schles. G. f. Volksk., Breslau, 1904, 66-67.) Discusses directions for god-parents (no one must go between them) and their folk-meaning.
- Kaindl** (R. F.) Die Hochzeitsfeier bei den Ruthenen in Berhometh am Pruth, Bukowina. (Globus, Brnschw., 1904, LXXV, 281-288, 18 figs.) Detailed account of wedding-ceremonies, etc., among the Ruthenians on the Pruth. The events last four days, after which nothing but tippling occurs. There are many songs sung to bride and groom. Also dancing, music, eating and drinking galore.
- Kaiser** (Thea) Landschaftliche Bilder aus Bosnien und Herzegowina. (Ibid., 221-226, 7 figs.) Contains a few ethnographic notes—Bosnian mills, the dug-outs of Lake Pliva, ruins at Blagaj, etc.
- Karo** (G.) Altkretische Kultstätten. (A. f. Religw., Lprg., 1904, VII, 117-156, 38 figs., 1 pl.) From this study of old Cretan cult-places, the author concludes that the old Achæan religion was independent—in spite of the close relations between Crete and Egypt, the Achæans despised both the gods and the temple of the Nile-dwellers. The old Achæan cult was without temples or idols. The gods represented are rather the primitive forms of the Hellenic than derived from the Orient. The ancestors of the Achæans were forefathers of the Hellenes.
- Kjellmark** (K.) Öfersikt af Sveriges stenålderboplatser. (Ymer, Stkhlm., 1904, XXIV, 187-225, 9 figs., map.) Resumes data concerning "stations" of the stone age in Sweden, finds, etc. After somewhat detailed account of those of Järvallen (near Länhamm) in the extreme S. W., and the flints there discovered, the author lists (with brief notes) 56 other stations from various parts of the mainland and the island of Gothland, embodying his investigations 1900-1903. The Länhamm "stations" are probably contemporaneous with the Danish kitchen-middens of the older stone age. Some of the "stations" are very rich in stone implements and flints. The marked pottery of Länhamm is interesting.
- Krause** (Hr) Ueber einen Knochen aus der Oborniker Kiesgrube. (Z. f. Ethn., Berlin, 1904, XXXVI, 524-526.) Argues that the marks on the Obornik bones exhibited by V. Chlapowski, were made by mice or similar rodents and not by man.
- Laloy** (L.) Ethnographisches aus Südwest-Frankreich II. Das Baskenland. (A. f. Anthr., Brnschw., 1904, N. F. II, 185-193, 10 figs.) Treats, in general terms, of the Basque language (an independent stock, with no great dialectic differences), farms, dwellings, agriculture (reforesting and use of the untitled flats are needed), clothing (national dress is disappearing), household utensils, domestic animals, fishery (St Jean de Luz is a typical fishing-town), games and dances (the national ball-game con-

- trasts with the Spanish bull-fight and the dances are remarkable for their modesty). But the Basques lose from day to day something in their old possessions and activities.
- Lehmann-Filhés (M.)** Die Waldfrage in Island. (Globus, Brnschw., 1904, LXXXV, 258-260, 1 fg.) Compares present and past condition. In the ninth century Iceland was well wooded.
- Lefèvre (A.)** Le Latium avant Rome. (R. mens. Éc. d'Anthr. de Paris, 1904, XIV, 229-236.) Résumés data concerning ancient inhabitants, traditions, mythology and religious ideas, etc. L. points out that the primitive area of the Latin was very restricted, and that really ancient documents are absent. The *indigetes* gods are discussed at some length. The agricultural divine series is the most complete. The people of ancient Latium, their beliefs and customs, had a serious *nécessité* and narrowness of mind contrasting with the joyous *éclat* of the Homeric Achæans, etc.
- Lissauer (A.)** Die Sammlung der "Tertiär-Silex" des Hrn. Klaatsch. (Z. f. Ethn., Berlin, 1904, XXXVI, 299-317.) Brief notes on the exhibition before the Anthropological Society of Klaatsch's collection of "tertiary flints" (from Cantal in southern France, and Kent and Sussex in England), with ensuing discussion. The artificial character of these flints and their interglacial origin were generally admitted, though, as Dr Branco observed, their user may not have been really so high a creature as man.
- Looff (W.)** Erdhütten in Holstein. (Globus, Brnschw., 1904, LXXXV, 169-170, 3 fgs.) Brief account of the earth-houses (17 in number) near Lentföhrden in Holstein, which resemble dwellings of prehistoric times. They are used by quarrymen in winter especially. These form a little community apart. All but one are bachelors, who lead a life corresponding to their estate.
- MacDonald (A.)** Midsummer bonfires. (Folk-Lore, Lond., 1904, xv, 105-106.) In the valley of the Aberdeenshire Dee, St John's Eve fires survive by reason of the fact that 115 years ago ten shillings a year was left for the purpose by a London merchant who had been herd-boy there.
- Mazegger (B.)** Ein Jadeitheil aus Tirol. (Stzgb. d. Anthr. Ges. in Wien, 1904, 6-7, 1 fg.) Brief note on a true jadeite axe found near Cloz in 1903, the first of its kind in that region.
- Mehlis (C.)** Ein zweite neolithische Ansiedelung im Hasslocher Walde und ihre Keramik. (Globus, Brnschw., 1904, LXXXV, 189-190, 6 fgs.) Brief account of the second neolithic "station" in the Hassloch forest, discovered in 1903-04, and the numerous pottery remains found there by Dr M. Four types are distinguished. A mixture of lake dwellings' art occurs in these neolithic "stations."
- Meringer (R.)** Beiträge zur Hausforschung. (Mitt. d. Anthr. Ges. in Wien, 1904, XXXIV, 155-180, 98 fgs.) Treats of the nature of the Bosnian house, and its congeners; recent literature on the house and its furniture, the "Kachel-ofen" especially; inn-signs (the development of the wood-shavings *motif* is curious). In several respects the Bosnian house belongs to the "High German" culture group, in others it departs much from this. In the region of Agram a type resembling the Bosnian occurs.
- Meyer (A. O.)** Schlesische Gedichte aus der Reformationzeit. (Mitt. d. Schles. G. f. Volksk., Breslau, 1904, 14-22.) Gives texts of several Christmas sayings, six love-songs, and a hymn from Ms. additions to a copy of the *Mirabilia Romæ* (Nürnberg, 1491), dating from about the middle of the sixteenth century, mostly unedited.
- Milne (F. A.) and Nutt (A.)**, Arthur and Gorlagon. (Folk-Lore, Lond., 1904, xv, 40-67.) The translation by Mr Milne is from the Latin original edited by Prof. Kittredge of Harvard, the accompanying notes (pages 60-67) are by Mr Nutt. This Arthur romance was apparently unknown to students until the publication of Prof. Kittredge.
- von Miske (K.)** Die ununterbrochene Besiedelung Velem St. Veits. (A. f. Anthr., Brnschw., 1904, N. F. II, 29-41, 68 fgs.) Cites archeologic and culture-historical evidence to show that at Velem St Veit there was an uninterupted settlement of man from the neolithic period through the bronze, Hallstatt, and Le Tène epochs of prehistory, and after this, during the Roman, Slavonic, and "folk-migration" periods into

the Middle Ages. The series of *fibule* is particularly instructive. The new settlement, at the end of the neolithic period, was achieved peacefully. A sudden large increase occurred with the bronze age. The fire-places also indicate permanent settlement.

— Die Bedeutung Velem St. Veits als prähistorische Gussstätte mit Berücksichtigung der Antimon-Bronzefrage. (Ibid., 124-138, 62 figs.) Velem St. Veit is of great significance as having been, even in the pre-Cyprian import-periods, a factory for autochthonous bronze, and later a center for the distribution of antimony bronze. Evidence from the bronze objects, refuse, molds, etc., to this effect is cited. Both finds and chemical analysis demonstrate that here was a culture-center in prehistoric times.

— Gepunzte Bronzemesser aus Velem St. Veit. (Stzgb. d. Anthr. Ges. in Wien, 1904, 8-10, 5 figs.) Describes 5 bronze knives, with punched ornamentation either on handle or blade, from Velem St. Veit.

Montelius (O.) Die Datierung des Stonehenge. (A. f. Anthr., Brunschwg., 1904, N. F. II, 139-141, 1 fig.) M. considers that Stonehenge was a temple built at least 3,500 years ago.

Much (R.) Zur Ligurerfrage. (Stzgb. d. Anthr. Ges. in Wien, 1904, 8.) Dr M. thinks that the Ligurians were Indo-Germans and closely related to the Celts in language, etc.

Niederleithinger (A. G.) Fund in Eibenthal, Niederösterreich. (Ibid., 6-7, 2 figs.) Brief note on discovery of skeleton and two pots.

Olahausen (Hr.) Ueber einen Ausflug nach Dr. Hahn's diluvialen Fundstätten bei Schönebeck a. E. (Z. f. Ethn., Berlin, 1904, xxxvi, 477-486.) Author concludes as a result of his observation of the Schönebeck finds that Hahn's material does not consist of artifacts of the interglacial period—the stratum in which they were discovered has not been shown to be interglacial.

Patroni (G.) La grotta preistorica del Zachito, presso Caggiano, Salerno. (A. per l'Antr. e la Etnol., Firenze, 1903, xxxiii, 197-216, 20 figs.) The cave of Zachito represents the culture of "the oldest people who occupied southern Italy from time immemorial, the Siculi of his-

tory." Bronze objects are lacking and the most important remains are ceramic, resembling those of the prehistoric "station" of Scoglio del Tonno, near Taranto. In this part of Italy has occurred a survival of neolithic population, culture, and ceramic art. Comparisons with Perissa are interesting.

Peacock (Mabel) Notes on the Stamford bull-running. (Folk-Lore, Lond., 1904, xv, 199-202.) Historical sketch. This "sport", often cruel and savage, was put down with military aid in 1839—it had existed from time immemorial. The *bullarids*, or bull-chasers, had a special song.

Piette (E.) Classification des sédiments formés dans les cavernes pendant l'âge du renne. (L'Anthropologie, Paris, 1904, xv, 129-176, 1 pl., 73 figs.) As the result of 28 years of investigation of the art-remains of the caves of the reindeer epoch, P. concludes that the "glyptic age" covers two periods, the Goudanian (engraving) and the Papaluan (sculpture). The former subdivides into the strata of engraving and harpoons of reindeer horn, of engraving with few or no harpoons, and of engraving with cut-out contours; the latter into strata of bas-relief sculpture and round boss-sculpture. The developments of engraving and sculpture are considered in some detail in their inter-relations.

Pittard (E.) Contribution à l'étude anthropologique des Tsiganes. 1° Tsiganes dits Tatars. 2° Tsiganes dits Bulgares. (Ibid., 177-187.) Gives results of measurements of 2 female and 13 male "Tatar Gypsies" of the Dobrudja, and 22 female and 48 male "Bulgarian Gypsies" from the Dobrudja (except two), taken in 1901. These Gypsies tend to be dolichocephalic, with average stature for men 1.63-1.65m., the "Bulgarians" being a little taller than the "Tatars."

Pradel (F.) Der Decem. (Mitt. d. Schles. G. f. Volksk., Breslau, 1904, 119-121.) Gives text of a poem by Pastor Schumann (1759) on the occasion of the edict concerning the war-levy on the tithes of the Silesian clergymen.

Regalia (E.) Sulla fauna delle grotte di Frola e Zachito, Caggiano, Salerno. (A. per l'Antr. e la Etnol., Firenze, 1903, xxxiii, 217-275, 6 figs.) Interesting study of the fauna of noted Italian

caves, whose human occupancy dates from 2000-1750 B. C. Three breeds of dogs, two of swine, three of cattle, two of sheep were known, besides the goat and the camel (probably adventitious over sea). The horse was lacking, also there were no domesticated birds. Remains of many wild animals occur. This is the first reported presence of the camel in prehistoric Italy, and Europe as well.

Reinach (S.) La Crète avant l'histoire. II. (L'Anthropologie, Paris, 1904, xv, 257-296, 48 figs.) Résumés recent researches of Evans at Knossos, Halbherr and Pernier at Phaistos and Hagia Triada, Hogarth and Bosanquet at Præsos, Falsokastro, etc., and discusses their meaning for the history of art and industry in the Greek world. Cretan civilization has had the following stages: Neolithic, 4500-2800, B. C.; Epoch of Kamares or Mino I, 2800-2200, B. C.; Transitional epoch, Mino II, 2200-1900 B. C.; Apogee of epoch of Kamares, or Mino III, 1900-1500 B. C. Mycenaean epoch, 1500-1200 B. C.

Reisch (E.) Ueber die neuen Ausgrabungen auf Kreta. (Stzgh. d. Anthr. Ges. in Wien, 1904, 13-20.) Describes the palaces of Knossos, Phaistos, Hagia Triada, and other important recent discoveries in ancient Crete. Dr R. thinks that "into the ground covered by the great culture-stratum of the 'Mycenaean' period, Achæan poetry sank the roots from which was developed the flower of the Homeric epic."

Rorie (D.) Some superstitions of the Fifeshire fisher-folk. (Folk-Lore, Lond., 1904, xv, 95-98.) Topics are "buying wind," tabooed words and names, unlucky pig, treatment of dead carcasses of animals. The pig is *par excellence* the unlucky animal of the Fifeshire coast. While *hare* is an unlucky word to utter, a hare's leg is sometimes carried in a boat for luck.

Ruppin (A.) Inzuchterscheinungen bei den Karaiten in Halicz. (Pol.-Anthr. R., Berlin, 1903, II, 704-706.) From observation of 52 families (190 persons) of this Jewish sect settled in Halicz in Galicia since the 14th century, the author finds evidence (diseases, backward and feeble-minded children, etc.) that close intermarrying has been decidedly injurious.

