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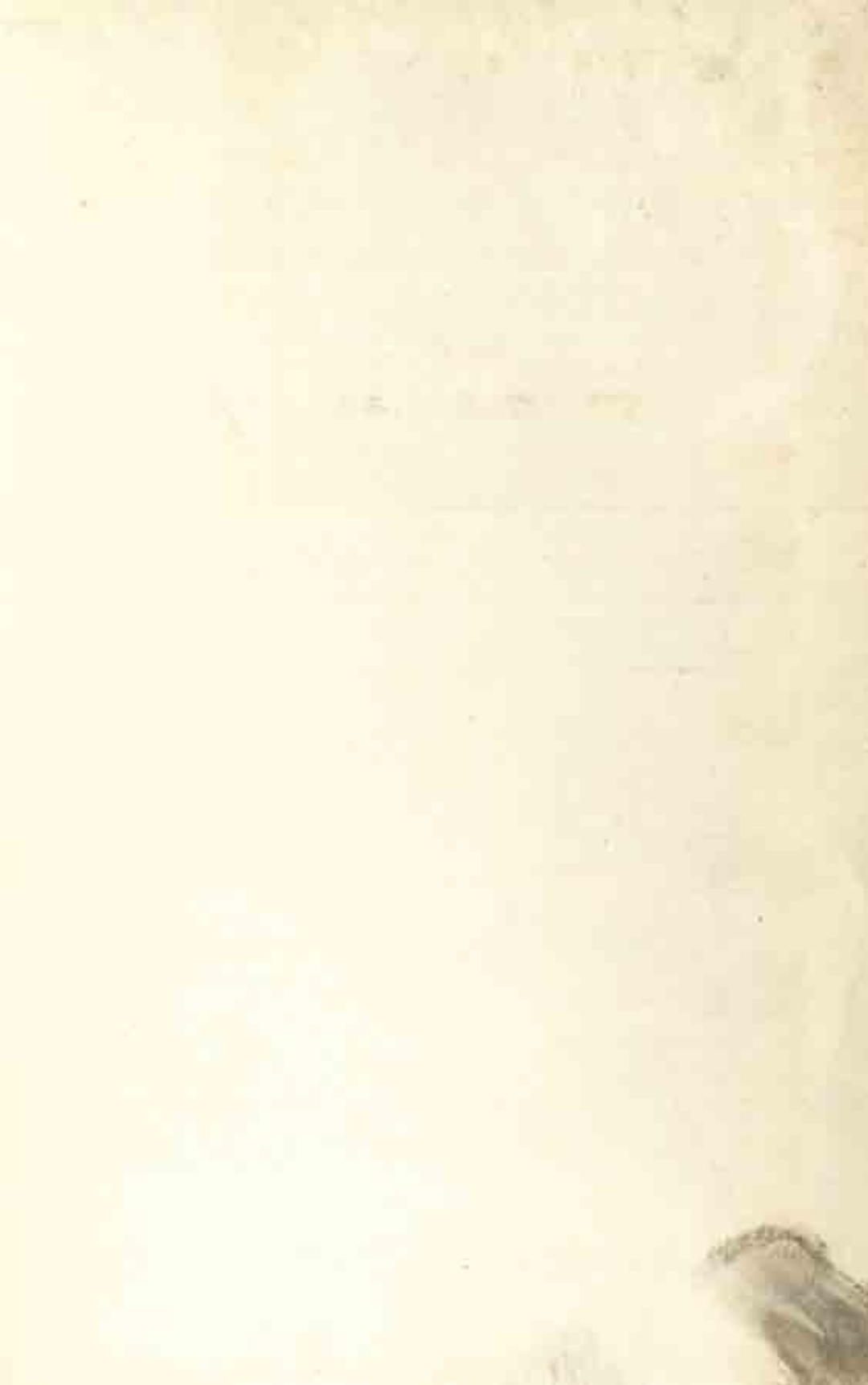
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CONTENTS OF VOLUME 17

ARTICLES

	PAGE.
Frontispiece	
The Principle of the Screw in the Technique of the Eskimo. MOR- TEN P. PORSILD. (Plates I-III).....	1
Linguistic Position of the Tribes of Southern Texas and North- eastern Mexico. JOHN R. SWANTON.....	17
Links between Religion and Morality in Early Culture. ELSIE CLEWS PARSONS.....	41
The Gusle Singer and his Songs. BEATRICE L. STEVENSON.....	58
Pottery from Certain Caves in Eastern Santo Domingo, West Indies. THEODOOR DE BOOY. (Plates IV-IX).....	69
Southern Paiute and Nahuatl—A Study in Uto-Aztekan. Part II. EDWARD SAPIR.....	98
A Stratification of Cultures in Eastern Nebraska. FRED H. STERNS. (Plates X-XI).....	121
The Use of Glue Molds in Reproducing Aboriginal Monuments at Quirigua, Guatemala. NEIL M. JUDD. (Plates XII-XIII)....	128
Interglacial Man from Ehringsdorf near Weimar. GEORGE GRANT MACCURDY.....	139
Certain Further Experiments in Synæsthesia. CHARLES PEABODY. (Plates XIV-XVII).....	143
Exogamy and the Classificatory Systems of Relationship. ROBERT H. LOWIE.....	223
The Knowledge of Primitive Man. A. A. GOLDENWEISER.....	240
Artificial Moulding of the Infant's Head among the Scandinavian Lapps. GUDMUND HATT.....	245
Types of Machu Picchu Pottery. HIRAM BINGHAM. (Plate XVIII). 257	
Kivas of the San Juan Drainage. BYRON CUMMINGS. (Plates XIX-XX).....	272
Eighteen Professions. A. L. KROEBER.....	283
The Family Hunting Band as the Basis of Algonkian Social Organ- ization. FRANK G. SPECK.....	289
Southern Paiute and Nahuatl—A Study in Uto-Aztekan. Part II (Concluded). EDWARD SAPIR.....	306

Sun-Cult and Megaliths in Oceania. W. H. R. RIVERS.....	431
Notes on the Archeology of Salvador. HERBERT J. SPINDEN. (Plates XXI-XXIII).....	446
The Maya Day Sign Manik. STANSBURY HAGAR.....	488
The Eastern Algonkian Wabanaki Confederacy. FRANK G. SPECK. (Plate XXIV).....	492
A Study of Nebraska Crania. C. W. M. POYNTER. (Plates XXV- XXXI).....	509
The Growth of the Head and Face in American (White), German- American, and Filipino Children. ROBERT BENNETT BEAN.....	525
Some Ears and Types of Men. ROBERT BENNETT BEAN.....	529
The Na-dene Languages, a Preliminary Report. E. SAPIR.....	534
Chasta Costa and the Déné Languages of the North. A. G. MORICE, O. M. I.....	559
Chieftainship and the Sister's Son in the Pacific. A. M. HOCART.....	631
Individual Initiative and Social Compulsion. WILSON DALLAM WALLIS.....	647
The Excavation of a Ruin near Aztec, San Juan County, New Mexi- co. EARL H. MORRIS. (Plates XXXII-XXXVII).....	666
The Cheyenne Tipi. STANLEY CAMPBELL.....	685
Notes on Prehistoric Palestine and Syria. CHARLES PEABODY. (Plates XXXVIII-XXXIX).....	695
Race in the Pacific Area, with Special Reference to the Origin of the American Indians: Antiquity of Occupation. GEORGE GRANT MACCUDY.....	708
Frederic Ward Putnam. A. L. KROEBER.....	712