Schmidt (H.) Der Bronzesichelfund von Oberthau, Kr. Merseburg. (Z. f. Ethn., Berlin, 1904, XXXVI, 416-452, 34 figs.) Treats of the bronze sickles found at Oberthau in 1902 and now in the Berlin Museum: Form and technique (4 types), origin and distribution (full data given; type II is western, type III southeastern European, type Ia is northern Italian, type Ib belongs to the Swiss lake-dwellers); chronology, etc. Many local variations in form occur. Interesting are the marks or makers' tokens on some of these sickles.

Seger (H.) Die Denkmäler der Vorzeit im Volksglauben. (Mitt. d. Schles. G. f. Volksk., Breslau, 1904, 1-13.) Treats of folk-belief concerning ancient monuments, stone-graves, burial-mounds, walls and fortifications, etc., and the objects found in and about them: Giant-graves, dwarf-houses, buried treasures, changelings, sunken castles, churches and bells, "thunder-stones" and proverbs about them, etc.

Siebs (T.) Zur Kunde der deutschen Monatsnamen. (Ibid., 23-32.) Detailed etymological discussion of the German month-name *Hornung* (February) and its philological and psychical cognates. Dr S. concludes that the name signifies "dirt (excrement) month," the chief element, *hor*, being cognate with Gk. *oxarós*, etc.

Skutsch (F.) Das Josefest zu Rimini. (Ibid., 32-40.) Describes the St Joseph ceremonies (the *vega-vechit*, or masked doll, children's festival), etc., at Rimini. A symbolic destruction of winter and entrance of spring.

Stanzel (K.) Volkskundliches aus dem Oeher Kreise, besonders aus Klein-Elguth. (Ibid., 79-90.) Gives texts of "a true tale" (dialect), a number of "summer-Sunday" and harvest-songs (notes on customs), satiric and other songs of youth, etc.

Turner (M. Agatha) Personification of a river. (Folk-Lore, Lond., 1904, xv, 99.) Brief note on a washer-woman's talk of the Derbyshire Derwent as if it were a living personage or a deity.

Wahner (J.) Zum "Klapperngehen" in der Karwoche. (Mitt. d. Schles. G. f. Volksk., Breslau, 1904, 73-77.) Describes the "Klapperngehen," or "rattle walk" of the last three days of Passion week in the Catholic villages of Silesia.

Wherry (Beatrice A.) Wizardry on the Welsh border. (Folk-Lore, Lond., 1904, xv, 75-86.) Gives stories of charms, witchcraft, "wise men," ghosts, superstitions, etc., from Monmouthshire, gathered by a young lady who is still at school. Among the topics are toothache-charming, putting spells on people, the witch's daughter, haunted house, "Jack Kent" (a bargain with the Devil story).

von Wichdorff (H. H.) Spuren ehemaliger Eisenerzgewinnung und alter Eisenschmelzhütten im Kreise Naugard i. Pommern. (Z. f. Ethn., Berlin, 1904, xxxvii, 237-243, 2 figs.) Describes remains of iron smelting works, of the Middle Ages, at Priemhans in Pomerania, and other evidences of a local iron industry.

Wiklund (K. B.) Namnet Luleå och de forna nationalitetssförhållandena i Norrbotten. (Ymer, Stockholm, 1904, xxiv, 180-186.) Discusses etymology of *Luleå* and early ethnology of north Bothnia, migrations of Lapps, Finns, etc. Primitive Lapp *Lalläjä* signifies "eastern water."

Wilser (L.) Nochmals die bemalten Kiesel von Mas-d'Azil. (Globus, Brunschwig, 1904, lxxxv, 319, 2 figs.) Critique of Plette, Cook, etc. Dr W. attributed these painted pebbles to the Cro-Magnon race, but thinks Plette's idea of their use in a prehistoric school altogether imaginative.

Wissowa (G.) Die Anfänge des römischen Larenkultes. (A. f. Religw., Leipzig, 1904, vii, 42-57.) Argues that the Roman *lares* had their origin, not in the house, but in the *compitum*. Unlike the *genius*, the *lar* is attached to the *place*, not the person. The *lares* began as protectors of the land about the house — *Larum sales in agris* (Cicero).

Wünsch (R.) Ein Dankopfer an Asklepios. (Ibid., 95-116.) Discusses the offering to Asklepios by Coan women and the description of the art-works of the temple in the fourth millennium of Herondas (recovered some twelve years ago). Coincidences between the Asklepios religion and Christianity, extending even to details of cult and ritual, are noted.

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Bantu totemism. (Folk-Lore, Lond., 1904, xv, 203-205.) Notes from a MS. of the late G. W. Stow and com-

ments by Lang and Thomas. The extracts cited "show that Mr Lang's theory of the origin of totemism (*i. e.*, group-names given from without were the germs of totemism) has been anticipated implicitly by some totemic tribes of South Africa, and explicitly by their civilized observers.

Bauer (F.) Bilder aus dem deutschen Tsadsee-Gebiet. (Globus, Brunschwig, 1904, lxxxv, 265-269, 333-337, 13 figs.) Contains notes on the natives (Bornu, Hausa-traders, Shuari Arabs, etc.), the towns of Dikoa (buildings), Ngala, Wuigo, Mafate, Gulfei, Kusseri. Myth and fancy flourish in Bornu. The "ancients" of Ngala are said to have been giants, even the women. The *mai*, or shaman, has great power.

Cleve (A.) Zahnverstümmelungen und ihre Bedeutung für den Lautwandel. (Z. f. Ethn., Berlin, 1904, xxxvi, 456-460.) Treats of the effects of teeth mutilation on language among the native of Kinga-land, who knock out the two lower front teeth. Their language lacks *f* and *v* altogether and seeks to avoid *z* and *g*. Other phonetic peculiarities are cited.

— Ueber die Frauensprache. (Ibid., 460-463.) Gives examples of the woman's language of the Konde as compared with ordinary speech. Some of the words may be of foreign origin, others are periphrases of the usual names of things. Missionary Schüler thinks these women's languages arise as a natural result from the sex-taboo of certain names (father-in-law, brothers, — numerous where polygamy exists for women). With the Konde the woman's language is not a secret one, and the men even borrow from its vocabulary — a speech-forming tendency is here present. The Wakings, to whom a woman's language was unknown, are gradually taking up, from contact with the Wakonde, a like custom.

— Die Dorsalen des Sango. (Ibid., 463-465.) An interesting contribution to primitive phonetics. The change of *z* to *g* occurs only in affixes, a softening only in the roots. Prefixes retain *z* much oftener than roots. The Sango do not practise teeth-mutilation, but their subject-people, the Safua, formerly did so. C. thinks the Sango language betrays the

effect of such a custom, the phonetic consequences only of which have been transferred.

- Curcan (A.)** Essai sur la psychologie des races nègres de l'Afrique tropicale. (R. gén. d. Sci., Paris, 1904, xv, 638-652, 679-693, 24 figs.) Treats of senses and appetites, sexual instinct and vices, mobility of character, peoples of forest and of plain, egoism and altruism, ideas of truth, loyalty and justice, work and industry, gaiety, intellectual evolution, effects of education, ideas, mysticism and superstition, extent of vocabulary (most complete = 5,000 words; maximum of ideas = 2,500 or 3,000), abstraction and generalization, numeration, comparison, judgment, logic, esthetics, music and song, etc. Author concludes that the black race has a unity of mind (*âme*), the white a diversity. The psychological differences between negroes are small. As a negro the negro is not imperfectible. He is a child, a minor, whose education is to be undertaken with firmness, gentleness, and patience. Rapid and violent methods are to be condemned. A unilateral education, entirely stimulated by another race, the consequence of white conquest, will not save him.

- F. (B.)** Das Ulugurungebirge in Deutsch-Ostafrika. (Globus, Brnschw., 1904, LXXXV, 274-277, 2 figs.) Contains a few notes on native agriculture.

- Fisher (A. B.)** Western Uganda. (Geogr. Journ. Lond., 1904, xxiv, 249-267, 5 figs.) Contains notes on the Batoro, Bakonjo, Bahima, Balega, Bambuba, the Batwa pygmies, etc. Author sees marks of "deterioration," or "evolution of evil" everywhere. Also proofs of influence of outside civilization.

- Genz (L.)** Die Ovambos, Deutsch-Südwest-Afrika. (Globus, Brnschw., 1904, LXXXV, 205-208, 4 figs.) Author advocates forcible subjection and pacification. Political rather than ethnological article.

- Kandt (R.)** Gewerbe in Ruanda. (Z. f. Ethn., Berlin, 1904, xxxvi, 329-372, 4 pl., 98 figs.) Treats of arrow-making, wood-carving, boat-building, weaving and basketry, metal-work, wire-drawing, ceramics, bark-clothing, etc., among the natives of Ruanda in equatorial Africa. The rulers are the Watutsi, a non-Bantu people, who have adopted the Bantu speech of their subjects. In Ruanda the markets have favored handwork and

injured artistic professions. Pottery is almost entirely in the hands of the Batwa dwarfs, who make also guitars and are likewise executioners to the kings of Ruanda.

- Klose (H.)** Der Mono als Salzstrasse. (Globus, Brnschw., 1904, LXXXV, 276-277, 1 fig.) Describes salt-making by the natives on the river Mono in Togo.

- von Luschan (F.)** Beobachtungen an Kieselmanufakten in Aegypten. (Z. f. Ethn., Berlin, 1904, xxxvi, 317-321.) Treats of flints of Thebes and Helonian. Artificial flints occur at Thebes older than the local lacustrine formations. The origin of the Helonian flints needs careful determination.

- Narbeshuber (R.)** Anthropologisches aus Süd-Tunisien. (Mitt. d. Anthr. Ges. in Wien, 1904, xxxiv, 1-18, 93-111, 2 figs.) Treats of influence of climate (errors of diet dangerous); food of Arabs and negroes and its preparation, meal-time; sexual relations of women (menstruation, child-birth, treatment of the *enccinte*—a birth-stool is in use); remedies for snake-bite, etc.; chirurgic and gynecological operations and processes; cerebral and nervous diseases; neuroses without known anatomic bases; diseases of respiratory and circulatory organs; diseases of digestive canal and its belongings, of the kidneys and the bladder; diseases of the organs of locomotion; constitutional, infectious diseases; diseases of the skin; sexual diseases; eye diseases (pages 104-111). A good contribution to ethno-medicine. For the Arab food is "hot" (summer) and "cold" (winter). Six children in the family are common, and mothers of 15-20 are not unknown. Nervous diseases are rare, likewise lung-tuberculosis. *Enuresis nocturna* is very rare through early accustoming to the *pot de nuit*. Eye-diseases are very common.

- Parsons (H. G.)** Royal succession in Yoruba-land. (Folk-Lore, Lond., 1904, xv, 98.) Notes the killing of the King of Ibadan by his subjects on account of age and inefficiency. His heart was eaten by his successor. In Yoruba "to reign" is *je-aba*, literally "to eat the king."

- Plehn (A.)** Die akuten Infektionskrankheiten bei den Negern der Äquatorialen Küsten Westafrikas. (A. f. Path. Anat. u. Phys., Berlin, 1903, CLXXIV,

- Suppl. 1-103.) The results of eight years' experience (15,000 patients) as physician in the Kameroun country and neighboring regions. Among these negroes tuberculosis, scrofula, rachitis, syphilis, tabes, progressive paralysis, and probably also leprosy and sleeping sickness are unknown. Their resistance is great for wound-infection, gonorrhoea, dysentery, malaria (the last and the first especially) — also yellow fever (practical immunity). To smallpox they are especially susceptible, and the results, unlike those of *heri-heri*, are often very bad. Rheumatism of the joints is also common, but not severe in results. Dr P. attributes disease-resistance to heredity. This valuable monograph has a bibliography of 347 titles.
- Ramsay (D.)** Nsamenang. (Globus, Brunschwg., 1904, LXXXV, 197-202, 6 figs.) Brief description of the Nsamenang region in German East Africa. Slavery was formerly very prevalent. The salt-makers are women.
- Schweinforth (G.)** Aegyptische Knallpeitsche "Fergille." (Z. f. Ethn., Berlin, 1904, XXXVI, 517-519, 1 fig.) Describes the *fergille* or whip used toward harvest-time in upper Egypt to scare away the birds by the noise it makes. Similar whips are in use in various parts of central Europe.
- Seidel (H.)** Deutsch-Südwestafrika im Jahre 1903. (Globus, Brunschwg., 1904, LXXXV, 202-205.) Contains notes on the recent troubles with the natives (Ovambos, Hottentots, Hereros, etc.), economic problems, etc.
- Togo im Jahre 1903. (Ibid., 288-291.) The Catholic missionaries teach the natives English, to which Hr S. stoutly objects. Peace has prevailed with the aborigines.
- Singer (H.)** Kamerun im Jahre 1902-1903. (Ibid., 208-209.) The Mohammedan part of the Cameroons is more peaceful. In the south the interior tribes press toward the coast.
- Traeger (P.)** Das Handwerkzeug eines tunesischen Tätowierers. (Z. f. Ethn., Berlin, 1904, XXXVI, 469-477, 7 figs.) Describes the tools, *modi operandi*, patterns used, etc., of a Tunisian tattooer. Many of the figures are ancient and traditionally preserved. The cross here found is not of Christian origin or significance.
- v. Ujfalvy (K. Freih.)** Die Ptolemäer. Ein Beitrag zur historischen Anthropologie. (A. f. Anthr., Brunschwg., 1904, N. F., II, 73-123, 7 pl., 40 figs.) Treats of the Egyptian Ptolemies, their ancestry and descent (genealogical table, p. 79), etc., psycho-physical type of the Lagidae, from Ptolemy I Soter to Cleopatra VII. Inbreeding, v. U. concludes, when excessive, changes qualities to defects, defects to crimes — psychic and physical degeneration ultimately ensues. Sister-marriages are rather an effect than a cause of degeneration.
- Webb (R.)** A witch-doctor's kit from Magila, East Central Africa. (Folk-Lore, Lond., 1904, xv, 68-74, 1 pl.) Describes medicine basket and contents (antiseptic materials, theft-powders, "gazelle-bottle," bell-bottle on outside to announce presence, stock bottle, medicine for barren women, pots for "gunpowder witchcraft," bone-pounders, gourds, etc.), of a Bondei witch-doctor. Of foreign origin are the scarifying knife (broken and rusty European table-knife), the rusty "farthing tin lamp." The cob-sheath of Indian corn is used for wrapping, and gunpowder is an ingredient in skin-disease "medicine."
- de Zeitner (F.)** Le monastère souterrain de Goba. (L' Anthropologie, Paris, 1904, xv, 189-194, 1 fig.) Describes briefly the subterranean monastery of Goba in Abyssinia, still in good preservation. Its resemblance to Egyptian monasteries may be due to the influence of the Alexandrian architect employed by King Lalibela, who lived at the end of the 12th century A. D. It also marks the southern limit of Christianity before the arrival of the Europeans.

ASIA

- Abraham (O.) und von Hornbostel (E.)** Phonographierte türkische Melodien. (Z. f. Ethn., Berlin, 1904, XXXVI, 203-221.) Technical study, with musical notation of the material of von Luschan (q. v.). These Turkish melodies do not differ from European so much as do, e. g., the Japanese, and some of the resemblances and coincidences are striking.
- Bäitz (E.)** Die sogenannten magischen Spiegel und ihr Gebrauch. (A. f. Anthr., Brunschwg., 1904, N. F., II, 42-46.) Criticizes the statements of Jäkel, etc., concerning "Japanese magic mirrors."

rors." These mirrors, rare in Japan and known to few, have nothing to do with the "menetekel" of the Book of Daniel or the performances in the house of Tezcatlipoca. It is their reflecting of real, not magic, forms that has made them remembered in Japanese folk-lore.

Bezold (C.) *Babylonisch-Assyrische Religion.* (A. f. Religw., Lpzg., 1904, VII, 193-211.) Critical reviews of literature of 1903 concerning Assyrian-Babylonian religion and related subjects; excavations, cuneiform inscriptions, religious, mythological, omen texts, textbooks and polemical discussions, popular works, Babel-Bible literature, Hammurabi, Jewish theological works, Christian works, etc.

Brocht-Bergen (R.) *Der Altai und sein Gold.* (Globus, Brnschw., 1904, LXXXV, 313-318, 7 figs., map.) Chiefly geological. "Altai" is said to signify in Chinese and Old Turkish "gold mountains." Traces of mining earlier than Russian occur — and from one *kurgan* 60 lbs. of gold articles was taken.

De Groot (J. J. M.) *Wu Tsung's persecution of Buddhism.* (A. f. Religw., Lpzg., 1904, VII, 157-168.) Cites documentary evidence concerning the official persecution (by decree of 844) of Buddhism in China by the Emperor Wu Tsung (840-846 A. D.) of the T'ang dynasty. The terms of the decree are given. Buddhism never recovered from this blow, though the extermination intended was only partly effected. The sequestered goods and lands were never restored. Subsequent revivals never renewed the former glory.

Fischer (A.) *Mitteilungen über die Selungen in Süd-Birma sowie über die südlichen Shanstaaten.* (Sitzb. d. Anthr. Ges. in Wien, 1904, 4-5.) Résumé of paper noticed in *American Anthropologist*, 1904, N. S., VI, 355.

Goodrich-Freer (A.) *Some Jewish folk-lore from Jerusalem.* (Folk-Lore., Lond., 1904, XV, 186-192, 1 pl.) Treats of child-birth, death, nail-paring, moon-ceremonial, *indulus* (exorcism) of Spanish Jews, evil-eye (the charm is given), charm-necklaces, etc. Miss Freer's paper is followed (192-194) by "Notes" by M. Gaeter.

Holtzmann (H.) *Sakramentelles im Neuen Testamente.* (A. f. Religw., Lpzg., 1904, VII, 58-69.) Discusses

the sacraments of the New Testament, with reference to recent literature, in relation to early Christian practices, pre-Christian rites, Mithraism, mysteries, etc.

Japans militärische Entwicklung. (Globus, Brnschw., 1904, LXXXV, 157-161, 6 figs.) Sketch of military evolution in Japan, based on Dr Joseph Lauterer's *Japan, das Land der aufgehenden Sonne, einst und jetzt* (Leipzig, 1904).

Karutz (R.) *Ethnographische Wandlungen in Turkestan.* (A. f. Anthr., Brnschw., 1904, N. F., II, 194-201.) The Kirgis, losing largely their caravan-activities through the building of the trans-Caspian railroad, flock to the towns; those in eastern Turkestan have been driven into the mountain-valleys as a result of increased cotton-culture and Russian official supervision. The Turkomans, who possess a certain culture-force of their own, suffer from an increasing poverty in the motives of their culture-products, particularly in utensils and ornamentation, carpet-weaving, etc. They are, however, beginning to be at home in agriculture. The city and town population east of the Amu-Darja lose, in like manner, from the influx of European products and models. Modifications are very noticeable in dwellings and their construction, furniture, etc. Lart weaving and related industries are influenced more and more by Russian methods. Booths and bazaars are changing also and the streets in which they are. As with primitive peoples the old things are everywhere passing away and swift work of the ethnologist is needed to preserve their remembrance.

ten Kate (H.) *Noch einmal "Zur Psychologie der Japaner."* (Globus, Brnschw., 1904, LXXXV, 226-227.) Reply to critique of Dr Baelz. Dr ten K. disavows any race prejudice, but thinks that the mistakes of European races cannot wash the Japanese white.

Lanz-Liebenfels (J.) *Anthropozoon biblicum.* (Vrtjhrss. f. Bibelsk., Berlin, 1904, II, 307-355.) Author discovers the "missing link," in the man made of earth (as contrasted with the man made in the image of God—the "co-Aryan"), the *anthropozoon*, he terms him, of Genesis II, 7. Many strange arguments are adduced in support of this curious theory.

Lehmann (C. F.) Ueber neu gefundene chaldäische Inschriften. (Z. f. Ethn., Berlin, 1904, xxxvi, 488-490.) Discusses three brief Chaldic inscriptions from Vosge-pag, Ishanqom, and Haykavanak.

Lessons from Japan. (Nat. Geogr. Mag., Wash., 1904, xv, 221-225, 3 figs.) Résumés facts concerning uses of bamboo, the making of paper, etc., from Fairchild's *Japanese Bamboos and their Introduction into America* (Wash., 1904), and *Three new Plant Introductions from Japan*.

von Luschan (F.) Einige türkische Volkslieder aus Nordsyrien und die Bedeutung phonographischer Aufnahmen für die Völkerkunde. (Z. f. Ethn., Berlin, 1904, xxxvi, 177-202.) Gives native texts and translations of 22 brief songs from the Turks of northern Syria, with explanatory notes. Material collected in 1901 by the author and his wife. Von L. thinks highly of the possibilities of phonographic researches in folk-song. He calls attention to the influence of European and American music upon that of other and more or less primitive races—Japanese, Hawaiians, peoples of India, etc.—influence easily detected by phonographic records. A great ethnographic museum will have gramophonic apparatus for reproducing for visitors the voices of the peoples whose weapons and implements, ornament and clothing are presented before their eyes.

Niehus (H.) Der Maharaja von Durhanga und sein Wohnsitz. (Globus, Brunschwg., 1904, lxxxv, 302-306, 6 figs.) Brief account of Singh Bahadur, his temples, palaces, parks, etc.

Notes on Tibet. (Nat. Geogr. Mag., Wash., 1904, xv, 292-294, 1 fig.) Résumés paper of Kawaguchi.

Oldenberg (H.) Indische Religion, 1903. (A. f. Relig., Lpzg., 1904, vii, 212-231.) Critical review of select literature of 1903, concerning ancient Hindu religion and mythology, magic, sacrifice, the horse, Buddhism, Jainism, Hinduism.

Rivers (W. H. R.) Toda prayer. (Folk-Lore, Lond., 1904, xv, 166-181.) Treats of the formulae used in the daily ritual of the Toda dairy. Native texts and explanations. Dr R. is inclined to think that the Todas once possessed a higher civilization and that their prayer

is the result of a process of degradation of their religion. It illustrates one way in which the Indian *mantra* may arise,—the third formula (besides prayer and magical incantation).

Rösler (Hr) Ueber die Aufdeckung einer alten Nekropole in Baku. (Z. f. Ethn., Berlin, 1904, xxxvi, 297-293.) Brief account, from the official periodical *Ägypten*, of the discovery (in connection with the excavations near the new Russian cathedral at Baku) of a prehistoric cemetery, a sort of catacombs. The covers of the stone coffins had on them cuneiform epitaphs (?).

Schönfeld (E. D.) Die Halbinsel Sinai. Auf Grund eigener Forschung dargestellt. (Globus, Brunschwg., 1904, lxxxv, 249-253.) Contains notes on flora and fauna and their uses, natives (almost entirely Bedouins), etc. Here occurs the *Tamarix mannifera*, the "manna" of the Bible. Besides the Bedouins there are a few Greek monks, some Egyptian and Turkish officials. Also a small group of people, now Mohammedans, but originally Christians, said to be the descendants of Wallachian slaves presented to the monastery of St Katharine by Justinian.

Sellin (E.) Ueber die Resultate der Ausgrabungen in Palästina für die sogenannte prähistorische Zeit. (Stagb. d. Anthr. Ges. in Wien, 1904, 3-4.) Recent investigations into the archeology of Palestine have made it clear that the really prehistoric period ends with about 2000 B. C. The immigrant race of 2800-2500 is anatomically, linguistically, and religiously Semitic.

Walker (E. O.) The census of India. (Gent. Mag., Lond., 1904, cxcvii, 353-359.) Contains brief notes (from Census report) on customs and beliefs of Deshasth Brahmans, Murriss, Brabuis, tribes of Indo-Chinese border, Dravidians, Nayars, Bhils, etc. Infanticide is said now to be rare. The ethnographic review of the Census report contains valuable data.

Wegner (G.) Lhasa. (Globus, Brunschwg., 1904, lxxxv, 269-274, map.) Résumés our knowledge of "the forbidden city" from the visit of Father Odorich von Pordenone in 1330 A. D. down to the present. Based on various authorities, including Waddell, Sri Sarat Chandra Das, Kawaguchi, etc.

Wellhausen (J.) *Zwei Rechtsriten bei den Hebräern.* (A. f. Religw., Lpzg., 1904, vii, 33-41.) Treats of anointment with oil (by the people, by a prophet, etc.), and the "spreading of the wings" (mantle cloak) over any one (Ruth 3, 9), as a symbol of protection. Dr W. notes that the Hebrew word for *anoint* really signifies "to stroke with the hand" — the oil-idea being later, and perhaps of Egyptian origin.

Wright (A. R.) *Tibetan charms.* (Folk-Lore, Lond., 1904, xv, 95, 1 pl.) Brief notes on an exorcist's dagger, a charm-box, a metal hand (Hebrew evil-eye charm), and medieval bronze amulets.

INDONESIA, AUSTRALASIA, POLYNESIA

Dempwolff (Dr.) *Ueber aussterbende Völker: Die Eingeborenen der "westlichen Inseln"* in Deutsch-Neu-Guinea. (Z. f. Ethn., Berlin, 1904, xxxvi, 384-415, 1 pl., 8 figs.) After historical introduction, treats of population, infanticide, diseases, social regulations, physical characters, language (the Matty language is grammatically north Melanesian, phonetically Polynesian), mythology, beliefs and customs, houses, food, weapons and implements, dances, etc., among the natives of the Hermit and Matty islands, etc. Malaria, in particular, is discussed at length. In some of the islands in a few years the population has decreased 30 percent.

Edwards (C. R.) *Governing the Philippine islands.* (Nat. Geogr. Mag., Wash., 1904, xv, 273-284, 6 figs.) Contains pictures of Iliano hunter, Sulu Moro, Bontoc Igorot, Subanon woman. No other particular data. American point of view.

— *The work of the Bureau of Insular Affairs.* (Ibid., 239-255, 8 figs.) The illustrations are of ethnologic interest.

Foy (W.) *Schemelartige Kokonusschaber.* (Mitt. d. Anthr. Ges. in Wien, 1904, xxxiv, 112-154, 16 figs.) Treats, with abundant bibliographical references, of footstool-like coconut scrapers, their distribution (Africa on the east coast from Zanzibar and Soaheli; Asia, from India, Ceylon, Siam, Malacca; Indonesia, from Sumatra, Java, Nias, Flores, Ator, Timor, Borneo, Celebes, Moluccas, Philippines;

Micronesia almost everywhere; Polynesia, from Ellice Is., Rotuma, Samoa, Society Is.; Melanesia, from Dutch New Guinea, Matty Is., Hermit Is., N. New Mecklenberg, St. Matthias, Solomon Is., etc.). It does not occur in the central Melanesian area. The use of the implement is discussed in detail and its varieties pointed out. It was distributed by the Malayo-Polynesians from Asia eastward. There are three groups of this scraper: the board-form, the stool-form, and the spring-board form.

Friedmann (M.) *Industrial education and the development of the Filipinos.* (So. Wkrm., Hampton, Va., 1904, xxxiii, 381-384.) General argument for manual training. Author thinks the Filipino "does not recognize the dignity of labor."

Hagen (B.) *Die ältesten Spur des Menschen in Australien.* (Glohus, Brunschwg., 1904, LXXXV, 256-257, 1 fig.) Discusses the Warnanahool feet and seat impress. Dr H. refuses to recognize it as human. See *American Anthropologist*, 1903, x, 4, 573.