BOOK REVIEWS

QUIGGIN: Essays and Studies Presented to William Ridgeway (Mooney).....	156
TORIT and TORIT: Populations Primitives de la Mongolie Orientale (Casanowicz).....	160
MARTIN: Lehrbuch der Anthropologie in systematischer Darstellung mit besonderer Berücksichtigung der Anthropologischen Me- thoden (Hrdlička).....	161
KLEIWEDE DE ZWAAN: Die Insel Nias bei Sumatra. Vol. II (<i>ten Kate</i>).....	164
JOYCE: Mexican Archaeology (<i>Waterman</i>).....	166
LLOYD: The Making of the Roman People (<i>Radin</i>).....	169
SCHMIDT: Die Diluviale Vorzeit Deutschlands (<i>MacCurdy</i>).....	170
HENDERSON and HARRINGTON: Ethnozoology of the Tewa Indians (<i>Kidder</i>).....	173

GÖTZE: Die altthüringischen Funde von Weimar (<i>MacCurdy</i>)	174
RIVERS: Kinship and Social Organisation (<i>Webster</i>)	175
SPEISER: Südsee-Urwald Kannibalen (<i>Lowie</i>)	175
PARKER: The Code of Handsome Lake, the Seneca Prophet (<i>Skinner</i>)	180
ANDERSON: The People of India (<i>Michelson</i>)	184
WREN: A Study of North Appalachian Indian Pottery (<i>Skinner</i>)	185
WINCHELL: The Weathering of Aboriginal Stone Artifacts (<i>MacCurdy</i>)	187
RIVERS: Kinship and Social Organisation (<i>Lowie</i>)	329
FREIRE-MARRECO: Notes and Queries on Anthropology (<i>Skinner, Oetleking, Goddard</i>)	341
PARSONS: Fear and Conventionality (<i>Goddard</i>)	343
SPECK: The Double Curve Motive in Northeastern Algonkian Art (<i>Spier</i>)	344
LOOMIS and YOUNG: On the Shell Heaps of Maine (<i>Spier</i>)	346
SAPIR: Notes on the Chasta Costa Phonology and Morphology (<i>Morice</i>)	347
LAUFER: Some Fundamental Ideas of Chinese Culture (<i>Lowie</i>)	350
CANAAN: Aberglaube und Volksmedizin in Lande der Bibel (<i>Casanowicz</i>)	352
STUHLMANN: Die Mazigh-völker, Ethnographische Notizen aus Süd-Tunesien (<i>Casanowicz</i>)	353
SPENCER: Native Tribes of the Northern Territory of Australia (<i>Lowie</i>)	354
SHUFELDT: America's Greatest Problem: The Negro (<i>von Luschan</i>)	573
SOLLAS: Ancient Hunters and their Modern Representatives (<i>Lowie</i>)	575
HARRINGTON: Sacred Bundles of the Sac and Fox Indians (<i>Michelson, Skinner</i>)	576
SPENCE: The Myths of the North American Indians (<i>Skinner</i>)	579
PARKER: The Quarterly Journal of the Society of American Indians, Vol. III (<i>Skinner</i>)	581
SKINNER: The Indians of Greater New York (<i>Spier</i>)	581
HOVGAARD: The Voyages of the Norsemen to America (<i>Babcock</i>)	582
RIVERS: The History of Melanesian Society (<i>Lowie</i>)	588
KLEIWEIG DE ZWAAN: Anthropologische Untersuchungen über die Niasser (<i>Oetleking</i>)	591
DURKHEIM: Les Formes élémentaires de la vie religieuse, le système totémique en Australie (<i>Goldenweiser</i>)	719
POUTRIN: Esquisse ethnologique des principales populations de l'Afrique équatoriale française (<i>Starr</i>)	735

GAILLARD and POUTRIN: Étude anthropologique des populations des Regions du Tchad et du Kanem (<i>Starr</i>).....	737
THOMAS: Anthropological Report on Ibo-Speaking Peoples of Nigeria (<i>Starr</i>).....	737
—: Specimens of Languages from Southern Nigeria (<i>Starr</i>).....	739
MIGEON: The Languages of West Africa (<i>Starr</i>).....	739
—: The Mende Language (<i>Starr</i>).....	741
—: A Grammar of the Hausa Language (<i>Starr</i>).....	741
—: Mende Natural History Vocabulary (<i>Starr</i>).....	741
FOULKES: Angass Manual, Grammar and Vocabulary (<i>Starr</i>).....	741
HOSE and McDougall: The Pagan Tribes of Borneo (<i>Cole</i>).....	742
KLEIWEG DE ZWAAN: Kraniologische Untersuchungen niassischer Schädel (<i>Oetleking</i>).....	747
MARTIN: Lehrbuch der Anthropologie in systematischer Darstellung mit besonderer Berücksichtigung der anthropologischen Meth- oden, für Studierende (<i>Oetleking</i>).....	751
Some New Publications.....	355, 594, 754