Krämer (A.) *Die Ornamentik der Kleidungen und der Tätowierung auf den Marshall-Inseln nebst technologischen, philologischen und ethnologischen Notizen.* (A. f. Anthr., Brunschwg., 1904, x, 11, 1-28, 6 pl., 31 figs.) This valuable article treats of the *ir* or mat-cloths of the Marshall islands, their varieties, ornamentation (chief ones figured), names, etc. Also of tattooing (*so*), its processes, varieties, names, patterns (chief ones are figured), etc. The native texts and translations of the prayer before tattooing and of 3 tattooing songs are given. Dr K. thinks that the order of the ornaments is of more significance for race-relationship than the interpretation, which must be used with great care. The order in tattooing is no less fixed than in mat-cloths. The arrangement of the tattoo-ornaments with the Marshall islanders is different from that with the Caroline islanders.

Mathews (R. H.) *Die Sprache des Tyedjynwürru Stammes der Eingeborenen von Victoria.* (Mitt. d. Anthr. Ges. in Wien, 1904, xxxiv, 71-76.) Gives for the first time outline of grammar. A trial, formed by adding *-kullik* to the plural, exists in this language.

— Die Maltierra-Initiationszeremonie. (Ibid., 77-83.) Somewhat detailed account of the *maltierra* or initiation ceremony for boys among the Kurnu of New South Wales.

Riggs (A. S.) Filipino songs and music. (Ibid., Chicago, 1904, XXXVII, 227-228.) Gives a brief ancient song of the Ilocans — native text and translations, besides notes on Ms. and songs in general. The song is addressed to the *mangmangkik* or *anitos* of the trees.

Schmidt (E.) Zur Frage nach der Bedeutung der Fussabdrücke des australischen Menschen. (Globus, Brunschwig, 1904, LXXXV, 323.) Reply to Alsberg. Dr S. calls for scientific evidence.

Stöcker (Hr.) Steinskulpturen von der Insel Java. (Z. f. Ethn., Berlin, 1904, XXXVI, 519-523, 5 figs.) Describes 5 stone sculptures (monkey, rakshasa, 3 rain-spout figures) from various parts of Java, now in the Indian collection of the Museum für Völkerkunde.

AMERICA

Ambrosetti (J. B.) Congreso de Americanistas. (Rev. de la Univ. de Buenos Aires, 1904, I, repr., pp. 42.) Report of Dr A. as delegate of the University of Buenos Aires to the thirteenth session (N. Y. 1902) of the International Congress of Americanists. Résumés papers and proceedings.

— Insignia litica de mando de tipo chileno. (An. d. Mus. Nac. de Buenos Aires, 1904, XI, 25-32, 9 figs.) Describes a stone "sceptre," *bâton de commandement* or the like, of Chilean type from the south of Mendoza. A similar object from Chile exists in the Giglioli collection in Florence.

Armstrong (W. N.) Civilization by reindeer. (So. Wknn., Hampton, Va., 1904, XXXIII, 209-215, 4 figs.) Notes on the use of reindeer and the reindeer industry in Siberia and Alaska. It is interesting to find that the Lapps, who were engaged to teach the Eskimo about the reindeer, turned gold-miners when their contract expired. The Siberians at first employed as teachers "proved to be ignorant and unsatisfactory."

Batchelder (F. J.) Settling the Canadian Northwest. (Ibid., 218-222, 5 figs.) The Mormon colony had settled "in southern Alberta, the only really arid portion of the region" — here they are

making the desert bloom. The Russian population now numbers nearly 20,000 and the Galician over 5,000. The Germans count 46,888 and the Scandinavians 17,314. A great mingling of peoples is taking place here.

Boas (F.) The folk-lore of the Eskimo. (J. Amer. Folk-Lore, Boston, 1904, XVII, 1-3.) Résumés data concerning nature and content of tales and legends from all parts of the Eskimo area, particularly the region east of the Mackenzie river, where the most typical forms of culture are to be found. Hero-tales, in which the supernatural plays a more or less important rôle, compose the great mass of Eskimo folk-lore and the most characteristic. Another fact is that "the animal myth proper was originally foreign to Eskimo folk-lore." The "for the benefit of man" ideas is absent from the transformations and creations of Eskimo folk-tales. Many of the animal tales must have been borrowed from the Indians. A sudden change from love to hatred is a common episode. Tales of shamans are quite numerous. The sexual element, as compared with that of Indian tales, is limited, and obscene incidents are few.

Brandt (Lilian). The negroes of St. Louis. (So. Wknn., Hampton, Va., 1904, XXXIII, 223-228.) Notes on history, location, social status, employment and occupation, education and philanthropy, etc. The negro here is not being superseded by the white (1890-1900 whites increased 27 %, negroes 32 %). The population of negro descent exhibit social and economic grades, as do the white.

Clavel (M.) Items of folk-lore from Bahama negroes. (J. Amer. Folk-Lore, Boston, 1904, XVII, 36-38.) Gives numerous beliefs and superstitions concerning "hugging" (witchcraft), folk-medicine, etc. These negroes "have an abject terror of Indians," some of whom are believed still to survive in the forests of the larger islands.

Curtis (W. C.) The basketry of the Pautatucks and Scatacocks. (So. Wknn., Hampton, Va., 1904, XXXIII, 385-390, 4 figs.) Treats chiefly of "Molly Hatchett" baskets said to represent the art of the old Connecticut Indians. Molly Hatchett and her children were the last of the Pautatucks—

this "Indian princess" died at Turkey Hill, Derby, Conn., about 1829.

- A unique Indian basket. (*Ibid.*, 215-216, 2 figs.) Describes briefly "a Pomo cradle-basket, not a 'baby-packer,' but a cradle."

Del Campana (D.) Contributo all' etnografia dei Toba. (A. per l' Antr. e la Etnol., Firenze, 1903, xxxiii, 287-322, 1 pl., 21 figs.) Treats of clothing and ornament, objects of personal use (tobacco-pouches, bags, pipes, etc.; purses, hair-strings, etc.), implements and instruments for hunting and fishing, food-getting and food-preparing, mortars, water-vessels, honey-liquor and its uses, musical instruments, bows and arrows, clubs and other weapons. The Toba consist of two groups, the Tocouti and the Pilaga or Al. Ostrich-feathers are made much use of. The Toba pipe is cigar-like in form. The Tobas do not incise their vases for ornamental purposes. They are very fond of honey.

Dixon (R. B.) Some shamans of northern California. (*J. Amer. Folk-Lore*, Boston, 1904, xvii, 23-27.) Treats of character and procedure of shamans among the Shasta, Hat Creek and Achomawi, and Maidu Indians, stocks practically in contact one with another. With the Maidu the position of shaman is hereditary, with the Hat Creek and Achomawi acquired by lone vigil dreaming, among the Shasta by dreaming. Ideas as to cure and cause of disease differ also.

Dorsey (G. A.) Wichita tales. III. (*Ibid.*, 153-160.) English text of the story of "The two boys who slew the monsters and became stars." The chief figures are After-birth-Boy and his brother, Double-Faced-Man, and Little-Spider-Woman. A tale of disregarded taboo.

Du Bois (Constance G.) Mythology of the Mission Indians. (*Ibid.*, 185-188.) Two English versions of the San Luiseno legend of "the death of Wyot" with explanatory notes and comments, — also Boscan's version of the same legend.

— Mission-Indian religion. A myth in the making. (*So. Wknn.*, Hampton, Va., 1904, xxxiii, 353-356.) Gives the San Luiseno myth of the departing god who left his footprint on the rock as evidence of himself to his people. Three brief songs accompany the story.

Ehrenreich (P.) Die Ethnographie Südamerikas im Beginn des XX. Jahrhunderts unter besonderer Berücksichtigung der Naturvölker. (A. f. Anthrop., Brunschwig, 1904, N. F., iii, 39-75.) Treats first of principles of ethnologic division, then gives a systematic review of the most important stocks and families of speech and discusses anthropogeographical facts, culture-relations, etc. E. recognizes about 55 distinct stocks, including, of course, several about which very little is known. The oldest traces of man have been found in the Pampas and Patagonia. The Brazilian plateau also is archeologically ancient. In the Andean highlands a great and old attempt to form an adaptive race was in process. Chibcha culture is younger than Peruvian. The Pampas peoples are new compared with the old Querendi-folk. The Amazon and its branches have been of vast importance in relation to migrations and tribal contacts. The original home of agriculture was in the great lowlands of the Amazon, Orinoco, etc. E. gives the Chaco region fewer possibilities for the development of culture than justly belong to it. Interesting local cultures (e. g. in the Xingu region) have developed in several parts of the continent. Degeneration of certain objects (throwing-sticks, bow, shield, etc.) in historical times is noted. Vulcanism has greatly influenced religion and mythology. Hero-myths and animal-stories abound. An excellent résumé of our present knowledge of South American ethnography.

Etuler (Ruth S.) Mexican life on the Rio Grande. (*So. Wknn.*, Hampton, Va., 1904, xxxiii, 535-539, 5 figs.) Notes on the town of Juarez and its people. According to the author "physically these border Mexicans are Indians."

Fletcher (Alice C.) Indian names. (*Ibid.*, 474-477.) Calls attention to "the careless treatment of rites and the misrepresentation of native ideas in the translation of Indian names." Discusses clan and added or new names. Miss F. holds that "the loss of original Indian names through the substitution of inadequate translation would be loss to the history of the human mind."

Folk-lore of the Negroes of Jamaica (*Folk-Lore*, Lond., 1904, xv, pp. 87-94, 206-215.) First two instalments of contributions by colored students of Mico

College, Jamaica—material collected in 1896. The topics are signs, omens, myths, superstitions, etc., of all sorts (death, "duppies," conjuring, love, marriage, dreams, the house, outdoors, the body, etc.). African and European ideas are quaintly mixed.

Fraser (A.) The Gaelic folk-songs of Canada. (Trans. R. Soc. Canada, Ottawa, 1903, LX, sec. II, 49-60.) Gives examples of the poems of Evan MacColl, Dugald Buchanan, Patrick Grant, etc., who appealed to the Gael in Canada. Rev. J. Macgregor, of Pictou, N. S., Rev. Donald Monro, etc. Specimens given. Gaelic love-songs have flourished in Canada.

Guevara (T.) Historia de la civilización de Araucanía. (An. Univ., Santiago de Chile, 1902, CXII, 43-71, 249-268, 367-395; 1903, CXIII, 147-189, 305-365, 561-590.) Treats of the risings of 1859, 1866, 1868-1871, the state of Araucanía, 1862-1873, laws, government activities up to 1887, condition of the country, future problems, etc.

Costumbres judiciales i enseñanzas de los Araucanos. (Ibid., 203-256, 339-372.) Treats of administrative organization, family (list of relationship terms, etc., 221-224), property and agriculture (list of technical terms 233), justice, education among the old Araucanians and education of these Indians to-day. Besides the family-chiefs and the military chief (in war time) the *gümen* or primitive rich man exerted great influence. The dignity of the caciques grew with the Spanish occupation. Domination of the father, polygamy, simulated wife-stealing, a family coöperating for material ends rather than united by ties of affection. The primitive pastoral (llama) habits of the Araucanos were increased by the animals introduced by their conquerors. *Huerin*, the word for "offense, crime," meant rather "damage"—they had a simple *lex talionis*, "head for head." Modifications due to Spanish influence made the cacique a sort of judge. Chile has done much, both through the early missionaries and the later schools for the Indians. At present there exist at least 80,000 Araucanians. The children receive a practical education in the country schools, while a number of natives are trained for teachers in the normal schools of Chillan and Valdivia.

Hale (E. E.) Algonquian language and literature. Report of the committee on publication. (Proc. Amer. Antiq. Soc., Worcester, 1904, N. S., XVI, 177-179.) Brief notes on Trumbull's "Natick Dictionary," Elliot's Bible, the work of Gallatin, Filling, Gatschet, Jones.

Hayden (H. E.) The "Gravel Creek" Indian stone. (Proc. & Coll. Wyoming Hist. & Geol. Soc., 1902-3, Wilkes-Barré [1904], 87-92, 2 pl.) This mortar, or metate, is evidently of Indian manufacture, but the inscription upon it was doubtless "made by an unlearned white man"—trader, prisoner at the camp, or hunter.

Hepner (H. E.) The Aztecs of to-day. (So. Wkmn., Hampton, Va., 1904, XXXIII, 528-535, 4 figs.) Notes on physical characters, dress, religion, foods, medicine, carving, weaving, amusements, etc. They have the Virgin but not Jesus. They still retain their fame as surgeons and "the wonderful art of the Aztec sculptors is not yet extinct." Mescal is made for sale, more than home consumption. Aztec greatness is far from being dead yet.

Indian Day-schools. (Ibid., 554-558.) Symposium by R. P. Higheagle, Maggie G. Keith, and J. J. Duncan on the purpose, helpfulness, and equipment of these schools.

Johnson (F. C.) Count Zinzendorf and the Moravian and Indian occupancy of the Wyoming valley, 1742-1763. (Proc. & Coll. Wyoming Hist. & Geol. Soc., 1902-3, Wilkes-Barré [1904], 119-182, 1 pl.) Contains notes on the Shawnees, Delawares, Nanticokes, Mohicans, and Iroquois. Also a number of Indian personal and proper names *passim*.

Koch (T.) Eine Forschungsreise nach Südamerika. (Z. f. Ethn., Berlin, 1904, XXXVI, 293-299.) Extracts from letters describing expedition of July, 1903, to February, 1904, in the Uaupés country. Vocabularies of Baniwa, Baré, Urekéna (a pure Nu-Arawak dialect), Uanána, Makó (a new linguistic stock), and of several of the Rio Airary peoples. The Kobéns practise a sort of endo-cannibalism, drinking in their *cachiri* the powdered bones of their dead relatives; they have also mask-dances. The Içanas have highly developed pottery and basketry. A number of good photographs were taken and numerous specimens of

art, etc., obtained. See also *Stegh. d. Anthr. Ges. in Wien*, 1904, 10-11.