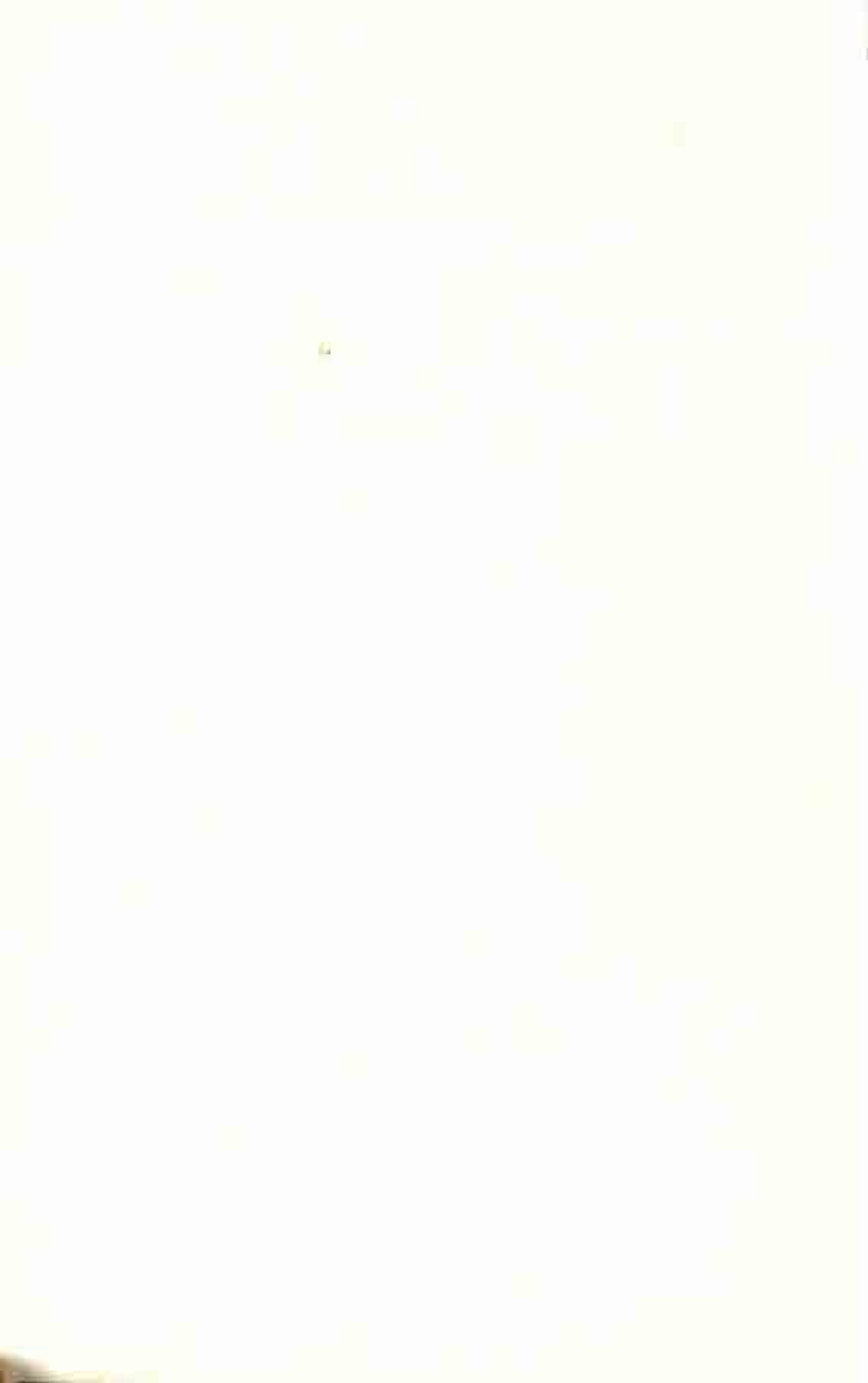
DISCUSSION AND CORRESPONDENCE

- Algonkin Languages of California: A Reply (Sapir), 188; Rejoinder (Michelson), 194; Epilogue (Sapir), 198. A Note on Kinship Terms Compounded with the Postfix 'e' in the Hano Dialect of Tewa (Freire-Marreco), 198. Lingual Consonants in India and Norway (Gilbertson), 202. Science Notes from Ireland (Mooney), 204. The "Red-paint People"—II (Bushnell), 207. The "Red-paint People"—II (Moore). The Eskimo Screw as a Culture-Historical Problem (Laufer), 396. The "Red Paint People" of Maine (Willoughby), 406. Home Study in Ethnology (Parsons), 409. Some Additional Notes on the Language of the Natives in the Patagonian Channels (Skottsberg), 411. The New Stock Names Announced for California (P. E. G.), 413. Oral Tradition and History (Lowie), 597; Dr Dixon's Reply, 599; Dr Swanton's Reply, 600. Interpreting Ceremonialism (Parsons), 600. Blackfoot Relationship Terms (Spier), 603. Erroneous Interpretation of the "Tears Greeting" (Schuller), 607. Anti-Professions: A Reply to Dr A. L. Kroeber (Haerberlin), 756. Neandertal Man in Spain: the Lower Jaw of Bañolas (MacCurdy), 759. The Heuristic Value of Traditional Records (Goldenweiser), 763. Note on Race (Hough), 764. Corrigenda to Father Morice's "Chasta Costa and the

Déné Languages of the North" (Sapir), 765. A New Shoshonean Tribe in California (Kroeber), 773.

ANTHROPOLOGIC MISCELLANEA

Anthropology at the British Association Meeting, 210. A Cheyenne Dictionary, 213. Philadelphia Meeting of the Anthropological Association, 215. "Pawnee," "Tatarax," and "Harahey," 215. The Berlin Music Archive, 216. William Nelson, 217. Minor notes, 217-221. The San Francisco Meeting, 414. Reversal of Heye's Conviction, 415. American Ethnological Society, 416. Minor notes, 416-422. Nineteenth International Congress of Americanists, 624. Second Pan-American Scientific Congress, 625. The San Francisco Meeting, 627. Minor notes, 627-630. Anthropology in the Canadian Arctic Expedition, 776. Geological Survey of Canada, 777. Resignation of Dr Dorsey, 778. Museum of the University of Pennsylvania, 778. Peabody Museum of Harvard, 779. Minor notes, 779-780.	
Proceedings of the American Anthropological Association for 1914..	357
Proceedings of the American Ethnological Society.....	364
International School of American Archeology.....	384
Proceedings of the Anthropological Society of Washington.....	610
Officers and Members of the American Anthropological Association..	423
Index to Authors and Titles.....	781



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No. 1

THE PRINCIPLE OF THE SCREW IN THE TECHNIQUE OF THE ESKIMO

By MORTEN P. PORSILD

IN a brief paper written in Danish, annexed to the report on his well-known expedition to the Scoresby Sound region of East Greenland, C. Ryder¹ states that bone arrowpoints from both coasts of Greenland in olden times were fastened to their wooden shafts by means of screw-bearing tangs. Later Thalbitzer saw similar points in the collections from the Swedish Nathorst expedition to East Greenland (p. 365), and in a recent paper (i, p. 162) I have given a few figures of such screw-bearing tenons of arrowpoints from West Greenland. When the manuscript of the paper last mentioned was sent from Greenland to Copenhagen for publication, I did not have access to several leading works by American writers on the culture of the Eskimo. Thanks to the courtesy of the Bureau of American Ethnology at Washington, the American Museum of Natural History of New York, and Prof. F. W. Putnam of Cambridge, Mass., a number of valuable books on the subject were kindly placed at my disposal, and I now learn that Dr Franz Boas also has touched on the problem of screws as an indigenous Eskimo invention.

As it sometimes has been said that primitive man was acquainted with only two ways of uniting two rigid objects endwise, namely, by nailing and by lashing, it is interesting to know that the

¹ Pages 310 ff., cited in the bibliography at the close of this article.

AM. ANTH., N. S., 17-1

primitive Eskimo knew also the principle of the screw and that he invented the device himself. As the figures given by Ryder and Boas do not illustrate the best-developed forms of the device, and as I have had the opportunity of obtaining additional material since I wrote my first paper, it seems advisable to present a more detailed account of the subject. Besides the information gathered by myself, I have to thank the following gentlemen for the loan of specimens from their collections for examination: Mr J. Daugaard-Jensen, Director of the Administration of Greenland, Copenhagen, formerly Royal Inspector of North Greenland; Rev. H. Mortensen, Godhavn; Mr T. Hedegaard, manager of the trading post at Agto, near Egedesminde, and Mr N. Thron, manager of the colony of Holsteinborg.

I may be permitted first to present a translation of the passage of the author first cited, C. Ryder, which gives a full account of the occurrence of screws in the handicraft of the Eskimo of Greenland. He writes (pp. 310 ff.):

On the tapering lower end of six of these arrowpoints are cut two knobs resembling fragments of a thread of a levogyrate screw. They are diametrically opposed, each of them making hardly half a turn. Such attempts to produce screws are found also on old arrowpoints from the west coast, sometimes two pairs over each other, and even in single cases a complete thread of a screw with several turns. The screws are nearly always left-hand ones, these being the easiest in making such an arrow, as the maker grasps the arrow with his left hand, the knife with his right, and holds the cutting edge of the knife slantingly toward the outer side of the arrow. By a revolving movement of the arrow, the knife cuts a left-hand screw. A left-handed person will grasp the arrow with the right hand, the knife with his left, and the screw thus becomes a right-hand one.

TYPES AND MANUFACTURE OF THE SCREWS

In the passage above cited Ryder gives an explanation of the Eskimo method of making screw-pointed objects, and I may state that the same method is followed at the present time by West Greenlanders. Of course arrows are no longer in use, but the butts of cleaning-rods and of ramrods for guns have often a set of spiral cuts or an elaborately worked screw, giving a better hold for the tow used in cleaning. The knife is held slantingly, according to the

pitch of the screw desired, and by simply revolving the rod outward, an accurate marking spiral cut is easily made. Starting from this first cut the several forms are carved (see fig. 1). Three principal types are distinguished, as follows:

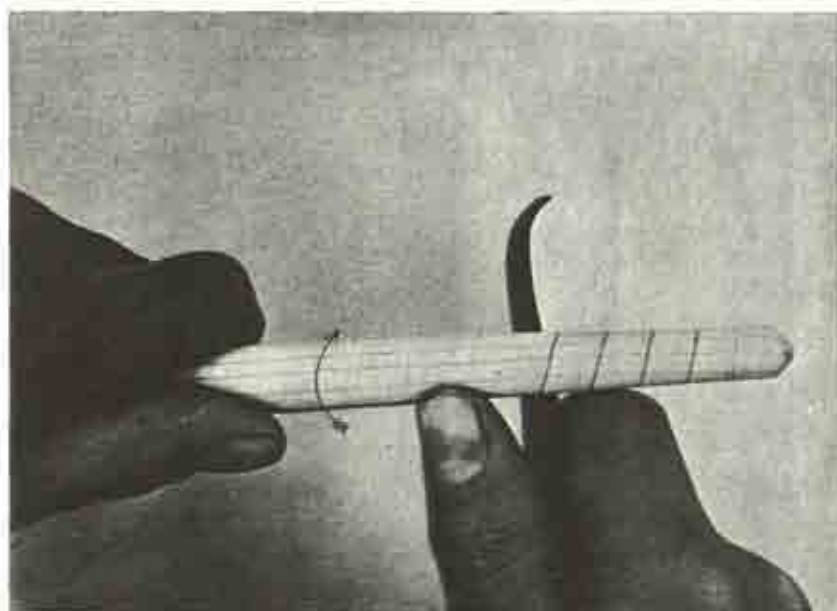


FIG. 1.—The first cut in Eskimo screw-making by a right-handed person.

I. The simplest type (fig. 2, *a*) is developed by cutting small chips from a little below the spire of the marking cut (fig. 1) downward to the next spire. This screw, provided with a sinew-lashing, will easily enter a hole in a rawhide or a mortise in soft wood, but will offer considerable resistance in being pulled out. This form is the most common one used in plugs for closing wounds, but it is also fairly common on arrowpoints.

II. A more elaborate type is shown in figure 2, *b*, which has a thread of several turns in high relief on the surface of the tenon. This form offers equal resistance to being pulled out or being thrust in. It is very common on arrowpoints.

III. The third and most elaborate type (fig. 2, *c*) is very

common on arrowpoints and seems to have the widest geographical distribution. Here are found one or two pairs of slanting projecting knobs, forming together parts of the thread of a screw. In studying arrows with such knobs, the knobs will always be found carved on the flanks of the piece of antler, where this material has the greatest strength, while the less resistant parts are cut off entirely. In former times the Eskimo doubtless realized the fact that a screw-

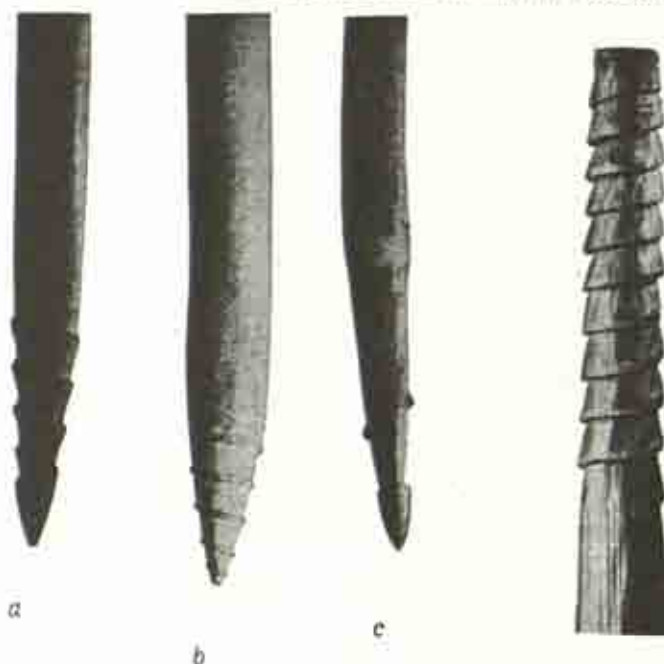


FIG. 2.—Types of Eskimo screws. *a*, The simplest type. *b*, A more elaborate type. *c*, The most elaborate type. (Exact size.)

FIG. 3.—Butt of a cleaning-rod belonging to a left-handed hunter; Hunde Eiland, Disko bay. (Exact size.)

thread carved out of the weaker parts of the antler is of little use for holding the point in the shaft, and that a complete screw is more liable than the knobs to split the shaft.

I wish here to say that the terms "simple" and "elaborate" are used in a technological sense and not as suggesting a difference in the age of the types, as all occur here together; indeed the two forms appear in a single set of arrows deposited at a grave, both having been fashioned and used by the same individual.



ARROWPOINTS WITH SCREWS. (ONE-HALF SIZE)

The extreme point of the tenon, below the knobs or the screw-thread, is often, but not always, formed as a four-sided awl. This device is very useful when the point has become loosened, since, by simply twisting the arrowpoint, the awl and the screw will act together and force their way deeper into the shaft. This awl-shaped point is extremely common on arrows of the third type, with knobs alone, but may occur also on arrows of the other types.