— *Brasilianische Forschungsreise*. (Globus, Brunschwig, 1904, LXXXV, 192.) Brief notes on travels in the country about the Icana and Aitay rivers and the Indian tribes. Dr K. obtained several hundred photographs (including some of the mask-dance of the Kobéua), 500 ethnologic specimens (masks, pottery, basketry, etc.), and extensive vocabularies of several tribes hitherto unknown.

Kroeber (A. L.) A ghost-dance in California. (J. Amer. Folk-Lore, Boston, 1904, XVII, 32-35.) Describes a ghost-dance existent about 30 years ago among the Yurok and Karok Indians of the lower Klamath river, who obtained it from the Shasta—these last probably borrowed it from the Paintes of Nevada. The specialized Karok-Yurok-Hupa culture has given the ghost-dance some peculiarities.

Lehmann-Nitsche (R.) Die dunklen Hautflecke der Neugeborenen bei Indianern und Mulatten. (Globus, Brunschwig, 1904, LXXXV, 297-301, 2 figs.) After resuming briefly the literature of the subject, the author adds his own observations from the Argentine (5 little Arakanian children). In the northern provinces (e. g. Catamarca), where mulattos still occur, the "spot" is called "mancha" or "mancha morada" (mulberry-colored spot), and is regarded as a sure sign of negro blood. On the Argentine littoral neither the thing nor the name is known. Dr L. N. thinks the phenomenon can most plausibly be explained as a rudimentary formation. It is now known to occur in the light, the middle-colored, and the dark races. Bibliography of 40 titles.

— La "mancha morada" de los recién nacidos. (Sem. Méd., Buenos Aires, 1904, repr., pp. 1-23, 1 fig.) Spanish dress of last preceding title.

Lyman (W. D.) Myths and superstitions of the Oregon Indians. (Proc. Amer. Antiq. Soc., Worcester, 1904, N. S., XVI, 221-251.) Treats of myths relating to the supposed superior powers and to the spiritual nature of men, myths of the creation of the Indian tribes and their acquisition of fire and other agencies of life, stories accounting for the peculiar and beautiful features of some portions of the country, myths of the

hereafter and ideas of joys and punishments in another life. The Indians concerned are the Klickitat, Chinook, Yakima, etc. The author seems to confuse Chinook jargon names with real Indian ones, e. g., "shoto-lallies" can hardly be the Yakima word for "huckleberries," nor is "Sahale" the proper name of a Klickitat divinity. The "continuing story" is one feature of these myths—"gleeman bouts" of the imagination are in vogue.

Mooney (J.) The Indian navel cord. (J. Amer. Folk-Lore, Boston, 1904, XVII, 197.) Treats of disposal of navel cord among Cherokee, Kiowa, and Cheyenne Indians. With the last the child is thought to be right or left handed from the manner of its grasping the navel-cord package which has been hidden for it to hunt out.

Neger (F. W.) Die Insel Mocha. (Globus, Brunschwig, 1904, LXXXV, 228.) Résumés briefly C. Reiche's *La isla de la Mocha* (Santiago de Chile, 1903). This island off the southern coast of Chile is of some anthropological importance. The three skulls described in detail are said not to be Arakanian, but pre-Columbian. Many stone, bone and pottery remains occur. Iron axes and a copper knife indicate European influence. When discovered by Pastene in 1544 Mocha was inhabited by Arakanians. The island at present serves as "the land of souls," or the port thither.

Nelson (E. W.) A winter expedition into southwestern Mexico. (Nat. Geogr. Mag., Wash., 1904, XV, 341-356, 14 figs.) Contains notes on the Indians of the Lake Chapala region, the Tarascans of Michoacan, the negroes of Acapulco, etc. The region about Mt Tancitaro is the home of the turkey, "found wild here, domesticated by the Aztecs, and introduced into the Old World by the Spaniards soon after the conquest." In parts of Guerrero the negroes have crowded out the Indians, and the African hut is now one of the features of the country.

Newell (W. W.) Eighth Memoir of the American Folk-Lore Society. (J. Amer. Folk-Lore, 1904, XVII, 189-196.) Critical résumé of Dorsey's *Traditions of the Shidi Pawnee*.

Ojeda (T. T.) Memoria historica sobre la familia Alvarez de Toledo en Chile.

(An Univ., Santiago de Chile, 1903, CXIII, 201-276, 447-526.) A valuable genealogical study, with statistics, filiation-list, etc.

Osgood (W. H.) Lake Clark, a little known Alaskan lake. (Nat. Geogr. Mag., Wash., 1904, XV, 326-331, 3 figs.) Contains, p. 329, notes on the natives of Keeghik, "the westernmost representatives of the pure Athapascan stock." Nearly all are of mixed blood, "usually with considerable trace of Russian." Their language is now "as much or more mixed than their blood." Only a few know any English, but "nearly all are proficient in Russian and in modified Aleut, as well as in several Indian lingoes." They appear to have suffered less than some other tribes from the deteriorating influences of the whites.

Pearson (Mary A.) The religion of the negro. (So. Wkman., Hampton, Va., 1904, XXXIII, 403-404.) Discusses negro Christianity.

Roe (W. C.) An oculist among the Indians. (Ibid., 229-231.) The Indians in Colony, Okl., seem to be particularly susceptible to trachoma—38 out of 120 cases of boys and girls had beginning trachoma. Of 222 cases of all ages and sexes examined 120 were found to require treatment. Conditions are, however, improving among these Cheyennes and Arapahos.

Sapper (K.) Der gegenwärtige Stand der ethnographischen Kenntnis von Mittelamerika. (A. f. Anthr., Brnschw., 1903, N. F., III, 1-38, 7 pl., map, 3 figs.) Résumés data concerning present extent and distribution of the Indian peoples of Central America (17 stocks totaling 1,582,000 souls), physical characters (chiefly based on Starr), present culture-conditions (food and its preparation, food-plants, food-products, clothing and ornament, dwellings and furniture, society, intellectual culture, art, music, poetry, religion, etc.). Interesting is the Huastec "island" of Chicomucelo in Mayan Chiapas. As Chibchan, Sapper groups Guasteco, Cabécar, Bribrí, Terraba, Brunca, Derasque, Rama, Guaymí, Cuna, and the extinct Corobici, Voto, Tarisca, and Quepo. The language of the Salvadoran village of Guatijagua, hitherto quite unknown, may have Lenca affinities. The admixture of Spanish blood in the Indian population is increasing even in

remote regions. Along the Atlantic littoral, from British Honduras to Panama, negro intermixture is occurring more and more. Birth-rate and infant mortality are both high and both variable. Race-smell is also variable. In the interior the resistance against white culture-influence is still strong, and even in the villages and small towns the Indian factor in the institutions, etc., of the *mestizo* exceeds the white. Naturally native social organization is best preserved among such independent peoples as the Lacandons and some of the Chibcha tribes. Spanish influence is in several regions largely modifying Indian speech. Native poetry still survives, chiefly in transitory form, improvisation, etc. (e. g., the grave-eulogies of the Talamancas). S. knows of but a single game (the Kekchi *muhuc*, a sort of dice with corn) of adults that does not show European influence—as do all the children's games. On the whole the Indian tribes of C. America have suffered most loss in the intellectual and social field, while their material field has sometimes even extended itself into the European. An excellent article.

Schmidt (M.) Nachrichten über die Kayabi-Indianer. (Z. f. Ethn., Berlin, 1904, XXXVI, 466-468, 1 fig.) Brief résumé of the expedition of Bodstein in 1901. The arrows of the Kayabi are described.

—Ableitung südamerikanischer Geflechtmuster aus der Technik des Flechtens. (Ibid., 490-512, 40 figs.) Author argues that out of the technique of basketry itself motives arise, which by mere variation and combination are further perfected by the human mind. Also, wherever palms grow and their leaves are used for textile purposes an independent point of origin occurs for the textile motif and the ornamentation derived from it. The origin of the basket out of the feathered palm-leaf and the motifs and ornamentation thereby suggested are of great interest.

Seler (E.) Archäologische Untersuchungen in Costarica. (Globus, Brnschw., 1904, LXXXV, 233-239, 9 figs.) Critical résumé of C. V. Hartman's *Archaeological Researches in Costa Rica* (Stockholm, 1901). Dr Seler suggests a *rapprochement* of some of the Costa Rican animal motifs and certain forms met with in the Chimú region of Peru.

- Ueber Steinkisten, Tepetlacalli, mit Opferdarstellungen und andere ähnliche Monumente. (*Z. f. Ethn.*, Berlin, 1904, XXXVI, 244-290, 54 figs.) Treats of the stone chests of Riva Palacio, Islas y Bustamente, the Hackmack stone chest in the Hamburg Ethnological Museum, and the Tezococo chest in the Museo Nacional de Mexico, ornamentation, their mythological significance, etc. Also the Mixcouac stone in the Mexican museum, the Huitzuc stone, and the "8 reed" stone plate of Orozco y Berra, the last relating probably to the dedication of a temple by the elder Montezuma in 1447. Most of these monuments have to do with the sacrifice of blood (one's own in propitiatory fashion), and the ashes of the deceased which they were to hold—those of princes and kings.
- Simms** (S. C.) Traditions of the Sarcee Indians. (*J. Amer. Folk-Lore*, Boston, 1904, XVII, 180-182.) English texts of brief legends of origin of Sarcees, the deluge (with Algonquian diving episode), origin of constellation of the Bear.
- Speck** (F. G.) Some Mohegan-Pequot legends. (*Ibid.*, 183-184.) English texts of three brief stories: Chahnameed, the glutton, wins the eating match; Chahnameed squeezes the stone; Why lovers should never become jealous.
- Thompson** (A. H.) Ethnographic odontology; the Inca Peruvians. (*Dent. Digest*, Chicago, 1903, repr., 28 pp., 12 figs.) Treats of the teeth in general and in detail. Investigations based on extensive and minute notes on some 500 Peruvian skulls in U. S. museums. Defect and disease of the teeth among these Indians are such as one might expect from a civilized people who ate maize and chewed coca. The finer type of Quichua and the coarser Aymara differ in several respects.
- Tooker** (W. W.) Algonquian names of some mountains and hills. (*J. Amer. Folk-Lore*, Boston, 1904, XVII, 171-179.) Treats etymologies of Monadnock, Katahdin, Weequadnock, Weepung, Massanutton, Shot-nigger, Muchattoes, Manhattan, Massachusetts, Wachusett, Wachogue, Watchung, Mauch Chunk, Kearsarge, Taconic, Woonsocket, Neutakonkanut, etc. Mr Tooker's authority ought to drive out of the newspapers and periodicals some of the absurd etymologies (e. g. for Kearsarge) that still appear in them.
- Washington** (B. T.) The value of educating the Negro. (*So. Whinn.*, Hampton, Va., 1904, XXXIII, 558-564.) Author argues that "at every point at which the Negro has touched the white man, the Negro has had the wisdom to get something that has made him a stronger and more useful citizen."
- Wren** (C.) The stone age. Remains of the stone age in the Wyoming valley and along the Susquehanna river. (*Proc. & Coll. Wyoming Hist. & Geol. Soc.*, 1902-3, Wilkes-Barre, [1904], 93-114, 3 pl.) General remarks on the stone age in America, etc., with brief account of collection of specimens in the Society's museum. The author's collection consists of some 5,300 pieces, probably, as a rule, of Algonquian origin. The "notched disks," whose use is conjectural, number more than 50.

ANTHROPOLOGIC MISCELLANEA

University of California Researches in Egypt. — Full reports have been received of the successful work during 1903-04 of the Egyptian expedition in charge of Dr George A. Reisner, of the Department of Anthropology of the University of California. The expedition was maintained through the generosity of Mrs Phoebe A. Hearst and continued the explorations of the four previous years. A concession covering one third of the field at the great pyramids of Gizeh was granted the expedition, the other concessions being held by the Italian and German governments. One hundred and eleven native workmen were set to clearing the main cemetery on the concession, while twenty-four picked men made a preliminary excavation of a small adjacent cemetery, which it was necessary to cover later with the soil removed from the larger excavation. The soil, which was removed by means of a portable railway, was mainly drift sand, which appeared to have accumulated without being disturbed since soon after the completion of the cemetery at the end of the seventeenth dynasty. The cemetery consisted of a large aggregation of mastabas. Through the present excavations, in conjunction with those previously made by the expedition at other sites, it is now possible to trace clearly the development of the mastaba from pre-dynastic times to the sixth dynasty. The main cemetery excavated was laid out in the reign of Cheops, the builder of the great pyramid in the fourth dynasty, and burials continued to be made in it until the seventh dynasty. Among the great mass of valuable material found are six inscribed stelæ, a number of offering stones of the fourth and fifth dynasties, and a number of statues of single persons and couples. Among the earliest of these figures, going back to the reign of Cheops, is a white stone head of Ka-nofer of remarkably fine execution, two stelæ of the lady Nofer and of Khufu-nekht, both of these probably cousins of the king, and a carved and painted limestone stela. From a period slightly later is a magnificent painted limestone group, Sennuw and his wife, and a seated group in white limestone of Hotepi and Renpet-nofret. A finely finished but much decayed wooden statue was found leaning against the southern end of a stone coffin. A scribe's palette in red and black ink on white plaster gives a list of kings, gods, and cities. Of special importance are two inscribed and one painted offering chamber.

Excavations were also made by Drs Lythgoe and Mace, under the direction of Dr Reisner, at Naga-ed-Dér. One cemetery excavated brought to light Coptic mummies, dated by means of coins to the period of Justinian. These are of importance on account of the curious method of wrapping, and of general interest on account of the finely ornamented embroideries with which they are surrounded. Another cemetery at this location is remarkable for its antiquity, being in great part pre-dynastic, combined with a remarkable state of preservation of the objects found, especially of the human remains. A special study is being made of these remains by Prof. Elliot Smith, which will furnish important data for the further determination of the racial characteristics of the earliest inhabitants of Egypt. Valuable collections of pottery, flint knives, beads, ornaments, combs, and other antiquities were obtained here.