As already stated by Ryder, nearly all Eskimo screws are what may be termed left-handed, a fact directly attributable to the method of making and because most persons are right-handed, as above explained. A screw made by a left-handed person will of necessity be what we call a right-handed one. As an example there is illustrated (fig. 3) the butt of a cleaning rod belonging to a left-handed hunter of my acquaintance.

DESCRIPTION OF SOME ARROWPOINTS WITH SCREWS (PLATES I-III)

No. 1. Igdlorssuit, Ubekendt Eiland, $71^{\circ} 13'$ N. lat. A rather short but very strong and heavy point; butt, cutting edges, and barb well ground and polished, and still very sharp. The tenon with a complete thread of about 5 twists (type II), cut with a knife, the markings of which are still visible. The specimen is not weathered. Length 22 cm., weight 22 grams.

No. 2. Similar, from the same place. Dark brown, with two barbs on the same side. Screw of type I, with awl-shaped point. In this example also the cuts are conspicuous. Length 23 cm., weight 17 gr.

Nos. 3-4. Igdlorssuit. Two small, light points, belonging to the same set and evidently made by the same person. Both have long cutting edges; No. 3 with two barbs on the same side, No. 4 with two barbs opposed. Tenons with one pair of slanting knobs and well-formed awl. No. 3, 18 cm., 10 gr.; No. 4, 20 cm., 10 gr.

No. 5. Uvkusigssat Fjord, about 72° . Somewhat weathered point, the edges no longer being sharp. Tenon with screw probably of type I. Slight traces of knife cuts are still conspicuous. 24 cm., 20 gr.

No. 6. Tartusaq or Svartenhuk Peninsula, $71^{\circ} 25'$. A strong, well made, unweathered point, with one lateral barb and long cutting

edges. Tenon large, with one pair of knobs and distinct awl-shaped point. 28 cm., 25 gr. This point was found with the shaft in fairly good condition. Plate III, 31, shows its upper end with the sinew-lashings. The shaft is of driftwood, but very dry; length 40 cm., weight 15 gr.

No. 7. Disko Fjord, Disko Island, 69° 40'. Well pointed, but without cutting edges or barbs, and probably not an arrow but the terminal point of a bird dart or of a salmon spear. Tenon with two pairs of knobs and a small awl. 15 cm.

No. 8. Disko Fjord. A very small but finely worked ivory point, with one lateral barb and a riveted iron blade. Tenon with spiral twists. Length 8 cm., weight hardly 2 gr.

No. 9. Well made and well preserved point found on Kronprinsens Eiland in Disko bay. Tenon well formed, with screw of type II and with a short awl. 23 cm., 20 gr.

No. 10. Kronprinsens Eiland. Fragment of an arrowpoint with tenon resembling that of the last, but without awl.

No. 11. Hunde Eiland, Disko bay. Arrowpoint with upper end of unusual form, long cutting edges, and one lateral barb. Tenon with screw of type II, with about six revolutions. Length 25 cm. As the middle part is much weathered, the weight is not given.

No. 12. Egedesminde. Fragment with screw of type II.

No. 13. Hunde Eiland. With long cutting edges, but without barbs. Tenon with screw of type I. 27 cm., somewhat weathered.

No. 14. Hunde Eiland. With long cutting edges and two small opposed barbs. Much weathered; the basal parts, however, are well preserved, showing screw of type I, over the uppermost twist of which are seen numerous small cuts for roughening the tenon (not visible in the photograph). Awl-shaped point, broken off. 27 cm.

No. 15. Hunde Eiland. Short, somewhat weathered point with two opposed barbs. Tenon with remains of a screw and with a well preserved awl.

No. 16. Hunde Eiland. Rather clumsy, not well made point, with cut for an iron blade. Tenon short, with screw poorly made. 10 cm., 14 gr.



ARROWPOINTS WITH SCREWS. (ONE-HALF SIZE)

No. 17. Environs of Egedesminde. A *pangaligtoq*, or automatically working arrowpoint for deer-hunting (cf. Porsild, II, and III, p. 620. It seems that arrows of this peculiar use have been known also to the Eskimo of Alaska; cf. Murdoch, p. 205). Seven lateral barbs, still very sharp. The upper cutting point was probably originally longer, but was broken and resharpened. Tenon with screw of type I and with awl. 27 cm.

No. 18. Egedesminde. A rather well-preserved *pangaligtoq* of fine workmanship, with four lateral barbs and with terminal groove for an iron blade. The point was split by the stroke and repaired with a sinew lashing through two holes with uniting grooves. Tenon with elaborate screw of type II and with indistinct awl. Length 29 cm.; weight without iron blade, 21 gr.

Nos. 19-24. Egedesminde. Six arrowpoints found together at a grave and probably made by the same person. All rather weathered.

No. 19. Two cutting edges and two lateral barbs on the same side. Tenon with distinct screw, transition between types I and II, and with short awl. 25 cm.

No. 20 (not figured). Fragment with nearly identical tenon.

No. 21 (not figured). Point with long cutting edges and two opposed barbs. Tenon with slanting knobs. 20 cm.

No. 22. Similar specimen, but with two barbs on the same side. Tenon with one pair of knobs and distinct awl. 17 cm.

No. 23. With two opposed barbs. Tenon with two pairs of knobs and with awl. 20 cm.

No. 24 (not figured). Similar to the last, but with a riveted iron blade and hence no cutting edges. Tenon with knobs and awl. 17 cm.

Although the points of this set of six arrowpoints differ in the arrangement of the barbs as well as in the form of the tenons, there are some features of the workmanship which suggest that the whole set was made by the same person. The specimens with two lateral barbs on the same side show a characteristic flattening of the flank between the barbs that seems to be due solely to a whim of the maker and hardly had any intended purpose.

Nos. 25-28. Kangatsiaq, District of Egedesminde. A set of four very characteristic arrowpoints, evidently made by the same

person. The remarkable features are the slender stems, the great distance between the lateral barbs, and the riveted iron blades of which traces are still preserved. Probably they were a sort of *pangaligtoq*. In all the specimens the tenon is rather short, with a screw of type II consisting of about $2\frac{1}{2}$ revolutions, without awl.

	Length without blade	Distance between barbs	Weight without blade
No. 25 (not figured)	30 cm.	9 cm.	20 gr.
No. 26	25 "	8 "	15 "
No. 27	29 "	5 "	20 "
No. 28	31 "	10 "	20 "

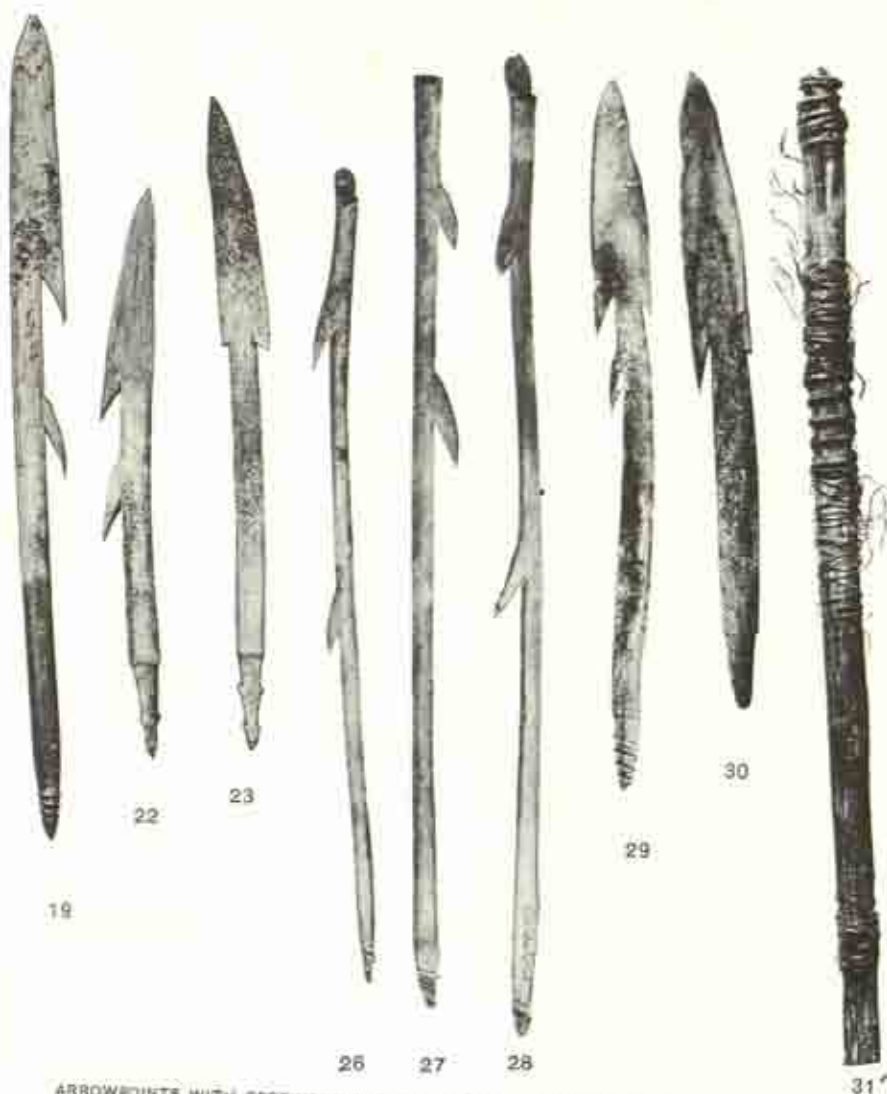
No. 29. Kangamiut, District of Sukkertoppen, $65^{\circ} 50'$. A heavy point with two lateral barbs on one side, a small one on the other. Tenon with well-worked screw of type II. Rather weathered. 22 cm., 15 (?) gr.

No. 30. Kangamiut. A short, stout, rather well preserved point with one large lateral barb on one side and a very small one on the other. Tenon with two pairs of knobs. 20 cm., 20 gr.

The thirty arrowpoints described above, the tiny No. 8 alone excepted, are made of reindeer antler, and most of them, at least all the larger ones, have been used in caribou hunting. They are nearly all more or less curved, a result of long exposure to the weather. If kept dry, objects of antler will last for centuries in the arctic climate, as is ordinarily the case with arrowpoints stuck in crevices amongst the stones of a grave, where rain and melting snow soon evaporate. But specimens embedded in tufts of moss or accidentally lost on ground covered with vegetation are much more readily affected by the weather, partially through action of organisms, and will soon acquire the appearance of greater age than better preserved specimens show.

GEOGRAPHICAL DISTRIBUTION OF THE SCREW

A. WEST GREENLAND. Although the material from which arrowpoints of the west coast are made is rather accidental, it still ranges from about 65° N. lat. to about 72° N. lat.; that is to say, it covers the principal caribou districts of the colonized part of the west coast, the district of Godthaab and Frederikshaab, 62° – 65°



ARROWPOINTS WITH SCREWS, AND UPPER END OF ARROWSHAFT. (ONE-HALF SIZE)

N. lat., excepted. From this district, however, I have also seen specimens (not now at hand), and I do not doubt that arrowpoints with screw-bearing tenons have been very common along the entire coast of Danish West Greenland. From Ryder (*loc. cit.*, p. 310) and Thalbitzer (*loc. cit.*, p. 365) we also learn that numerous points of this kind are preserved in the museums of Copenhagen and Stockholm, perhaps also elsewhere. A number of them are also probably still preserved in their wooden shafts, the screw-bearing tenons thus being concealed.

B. EAST GREENLAND. From the Scoresby Sound region six points with screws are mentioned by Ryder (*loc. cit.*). From the same region and from Franz Josef fjord the Nathorst expedition brought seven points with screws, according to Thalbitzer (*loc. cit.*, p. 365).

C. CENTRAL TRIBES. A point with slanting knobs is figured and described by Boas (III, p. 397, fig. 193, *b*) from Frozen strait. Probably also the small point figured by the same author (II, p. 83, fig. 116, *a*) from Boothia Felix has traces of slanting knobs on its tenon.

D. ALASKAN TRIBES. In the memoirs by Murdoch and Nelson I find neither description nor illustrations of screw-bearing tenons of arrowpoints, but Boas says distinctly (III, p. 398) that "points of this kind are found frequently on Alaskan specimens."

GREENLAND ARROWPOINTS WITHOUT SCREWS

In various papers Boas has stated that the bone arrowpoints of the tribes of the Central Eskimo ordinarily are beveled and attached to the beveled upper end of the shaft with sinew lashing, in contradistinction to the arrows of the western tribes, which usually have tapering points fitted in mortises. It is interesting to note that the first kind occurs also in Greenland, although the second is far more common. In his paper (*loc. cit.*, p. 366, pl. XVI, fig. 8) Thalbitzer describes and figures a point with one lateral barb and with a slit for a blade but without nail-hole. The author has some doubt about the purpose of this object, regarding it as either an arrow or a point for a bird dart or a salmon spear. According to my view it is the point of an arrow which was provided with a stone blade, hence

the thickening of the upper butt for strengthening. The tang of this specimen, as well as of a similar one found by Thalbitzer (loc. cit., fig. 82), seems to have been lashed to the shaft. A third