The excavations have been concluded and the valuable collections procured are being packed for shipment to the University, where they will form part of the Museum of Anthropology. Dr Reisner and his assistants are now at work preparing the results of their explorations for publication. It is expected that their reports will occupy several volumes which will appear in the University's series of publications on Egyptian Archeology.

Origin of the Bellacoola.—All students of the North Pacific tribes will be glad of any information tending to account for the isolation of the Bellacoola from all other Salish. In my article on "The Development of the Clan System and of Secret Societies among the Northwestern Tribes" I suggested that the Bellacoola had perhaps reached their present country from the interior, pointing out the fact that the Shuswap of the interior once approached very much nearer the head of Bellacoola river than they do to-day. In the Report of the Ethnological Survey of Canada, issued by the British Association for the Advancement of Science in 1902, however, Mr Charles Hill-Tout has some information of quite different purport. According to him the Kwantlen of lower Fraser river have a tradition that, at the time of a great flood, a branch of the Kwantlen called Pélqeli "settled on the coast somewhere opposite Alert bay, and they assert that this tribe still lives there and speaks the Kwantlen language." Although at first inclined to doubt the identity of these people with the Bellacoola, Mr Hill-Tout adds in a footnote:

"From further inquiries since the above was written I am disposed to think this tradition *does* refer to the *Bilqula* tribe. It will be seen that

¹ *American Anthropologist*, vol. VI, 477-485, 1904.

Pelqeli is merely a dialectic variation of *Bilqula*. In speaking with the *Kwantlen* of this tribe I always used the English form *Bella Coola*. This doubtless misled my informants. Moreover, it is worthy of note that the *Bilqula* themselves have a tradition connecting them or their ancestors with the Fraser river region. In the important myth of *Totosōng*, the Fraser river is given as the place of his origin. The term *Pelqeli* also occurs in *Bilqula* legends under the form *Pelkhany* or *Pelqani*. It is the name of a certain chief in their mythology who possessed a house decorated with abalone shells, the term according to Dr Boas meaning 'abalone.' Among the *Kwantlen* the signification of *Pelqeli* is forgotten.

This is interesting as corroborating Dr Boas' conclusion regarding a coastal origin for the *Bellacoola*. It must be remembered, however, that the word *Bilqula* is *Kwakiutl*, and if *Pelqeli* is the same it must have been learned from them in later years. This might mean that the *Kwantlen* have discovered that they had northern relatives only in very recent times. The mere tradition, however, is of interest outside of any philological consideration. In this connection it is important to know which dialect of coast Salish the *Bellacoola* approximates most closely.

Another interesting point brought out by the same writer is the relationship said to exist between the *Nootsak*, or *Nooksak*, of northern Washington and the *Sk'qō'mic* of Burrard inlet and Howe sound. He agrees with earlier ethnologists in stating that the *Chilliwack* tribe did not originally employ a *Cowitchin* dialect, but does not venture to conjecture the affinity of their former speech. Dr Boas has stated, however, that this was *Nooksak*.

JOHN R. SWANTON.

Cora Dances.—The *Cora* or *Nayarit* Indians of the Territory of Tepic, western Mexico, number about 3,000 persons and may be regarded as one of the more primitive tribes. These people have many interesting customs, including some characteristic dances that, so far as known, are not performed among other Indians. Two of these dances, known as *charaves* and *sones*, both of which the writer observed at Guainamota in October, 1902, are performed, in a manner that reminds one of the Irish jig, on a box, called *tarima*, about six feet long, two feet wide, and sixteen inches high. This box, which is hollowed from a single log, is taken to a smooth, open space, previously prepared. The music is semi-Indian in character and is creditably and untiringly rendered by two or three of the natives on a tremendous guitar made in Tepic, and on small violins of their own manufacture. The *charaves* and *sones* are much alike, but are danced to different tunes. Both have lost their former ceremonial significance.

When the music commences, a man, or a man and a woman, mount the *tarima*. If there be a pair, they stand about three feet apart, facing each other. The dance consists of a rhythmic stamping with the feet on the *tarima*, and is similar to that observed among the Indians north of Mexico, except that it is somewhat more varied and lively. The stamping of the feet on the hollowed log creates a deep, dull, but not unpleasant sound, which harmonizes well with the music. The dancers alternately approach each other and recede, swaying their bodies but little. This movement is continued until the performers are tired.

These dances are held on special occasions, such as feasts, or, as in the instance witnessed by the writer, during a visit by strangers. They take place in the evening by the light of a bright fire. The dance space is almost surrounded by men who squat or sit on stones, and the circle is completed by a smaller group of women, most of whom stand. The men quietly and contentedly smoke cigarettes wrapped with cornhusk, but containing so little tobacco that frequent relighting from the fire is necessary. Between the dances the onlookers talk and laugh, but in a subdued tone. No directions are given the musicians, who are paid for their services by means of a collection. The natural stillness, the pure atmosphere, the clear sky, and the Indian throng accentuate the effect of the sounding *tarima*, the weird music, and the motions of the dancers, the whole creating an effect not soon forgotten. In these dances there are Spanish elements, but enough of the aboriginal remains to make them worthy of ethnologic interest.

ALEŠ HRDLÍČKA.

Robert Singleton Peabody. — We sincerely regret to announce the death of Robert Singleton Peabody, Esquire, at Germantown, Pennsylvania, on October 1st. Mr Peabody, who was a nephew of George Peabody and the father of Dr Charles Peabody, Honorary Director of the Department of Archeology of Phillips Academy, Andover, Massachusetts, was born in 1837 in Muskingum county, Ohio, where his boyhood days were spent amid the prehistoric remains of that locality and where his interest in American archeology, which was destined to become such an important factor in present-day research, was first aroused. The spark of boyish enthusiasm over his mysterious finds brightened into flame nine years ago, when, through the coöperation of archeologists and collectors, Mr Peabody began, with the nucleus of some two hundred specimens gathered long before on his father's farm, the systematic collection of archeological material from the Ohio valley, the South Atlantic and Gulf states, and the Plains, which by 1899 numbered thirty thou-

sand objects. In the year last named, steps were taken toward the establishment of a permanent home for this noteworthy collection, and in April, 1901, the Department of Archeology of Phillips Academy was formally and permanently established by Mr Peabody and his wife. So completely devoid of ostentation was this munificent gift to the cause of learning that only a few persons connected directly with Phillips Academy were aware of the names of their benefactors. In founding the Department of Archeology at Andover, Mr Peabody expressed the desire that the implements and ornaments represented in its collections be studied and described, and that exploration and the acquirement of vast collections be left rather to the great museums of the country. The name of Peabody has become almost a synonym of philanthropy in America, and Robert Singleton Peabody has added in no small measure to the reputation of a family renowned for its gifts to the cause of science.

Mr James Mooney, of the Bureau of American Ethnology, has returned to Washington from Oklahoma, where for a year past he has been continuing his researches among the Kiowa, Cheyenne, and associated tribes, chiefly with reference to their heraldic system as exemplified in their shields and tipis. The investigation of Kiowa heraldry is now practically completed and it is expected that the results will be prepared this winter for publication at an early date by the Bureau of American Ethnology. The accompanying museum collection embraces 50 miniature models, in buckskin, of former heraldic tipis, 120 miniature shield models, the sun-dance lodge and equipments in miniature, with lances, tripods, and other belongings for setting up a reconstruction, on a smaller scale, of the old-time tribal camp-circle. Ninety of the shield models, with several tipis, some buckskin paintings, ceremonial lances, and war-clubs were recently installed in the Smithsonian exhibit at the St Louis Exposition. Every part of the work has been done by Indians. Among the Cheyenne results, obtained under a joint commission for the Field Columbian Museum of Chicago, are a number of shield and tipi models, with miscellaneous collections and a full-sized skin tipi, with equipments, constructed according to the old Indian methods and painted and decorated to reproduce an actual heraldic tipi of forty years ago.

Extinction of an Eskimo Tribe. — Captain George Comer, the well-known whaler from New Bedford, who has made excellent studies of the Eskimo of Hudson bay, writes as follows in a letter addressed to Dr Franz Boas of the American Museum of Natural History:

"It is with regret that I have to tell you that the Southampton Island natives [the Sagdlirmiut] have all died off, having been forced to starva-

tion by the Scotch Whaling Station, which was established on the island a few years ago. The managers of this station took so many outside natives there to assist in whaling, that they fairly overran the island. With their modern guns and superior appliances, the Southampton natives stood no show, and all died by the spring of 1903. The station, which had been in operation three or four years, ceased to pay, and was abandoned at the same time, so that now the island is uninhabited."

THE FIFTY-FOURTH MEETING of the American Association for the Advancement of Science, the sixteenth meeting of the American Folk-Lore Society, and the third meeting of the American Anthropological Association were held at Philadelphia, Pa., during convocation week, Tuesday, December 27, 1904, to Monday, January 2, 1905. Dr Walter Hough, of the United States National Museum, presided over Section H of the A. A. A. S., and Vice-President William H. Holmes over the American Anthropological Association. The following officers were elected by the latter Association to serve during 1905: *President*, F. W. Putnam; *Vice-President*, 1908, W. H. Holmes; *Vice-President*, 1907, Miss Alice C. Fletcher; *Vice-President*, 1906, George A. Dorsey; *Vice-President*, 1905, Franz Boas; *Secretary*, George Grant MacCurdy; *Treasurer*, B. Talbot B. Hyde; *Editor*, F. W. Hodge. A full report on the anthropological features of the joint meetings will be published in the next issue of this journal.

IT IS REPORTED by *Science* that Dr Theodor Koch, of the Berlin Museum für Völkerkunde, who is exploring the districts of the upper Amazon, advanced farther than any white man on the Rio Tiqui, and came into contact with hitherto unknown Indian tribes. He spent several weeks in their villages, and has brought back from his journey a rich collection of photographs and native articles, among others the famous signal drum of the Tukano tribe. He hopes to prolong his operations till the spring of next year, but the continued disputes between Peru and Brazil have somewhat interfered with his arrangements.

THE WOMAN'S ANTHROPOLOGICAL SOCIETY of Washington, D. C., on the suspension of its meetings, donated its library of several hundred volumes to the Public Library of the District of Columbia to be held as a memorial of the Society, and followed this donation by a gift of one thousand dollars as a special trust fund and permanent endowment. The recent report of the Librarian states: "The gift is in the form of bonds bearing five percent interest, and the donors request that the income from this fund be used for the purchase of books and periodicals on anthropology."

THE THIRTEENTH SESSION of the International Congress of Anthropology and Prehistoric Archeology will be held at Monaco, in 1906, under the patronage of Prince Albert I. The committee of organization consists of thirty-six well-known men of science, with the following officers: *Honorary President* M. Albert Gaudry; *President*, Dr E. T. Hamy; *Honorary Vice-Presidents*, MM. Émile Cartailhac and Edouard Piette; *Vice-Presidents*, M. Marcellin Boule and Dr L. Capitan; *General Secretary*, Dr R. Verneau; *Assistant General Secretary*, Dr G. Papillault; *Secretary*, L'abbé Breuil; *Treasurer*, M. Henri Hubert. All American archeologists are requested to send their names and addresses to the General Secretary, Dr R. Verneau, 61, Rue de Buffon, Paris.

UNDER THE TITLE *Proverbs of Solomon, King of Israel, from Eliot's Indian Bible, with Introduction, Notes, and Vocabulary*, Dr Alexander F. Chamberlain and Mr William Wallace Tooker are preparing a work which will be of interest not only to the students of American Indian tongues but also to the cultured public. Here for the first time will be made generally accessible a portion of Eliot's famous translation, one of the most remarkable linguistic monuments of the New World.

DR FRANZ BOAS, of Columbia University and the American Museum of Natural History, lectured at Harvard University on December 2, under the auspices of the Anthropological Society, on "Characteristics of Primitive Culture."

THE ETHNOLOGIC COLLECTIONS of the Historical Museum and of the Anthropological Society of Frankfurt-on-the-Main, Germany, have been united in an Ethnological Museum, temporarily housed in an old municipal building, 1 Münzgasse, pending the completion of a new building now in course of erection. The collections are under the care of Dr B. Hagen.

DR HENRY MASON BAUM has resigned the editorship of *Records of the Past*, published at Washington, D. C., and has been succeeded by Dr George Frederick Wright, of Oberlin College. It is announced that Dr Baum will begin the publication of a new magazine, to be known as the *Journal of Historical Research*.

IT IS ANNOUNCED that the will of the late Prof. Maxwell Sommerville provides \$20,000 for the preservation and care of the collection of engraved gems and ethnological collections given by him to the University of Pennsylvania some years ago.

THE AMERICAN ANTHROPOLOGICAL ASSOCIATION has been awarded a grand prize by the Louisiana Purchase Exposition for the excellence

its journal, the *American Anthropologist*, and its editor has been granted a gold medal.

IT HAS NOT hitherto been announced in this country that on October 13, 1903, a new Anthropological, Ethnological, and Archeological Association was formed at Wiesbaden, Germany, under the presidency of Dr Florschütz.

DR J. DENIKER, of the Museum of Natural History at Paris, delivered the fifth Huxley memorial lecture of the Anthropological Institute of Great Britain and Ireland on October 7. His subject was "The Races of Europe."

DR GEORGE A. DORSEY, curator of anthropology in the Field Columbian Museum, Chicago, delivered, on November 19 and 26, two lectures in the Museum course on "The Decorative Art of the North American Indians."

MR WILLIAM H. HOLMES, chief of the Bureau of American Ethnology, has been appointed a member, on the part of the United States, of the International Archeological Commission, *vice* Volney W. Foster, deceased.

FORMER DIRECTORS von den Steinen and Seler, and former assistant directors Grünwedel and von Luschan have been appointed divisional directors in the Royal Ethnographical Museum at Berlin.

THE AMERICAN FOLK-LORE SOCIETY announces the publication of volume VIII of its Memoirs, being *Traditions of the Skidi Pawnee*, by Dr George A. Dorsey.

NOTICE has been received of the death at Berlin, on October 22, of Dr Max Bartels, privy councilor, physician, and anthropologist, aged sixty-two years.

AN EXTRAORDINARY PROFESSORSHIP has been conferred on Dr H. Matiegka, instructor of anthropology and demography in Prague, Austria.

DR NICOLAS LEÓN, of the Museo Nacional of Mexico, will spend three months in research among the Popoloca Indians of the State of Puebla.

PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF
WASHINGTON

Meeting of November 1, 1904

The 364th meeting was held at the Cosmos Club, November 1, 1904, the President, Dr D. S. Lamb, in the chair, and 43 members and guests present.

Dr JOHN R. SWANTON addressed the Society on *The Tlingit Indians of Alaska*, describing them as divided geographically into about fourteen groups and socially into two divisions or clans called Raven and Eagle (or Wolf), each of which is subdivided into numerous family or governmental units with its head chief and subordinate house chiefs. Members of the same clan are not permitted to intermarry; but there is a small group of Cape Fox Indians who may marry into any other family, Raven or Eagle, and are thus really outside of the two clans. Each family possesses one or more objects or emblems which it particularly prizes and jealously guards from use by others; but in contradistinction to the Haida families, which usually have many of these, a Tlingit family has very few and usually considers but one of them of particular importance. Traditions assert that most of the Tlingit families have migrated north from the mouths of the Nass and Skeena rivers. Each geographical group possessed at least one winter village, whence the people scattered every spring and summer to their fishing, hunting, and trapping grounds. Unlike the Haida, who had two sorts of potlatches (one to the members of a man's own clan and one to the members of the opposite clan), these people had only one, corresponding to the second Haida potlatch. Along with this they had only the carved pole raised to the dead, not the house pole. The secret society dances had barely reached them from the south. Shamanism and witchcraft reached the maximum development attained on this coast among these people, their shamans being highly thought of by the Haida as well. Along with this their spirit world was peopled with legions of spirits (*yéks*) of nearly the same power, and there was no such gradation among them and no such system in their mythology as with the Haida and Tsimshian. Like the Haida, however, the Tlingit made much of certain beings supposed to bring wealth, and some of these are identical with Haida deities. On the other hand, the killer whales did not

constitute such an important class of beings. Among their myths the most important is the story of Raven, and scarcely less so the familiar Northwest tale of the brothers who were born of a dog father. The principle of retaliation underlay all Tlingit law, each man's life being valued at the life of another man of equal rank or at a certain amount of property. In cases of accidental death the dead person's companions at the time were usually blamed; in cases of death by sickness, some person who had bewitched him was held responsible; and failing either, a natural object that had caused the death was often held accountable and was so treated. A person or an inanimate object might also be punished by having his or its name taken, or the figure of the object adopted as an emblem. A close examination of the language, Dr Swanton asserted, strongly tends to confirm Dr Boas' suspicion that it is genetically related to Haida.

DR A. R. SPOFFORD presented a paper on *The Spanish Race of Today*. The speaker sketched in a paragraph the decline of that remarkable nation, from a first-class power to a low place in the second rank. Passing to his personal observations during a recent tour in Spain, he said that no account of the Spaniards which deals with them *en masse* is a true one. The contrasts between the people of northern and southern Spain were pointed out. In the former, the race is strong and manly; in Andalusia, under the burning sun, the energies of the race are wilted, and a softer and more luxurious temperament prevails. Two distinct dialects—the Castilian, or pure Spanish, and the Catalan—are found, each having a copious literature.

Throughout Spain, the brunette complexion, dark eyes, and raven-black hair prevail. In stature the Spaniards fall below the average of European nations, being rarely taller than five feet, four inches. Temperance in eating and drinking is a general characteristic. Water, far more than wine, is the national beverage, and is hawked about the streets in every city and at all railway stations. The manners of the people are courteous in all conditions of life, and hospitality is an instinctive virtue. Gallantry and respect for women are marked features. Married women live a retired life, devoted to husbands and children, and divorces are very rare.

Although sixty percent of Spanish adults cannot read, they are for the greater part gifted with intelligence which goes far to supply the want of an education derived from books. There is a native pride of character and of race; even the poor and illiterate exact and receive respect from their superiors. A general cheerfulness predominates in the national

temperament. To all, Spain seems the finest country in the world, and their own city or province the finest part of Spain. Very few Spaniards emigrate—less than one in 19,000 of the population of that kingdom coming to America in a year. That Spaniards are not successful colonists, it requires only a glance at their unhappy colonial experience to prove. The optimistic element in Spanish character is accountable for the inertia that prevents them from being a progressive people. Procrastination is ingrained in their very being. Dr Spofford stated that he had constant occasion to observe that Spain is a country of yesterdays and of tomorrows. The wages of labor in Spain are pitifully small—varying from thirty to fifty cents a day. To have nothing and to want little is the normal condition of the Spanish peasant. Great tracts of land lie uncultivated, from want of industry and irrigation; the country is rich in natural resources, but its inhabitants lack the qualities that would render it splendidly productive. Farm work is cumbrous and slow; the old wooden plow, the sickle, and the flail are in general use, instead of modern agricultural machinery. The omnipresent mule represents the patience, the conservatism, the obstinacy, and the endurance of Spain. It may fairly be said that he is to the Spaniard the captain of his salvation.

The population of Spain is almost stationary, its eighteen and a half millions showing an increase of less than one-half of one percent in ten years. The country is sparsely populated—only 97 inhabitants to the square mile, while Italy has 300, and France 188 people to each square mile.

At every railway station in Spain one sees "the man behind the gun." He is there as the symbol of a government half military and half civil. The army numbers 120,000 men—about double that of the United States, though Spain's population is only one-fifth of ours, and its territory one-twentieth. No party can get hold of the reins of government without the army, though suffrage is universal to all men over twenty-five. Militarism seems too deeply ingrained in the national character to leave any room for Republicanism. The ministry is virtually the government, and is continually changing. Justice is sold, and corruption is not stigmatized as in the United States. Spain scaled its public debt in 1882, repudiating one-half, but it is still \$110 to each inhabitant—a larger per capita than in any country except Portugal. Education is not upon the advanced methods of more enlightened nations. Teachers are poorly paid, or not paid at all. The youth are trained to draw on the imagination, and are prone to speak without thinking. Spaniards have a native gift for oratory, but real eloquence is rare. Liberty of thought

was for ages repressed, and history exhibits a blood-stained record of thousands murdered in the vain endeavor to make all men think alike. Now, while only one form of religion is established by law, other forms of worship are free.

The Spaniard dearly loves a show, and the bull-fight supplies a most spectacular one. This repulsive and cruel sport, rejected by other nations, belongs to the people who invented the Inquisition. The other favorite amusements are the theatre, cock-fights, dances, and cards. The lottery is a national vice.

Spain is a country of surprises. The vivid contrasts in its scenery, from blooming pastoral beauty to wild and romantic grandeur, were pictured, and Toledo, Seville, and the Alhambra of Granada were briefly sketched. Spanish hotels supply comfortable quarters and cuisine at the moderate rate of \$1.75 to \$2.25 per day. Travel in that country should be undertaken in the spring and autumn months, as the heats of mid-summer are very oppressive, and the winter's cold almost intolerable, so inefficiently warmed are the dwellings.

DR ALEŠ HRDLIČKA exhibited a photograph of a *Crowe Burial in Montana*, taken two years ago by Mr Frank M. Conser of the Indian school service and presented to Dr Hrdlička by Mr J. H. Dortch of the Indian Bureau. The photograph, Dr Hrdlička explained, exhibits a characteristic "platform burial," still occasionally practised by the Crows, who also deposit their dead in trees or high up among rocks. The platform or scaffold is simply made of sticks supported by four crotched poles, those at the head being strengthened by others placed obliquely. The body is enclosed in a rude wooden coffin, which is deposited on the platform and covered by the personal effects of the deceased; the whole is protected by a large cloth, tied in place. The scaffold stands in a solitary spot, at the base of a low hill, and everything is left to the elements for gradual decay. This form of disposing of the dead is found among other tribes of Montana, as the Yankton of Fort Peck agency. By reason of the elevation of the platform, coyotes and other prowling beasts are prevented from disturbing the remains. (Consult Yarrow, *Introduction to the Story of Mortuary Customs*, Washington, 1880, p. 66, et seq. Yarrow, *A Further Contribution to the Study of the Mortuary Customs of the North American Indians* (First Annual Report, Bureau of Ethnology, 1879-80), Washington, 1881. Report on Indians, Eleventh U. S. Census, 1890 (1894), p. 362.)

J. D. MCGUIRE,
Acting Secretary.

Meeting of November 15, 1904

The 365th meeting was held November 15 at the Cosmos Club, Dr D. S. Lamb presiding, 35 members and their friends being in attendance. The meeting was devoted to a symposium on *Anthropology at the Louisiana Purchase Exposition*.

MR W. H. HOLMES spoke of *The Exhibits of the Smithsonian Institution in the Government Building*, explaining the development of the various plans for exhibits in this branch. The first suggestion was that the Indian Bureau should present the Indian as he is to-day, under the influence of civilization, while the National Museum and Bureau of American Ethnology should show him as he was previous to the coming of the whites. As it proved that this project was not feasible, at the suggestion of Chairman Lehman, of the Exposition Committee on Anthropology, a plan was developed for a great congress of the races, to include representatives of primitive peoples from every quarter of the globe; but this idea was abandoned because of the great expense necessarily connected with it. Finally it was determined by the National Museum and the Bureau of American Ethnology to prepare an exhibit distinct in character from previous exhibits of the Smithsonian Institution, to consist of collections illustrating more especially the esthetic achievements of the aboriginal tribes. A chief feature of this exhibit was a series of models of the great ruined buildings of Yucatan and Mexico, with restorations, and with models and pictures illustrating architectural details. In addition there were exhibits of the best available examples of the native sculpture, as well as of carving, the ceramic art, textiles, basketry and feather-work, and a separate section was devoted to the ornamental arts and the strange modifications that take place in decorative motives as influenced by the technique and other features of the various arts. Numerous important exhibits were obtained through exchange of casts of National Museum specimens for those of museums at home and abroad. Aside from these series there were other exhibits illustrating the sculpture of classical and oriental countries, which consisted mainly of plaster casts of important works, in relief and in the round. Mr Holmes stated that a part of these exhibits will probably be forwarded to Portland, Oregon, to be used in the Lewis and Clark Exposition in 1905, while the remainder will be returned to the National Museum at Washington.

DR ALEŠ HRDLÍČKA addressed the Society on the subject of *Physical Anthropology at the Exposition*. This section, which was combined with that of Psychometry, was represented by (1) the groups of primitive peoples assembled at the Exposition, (2) a collection of anthropometric

instruments and wall pictures of racial types, and (3) anthropometric work carried on publicly in the laboratory. The primitive peoples, with their native habitations, dress, and industries, served also the purpose of ethnologic study. While most of the groups were too small to make definite anthropometric results possible, and the lack of photographic apparatus was a serious drawback, the natives furnished material for some investigation and for casts. These were made publicly in the laboratory and elicited great interest.

Of the peoples represented, the following deserve special mention: (1) Filipinos, forming part of the Philippine exhibit, and including, besides the more civilized and mixed Visayans and Tagalogs, several groups of Moros and Igorotes, and a number of interesting Negritos. (2) Africans, consisting of a small group of Pygmies and several representatives of other tribes of the upper Congo, who were brought to the Exposition by Rev. S. P. Verner. (3) A family of Ainos, brought from Japan by Prof. Frederick Starr. (4) Various aboriginal American groups, including Patagonians, Cocopas, Northwest Coast Indians, Pueblos, Navahos, Pimas, Wichitas, and others.

The laboratory was in charge of Dr R. S. Woodworth. The anthropometric work proper consisted in determining the measurements (including pulse and sensimetric tests) and weights of several hundred persons — members of the primitive groups and visitors. Mr C. Myer made about forty facial and head casts of Pygmies and other individuals.

MISS ALICE C. FLETCHER explained the part taken by *The Indian School at the Exposition*, showing that schools for Indian education extended as far back in North American history as the year 1558. In the seventeenth century there were Indian schools in New England. It was shown that Dartmouth College has had Indian pupils of various tribes almost continuously since early in the eighteenth century. The many acts of Congress passed since 1819 that have appropriated large sums for Indian education were referred to and the beneficial results derived therefrom explained. In 1849 the management of Indian affairs was transferred from the War Department to that of the Interior Department. To-day there are government schools for Indian education offering facilities which are available practically to the whole Indian population of school age. The exhibit at St Louis was shown to be highly creditable, not alone in showing the mechanical skill developed by Indian children, but in demonstrating their mental ability and the resultant elevation of the race. Miss Fletcher presented a publication that had been regularly in use at the Exposition, the contributions to which, together

with the type-setting, illustrations, and presswork, were all by Indian pupils.

COL. PAUL BECKWITH explained *The Part which the Louisiana Purchase Played in American History*. Reference was made to the medals that had been struck on various occasions in commemoration of historical events in this territory, and to the numerous treaties with the Indian tribes of the region. Colonel Beckwith also presented many interesting data bearing on the successive Spanish, French, English, and American occupancy of Louisiana and of St Louis, special attention being given to individuals who took a prominent part in their history.

The time for adjournment having arrived, the reading of the paper by DR W J MCGEE on *Anthropology at the St Louis Expedition* was postponed until the next meeting.