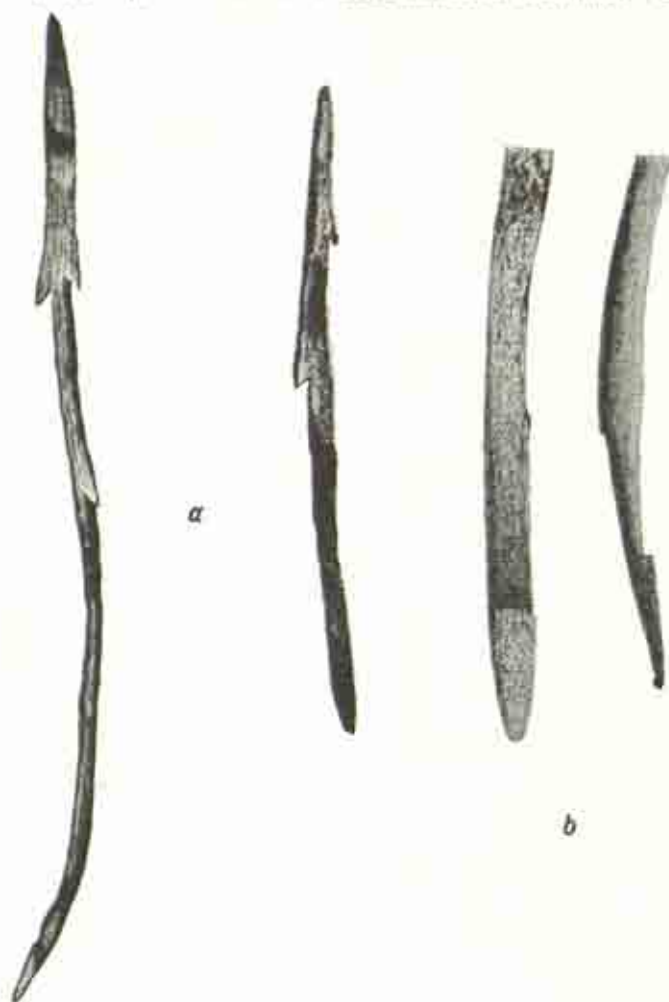


FIG. 4.—*a*, Arrowpoints with beveled tangs; from Iginiarfik, Egedesminde, west Greenland. *b*, Tangs of the preceding. (One-half size.)

specimen, collected by Nathorst in northeastern Greenland, is also mentioned by Thalbitzer (p. 369). These specimens are somewhat weathered, but the illustrations are not sufficiently clear to make it

certain how the attachment was effected. But I have in my collection two examples from a grave near Iginiarfik, in the District of Egedesminde, which show that both the purpose of the object and the method of attachment are beyond question (see fig. 4). One of these has a long point with two cutting edges, two opposed lateral barbs, and a third secondary one; the total length is 32 cm. The other is shorter (20 cm.), with two unopposed barbs, and probably has had an inserted blade, as the cutting edges are not developed. The tangs of both specimens are identical, being beveled and of bayonet shape, evidently intended to be fixed by lashing to a correspondingly formed butt of the shaft. Both specimens are much weathered and may perhaps be of greater age than most of the others herein described. But it may be repeated that the weathering alone is no sign of antiquity, since several of the screw-bearing specimens are as greatly weathered, and indeed sometimes half is totally weathered away, while the other part is as fresh as if it had been made a year ago. These may be the product of the personal style of their maker.

PLUGS AND OTHER IMPLEMENTS WITH SCREWS

The occurrence of screw-like cuts on modern cleaning-rods for guns has already been mentioned (see fig. 3).

Plugs for closing wounds in seal-hides before towing have been in general use throughout the western coast of Greenland, but they have so long ceased to be made about Disko bay that many hunters are not familiar with them at all, although in house ruins and on beaches one may still find old specimens more or less decayed. At least in the southernmost parts of Greenland such plugs are still in use, every canoeman having a bundle of various sizes lying under the bladder on the aftdeck of his kayak. They are generally of wood and are more or less wedge-shaped according to the form of the wound made by the harpoon or the lance. The purpose of the plugs is not only to prevent loss of blood, but particularly to make it possible to inflate the seal's body in order that it may float, thus making towing easier. Inflation is accomplished in the simplest way, the hunter blowing into the wound or the anus of the seal.

There are two kinds of wooden plugs. One of these has a number

of transverse parallel grooves with oblique edges. This form is thrust into the wound until one of the grooves exactly closes it. To pull the plug out, the wound must be slightly enlarged. (See fig. 5, *a*; Boas, II, fig. 18, has the same form from the Central tribes.)



FIG. 5.—Types of wooden plugs for closing wounds. (Models; exact size.)

FIG. 6.—*a*, Old wooden plug for closing wounds; from Hunde Eiland. *b*, Probably a plug for closing wounds; made of whale bone; from Hunde Eiland. (Exact size.)

The other kind has a groove cut spirally, resembling the arrow screws of type 1. This kind is screwed into the wound until it is filled, and is easily unscrewed without enlarging the wound (fig. 5, *b*). The same form is also known to the Central tribes (cf. Boas, I, fig. 402). It is readily seen that a screw-like cut in a flat object will not prove effective in a hard substance, such as wood; but in soft materials, like rawhide, a flat screw will work as well as a cylindrical one. Hence the tenons of arrows are nearly always cylindrical in section, whereas the plugs are usually elliptical.

Figure 6, *a*, illustrates an old wooden plug from Hunde Eiland in Disko bay, with grooves on one side only. It is not well preserved.

Figure 6, *b*, is a stout piece of whale's bone in which a fine screw of type II is carved. As the piece is too large for an arrowpoint, it may have served as a plug.

Figure 7, *a*, shows a wooden implement the use of which is uncertain. The part with the elaborately cut screw is elliptical in section; the other part has a cutting edge reaching nearly halfway up. The upper point is cylindrical. Total length 28 cm. Manitsq island, near Egedesminde.

Figure 7, *b*, shows an odd piece of somewhat rotted wood, on which has been cut a very well made screw of type I. The piece is not of driftwood, but of a native willow (*Salix* sp., probably *S. glauca*). It seems never to have been straight, and as the wood of this species of willow is soft and of little strength even when new, I believe the object was never put to practical use, but was fashioned merely as a pastime and then thrown away. Total length 25 cm. House ruins on Manitsq, near Egedesminde.