J. D. MCGUIRE,
Acting Secretary.

Meeting of November 29, 1904

The 366th meeting of the Anthropological Society of Washington was held at the Cosmos Club, November 29, 1904, the President, Dr D. S. Lamb, in the chair.

DR ALEŠ HRDLIČKA exhibited *Two Artificially Deformed Crania*—one of them from Peru, the other from Vancouver island. The first was an extreme example of that type of deformation, practised in Peru and Bolivia, in which the forehead is flattened and the vault of the skull forced backward without lateral spreading or occipital flattening. Such deformity must have been produced intentionally by bandaging. In this instance not only has the forehead been reduced to the utmost extent, but the upper part of the face has been indirectly forced backward, resulting in an unnatural tilting of the plane of the orbits and a high degree of facial prognathism. This skull, which was unearthed in 1877 by H. Ber at Tiahuanaco, and is now in the U. S. National Museum, is of ordinary thickness and capacity, and notwithstanding its great deformity is fairly symmetrical (see figure 19). The second skull, that of a "Sugar-loaf" or Newitsee Indian of western Vancouver island, was collected by Dr T. T. Minor, in 1869, and by him presented to the Smithsonian Institution. Its most interesting feature is the deformation of the vault, which, while of somewhat lesser degree than that of the Peruvian specimen, is identical with the latter in type (see figure 20). The interesting fact was brought out that Peru, with the adjacent parts of Bolivia, and northwestern Vancouver island are the only localities in the western hemisphere

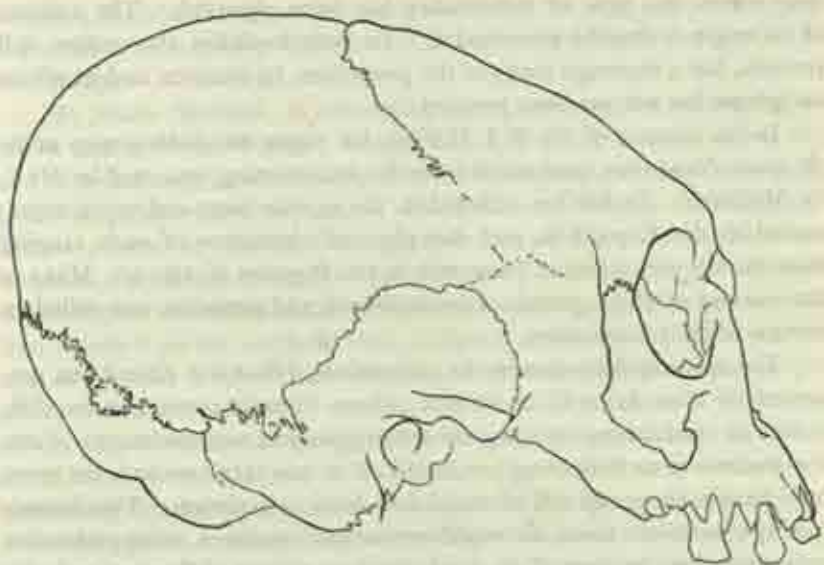


FIG. 19.—Artificially deformed skull from Tiahuanaco, Bolivia.

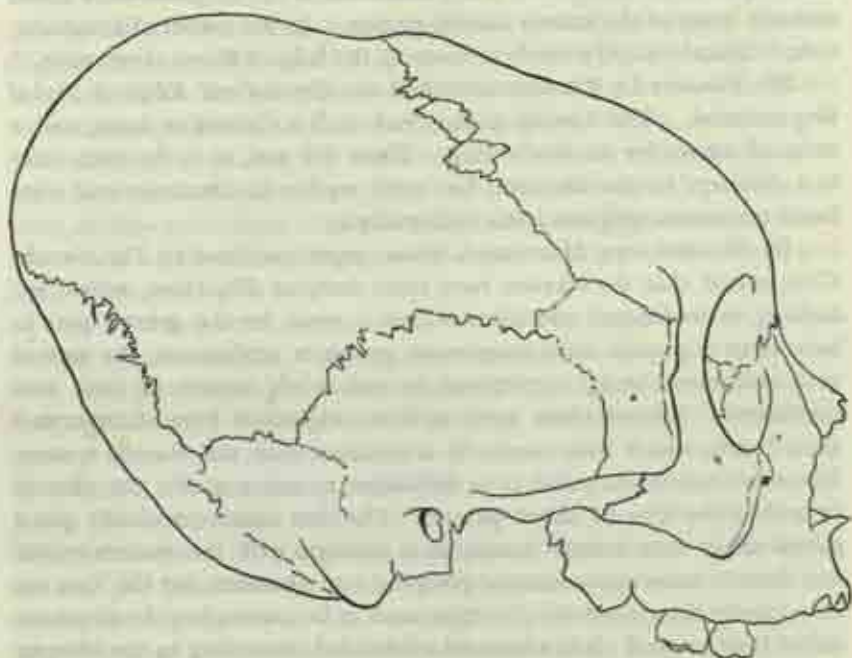


FIG. 20.—Artificially deformed Newitsee skull from Vancouver Island.

from which this type of deformation has been observed. The problem of its origin is thereby accentuated. In both localities the custom still prevails, but a thorough study of the procedure, its motives, and its effects on infants has not yet been pursued.

In the absence of Dr W J McGEE, his paper on *Anthropology at the St Louis Exposition*, postponed from the last meeting, was read by Mr J. D. McGuire. Dr McGee referred to the various races and types represented at the Exposition, and the physical characters of each, ranging from the tall aborigines of Patagonia to the Pygmies of Africa. Many of the customs of these peoples were explained and attention was called to certain of their ceremonies.

The opening discussion in the symposium, *What is a Clan?* was presented by Miss ALICE C. FLETCHER, whose remarks concerned the difficulties in establishing an adequate anthropological nomenclature: First, the students of anthropology are nearly all of one race; second, the terms used have each grown out of racial and local experience. This historic quality encumbers them for world-service and results in misapprehension and confusion, because of an inadequacy to express difference and distinction. The word "clan" has been stretched beyond its original meaning so as to include the family and some of the religious ideas which underlie many of the known kinship groups. In the matter of nomenclature, "historic inquiry needs to come to the help of direct observation."

Mr FRANCIS LA FLESCH described the *Omaha and Kindred Tribal Organization*. The kinship groups had each a distinctive name, and a series of names for its membership. These did not, as in the clan, refer to a common human ancestor, but were mythic in character and were based on certain religious ideas and symbols.

Dr WASHINGTON MATTHEWS, whose paper pertained to *The Navaho Clan*, stated that the Navaho have some forty or fifty clans, which, according to traditional and other evidence, seem for the greater part to have been originally local exogamous groups or settlements, the men of each settlement being accustomed to seek wives outside of their own settlement. Several clans seem to have originated from incorporated alien bands, which took names in accordance with the Navaho system. Descent is matriarchal, and it is forbidden to marry within the phratry or within the clan of either parent. The clan names are chiefly place names rather than animal names, as is common with the eastern tribes, and there is some appearance of grouping into phratries, but the lines are very loosely drawn and the phratries seem to be a secondary development rather than original clans afterward subdivided, according to the Morgan

theory. Dr Matthews sounded a timely note of warning against "applying to all tribes a theory which seems to work well with one tribe or even with many."

MR JAMES MOONEY, in addressing the Society on *The Gaelic Clan*, stated that the word "clan" is a pure Gaelic word, the clan being the unit of social organization among the Gael of Ireland, northern Scotland, and Man, who, with their cousins the Cymri and Bretons of Wales and Brittany, constitute the modern representatives of the ancient Keltic races which at the dawn of history occupied nearly all of western Europe. According to the native annals the first Gaelic immigrants came to Ireland by sea from the northern coast of Spain, under the leadership of the sons of Miledh, latinized Milesius, at a very early period. After subjugating the earlier and ruder occupants, some of whom seem to have been of non-Aryan stock, they established a form of government which crystallized into the code known as the *Brehon* law. This code was revised under king Tuathal in the first century of the Christian era, and again, on a Christian basis, by king Laoghaire, with the assistance of Saint Patrick, between 441 and 450. It continued to be the law of the land, even after the Norman invasion, until the wholesale confiscations of the seventeenth century. As introduced into Scotland, in its simpler forms, in the year 503 by the Gaelic colony from which the Scottish name and dynasty originated, it ruled the Gaelic Highlands until after the battle of Culloden in 1746. This Brehon code has been handed down in ancient Gaelic manuscripts preserved in the museum libraries of Dublin, London, and Oxford, chief of which is the *Seanchus Mór*. Under authority of a government commission they have been translated, edited, and published, a labor of fifty years from 1852 to 1901, making six large volumes, which may be consulted in the Library of Congress, being perhaps the largest body of ancient law in existence.

Under this system Ireland was divided into four provinces, with a central federal district. Each province was governed by a king (*righ*), who was supreme within his own jurisdiction, but was subordinate in national affairs to the *ard-righ*, high king, or monarch, who held his court at Tara in the federal district. The provincial king was chosen by the chiefs of the subordinate clans from among the male members of the family believed to be in most direct descent from one of the four original Milesian leaders. The *ard-righ*, or monarch, was chosen from among the four provisional kings by vote of these kings and their potential successors or heirs-apparent. On assuming his duty and dignity as monarch, he relinquished his provincial court and removed to Tara. The chosen

candidate must be of superior mental ability and sound physique, as well as without bodily blemish or defect. Primogeniture was not recognized, and the vote might be given to any one of the sons, male cousins, or even uncles, of the incumbent ruler, although, other conditions being satisfactory, it usually went to one of the sons. To minimize the risk of disputed succession, the *tanaiste*, or heir apparent, was chosen during the lifetime of his predecessor.

Next below the provincial kings were the chiefs of the clans. These chiefs were chosen in the same way from the family in each clan claiming nearest collateral descent from one of the four original Milesian rulers. The clan was a body of families consisting of men, women, and children, claiming blood kinship by remote descent from a common Milesian ancestor, occupying a compact territory held mostly in common, and in later times bearing a common family name. There was also usually a clan badge and war-cry. The pastures, forest, and upland of the clan territory were held in common for full range of the cattle, horses, hogs, and sheep, which constituted the chief wealth of the people. The cultivated lands were allotted by families, with undivided equal inheritance by the sons up to a certain point, when a new distribution was made. They could not be alienated, even by the chief himself, or held by any one but a member of the clan. The clan names were established by the monarch Brian Boromhe, 1002-1014, each clan taking the name of some early ancestor or distinguished hero of the clan, with the prefix *Ua* or *O* ("grandchild"), or *Mac* ("son"), to denote remote or more recent connection. In Ireland the *O* was most common. In Scotland, where the surname system was of later adoption, only the *Mac* was used. The number of principal clans in Ireland was about 300 and in Gaelic Scotland about 50, the population of the average clan in the sixteenth or seventeenth century being from 2,000 to 3,000, or about that of the principal western Indian tribes.

DR JOHN R. SWANTON, speaking of the *Social Organization of the Haida and Tlingit*, of the northwest coast, stated that these tribes were divided into two sides, members of which are found throughout all of their towns. Each division is strictly exogamic with maternal descent, and this law of exogamy applies no matter how far apart the members happen to live. When a man dies, persons of the opposite division always conduct the funeral, and they, too, initiate youths into the secret society performances, tattoo them, and pierce their ears, lips, etc. The major divisions are subdivided into groups which usually bear the names of some locality, and all except a few low-caste families have their own chiefs.

They also possess the right to wear figures of certain animals and other objects, called crests, at the potlatches. Several of the most powerful family chiefs were also town chiefs, but their authority over other families living there was apt to be weak. Among the Tlingit, as distinguished from the Haida, each family had very few crests and usually thought more of one than of all the others. In such cases a large number of the personal names belonging to that family were derived from the crest animal. The families were further subdivided into house groups.

DR CYRUS THOMAS explained the terms "clan" and "gens" as employed by Morgan and Powell, stating that the former, in his *Ancient Society*, does not use "clan," while in his *Houses and House Life* he says that in America "gens" is equivalent to the "clan" of Scotland. In his *Outlines of Sociology*, published in 1882, Powell did not use the term "gens" as applicable to descent in both the male and the female line; in 1885, however, in his presidential address before the Anthropological Society, he employed "clan," while in his *First Annual Report* as Director of the Bureau of Ethnology (1879-80) "gens" was used to designate descent in the female line. Up to this time Powell used "gens" and "clan" interchangeably; but in an address before the American Bar Association at Saratoga, in 1896, he employed "clan" to indicate descent in the male line. Dr Thomas expressed the belief that the question must be answered not alone by a study of the different Indian tribes, but by general agreement among students.

DR J. WALTER FEWKES, in explanation of what constituted a Hopi clan, said that among this people a clan is "a consanguineous aggregation of men, women and children possessing the same totem." The essential and characteristic feature that distinguishes a clan from a family, or one clan from another, among the Hopi, is the recognition of a tutelary and its nature. The members of a clan are related by blood or adoption and are exogamous, the children belonging to their mother's clan. Each of these Hopi clans or social and religious units possesses certain insignia—sacred objects as fetishes that are characteristic and hereditary in the female line. A Hopi clan has its own migration and origin legends, and in some instances a mythology with characteristic names for its supernatural tutelaries. Each clan has an hereditary chief; the fetishes are kept by the oldest women. A Hopi clan may be enlarged into a so-called fraternity, or religious society, by adoption of members of other clans; but when this occurs the ceremonies of these societies are essentially those of the tutelary of the clan from which they sprung. The chief of the clan is chief of the evolved society and has charge of the rites as well as

the idols, altars, and other sacred paraphernalia. The word "clan," Dr Fewkes asserted, is inadequate to designate one of these groups and gives a wrong impression of its nature. It should give way to some more exact term. As a totem or tutelary is the essential feature of the group, he suggested that the social and religious unit that has been called a clan by students of the Hopi may be designated "totem group."

J. D. McGUIRE,
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