REMARKS ON LINGUISTICS

Although the technique of the Eskimo has developed the principle of the screw, his language—at least the dialect of Greenland—has no vocable expressing the common concept of a screw. From the verb *qipivâ*, 'he twists it,' is derived *qipineq* or *qivneq*; 'a winding,' 'a twist,' 'a spire,' whence *qivnilik*, 'provided with twists' (*qivneq*

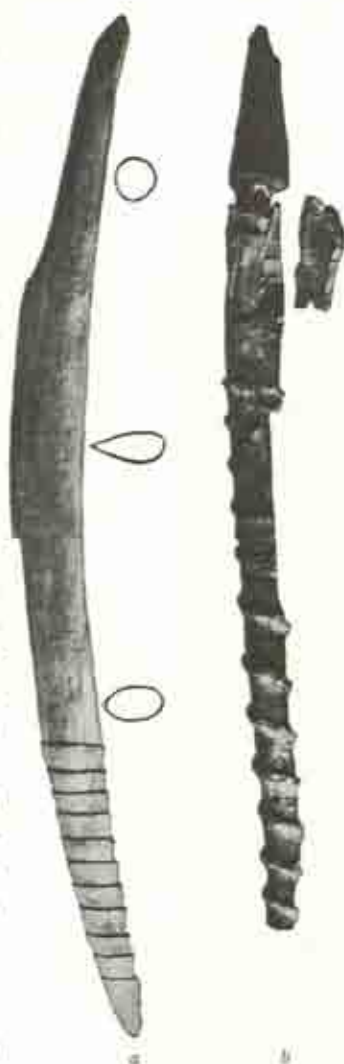


FIG. 7.—*a*, Wooden implement of uncertain use; from Manitsq, Egedesminde. *b*, Carved willow stem, probably not for practical use; from Manitsq. (One-half size.)

and the affix *-lik*, 'having'). As the term "screw," together with its numerous compounds and combinations, cannot be translated literally, the Eskimo of Greenland either invents new terms for the several screw-bearing objects introduced into Greenland or else paraphrases the Danish terms in accordance with his conception. A screw to be fixed in wood or metal is called *kikiag qivnilik*, 'a nail with twists'; but a screw used to clamp two things together becomes *sukaterut qivnilik*. The same combination, *sukaterut qivnilik*, also signifies 'a screw's nut,' because *sukaterut* is 'a means for straightening or tightening something'—for instance, the string used to tighten the hood of the waterproof jacket around the face is also correctly called *sukaterut*. A twisted string may be called *qivnilik* in contradistinction to a braided one, which is known as *perdlainilik*. Other implements introduced with their Danish terms consisting of a compound of the word 'screw,' the Greenlander has translated in his own way; for example, a vise, Danish *skruestik*, is translated *pusugutit*, from *pusuk*, 'the first and second fingers of the hand together.' To the Greenlander the jaws of a vise are the essential acting parts, not the screw which moves them. *Pusugutit* is therefore also the correct translation of 'forceps,' 'nippers.'

IS THE ESKIMO SCREW AN ABORIGINAL INVENTION?

The fact that screw-bearing implements are so frequently found in house ruins and graves of West Greenland leads naturally to the question, Is the screw an aboriginal invention or was it suggested by objects of European provenance? If the screw were known only in that part of the Eskimo region, a decisive answer would not be easy. The great bulk of old implements from West Greenland in the collection here treated, as well as in the more numerous examples in the principal museums of the world, were not gathered by scientific persons, but by natives who sold them to collectors; hence we are almost totally ignorant regarding the condition and age of the graves or the ruins in which they were found. The phrase "very old" in the language of the natives may mean half a century or a dozen centuries. But even in undisturbed ruins or graves we have no reliable basis for estimating the age of these objects. An interesting attempt in this direction has recently been made by C. B.

Thostrup,¹ who distinguishes three different periods of settlement based on the condition of the ruins of winter houses, namely: (1) The oldest winter houses are indicated only by a slight elevation of the ground where the walls formerly stood. (2) In the houses of the next period the roof has fallen in, and the walls, though still standing, are covered with earth and vegetation. (3) The houses of the latest period are but little demolished, and the passage and dwelling room are not yet filled up or overgrown with vegetation.

Nevertheless, there are some facts which lead to the belief that screw-bearing implements were made before the advent of Europeans into West Greenland. First, the bow and the arrow were the first aboriginal weapons to be discarded after the introduction of European objects, and arrows of bone with iron blades are remarkably scarce. Second, the custom of depositing objects in the graves was abolished immediately after the introduction of Christianity. Decisive evidence of the aboriginal character of screw-bearing objects, however, is their occurrence in far-off regions that have in no wise been influenced by the white man. Boas (III, p. 398) has already said that objects from Frozen strait exhibiting the screw are perhaps the best proof of the antiquity of the device; but the occurrence of numerous specimens from the east coast of Greenland, where the Eskimo were exterminated before the white man came to investigate their remains, speaks still more decisively for the antiquity and aboriginal character of the Eskimo screw.

CONCLUDING REMARKS

We thus reach the conclusion that the principle of the screw is an old and original invention of the Eskimo, executed by a method of his own. This method is still practised by the "civilized" West Greenlanders of our day, in analogy with other ancient processes originated at a time when only stone implements were available (cf. Porsild, I, chap. "How a stone-knife was used by the Eskimo").

Although the screw may have been familiar to the Eskimo for unnumbered centuries, our idea of the device as a physical entirety

¹ "Ethnographic Description of the Eskimo Settlements and Stone Remains in Northeast Greenland" (*Danmark-Ekspeditionen til Grønlands Nordøstkyst, 1906-08*, B. IV, no. 4, p. 333. *Meddelelser om Grønland*, XLIV, 1911).

has not been impressed on his mind in such manner as to cause him to originate a term synonymous with our own. He has noticed only the "twisted" surface, and even the modern Greenlander, who by practice has learned the working effect of a screw, has not invented a term strictly applicable to that function.

In consonance with nearly every recent contribution to the culture of the various Eskimo groups (Boas, Ryder, Thalbitzer, Porsild, and others), the observations here presented aim to show the remarkable unity of culture of that widespread people.

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DISKO ISLAND, GREENLAND

LINGUISTIC POSITION OF THE TRIBES OF SOUTHERN TEXAS AND NORTHEASTERN MEXICO

By JOHN R. SWANTON

EXCEPTING its extreme northwestern and western extensions the territory included in the present state of Texas was anciently occupied by peoples of two sharply contrasted cultures. East of Trinity river and north of the latitude of Bidais creek, extending into northwestern Louisiana and southwestern Arkansas, were a group of tribes which had attained a very considerable stage of cultural development, reminding one in many respects of that reached along the lower Mississippi and eastward. These are the people we usually call Caddo from the designation of one of their principal divisions. South and west of them, however, in an area stretching from the southwestern corner of Louisiana and the western bank of the upper Trinity across the Rio Grande westward to about the site of Monclova, Coahuila, and southward almost to Panuco, were a vast number of small tribes of extremely low culture, so low, in fact, that it is to be doubted whether there is another area in North America which can compare with it in this respect. It is of these people that Cabeza de Vaca, early in the sixteenth century, gave such a depressing picture, and on many of the early maps we find the legend "wandering and cannibal peoples" printed here. The designation "cannibal" appears to have been applied in this region more justly than anywhere else in North America, and to the present day a remnant of one of these tribes, the Tonkawa, is known to other Indians as "man eaters," while the name which has survived as that of a linguistic stock in southwestern Louisiana and southeastern Texas, Atakapa, signifies the same thing in the tongue of the Choctaw from which it was borrowed. But while a low culture is not necessarily associated with cannibalism, in this particular region such was the case. All reports show us that the economic life, the social institutions, the habits and customs were

of the most primitive type, or perhaps I might better say that they were the least fused into those regional agreements or conventions upon which the phenomena which we call the tribe, the cultural area, and the nationality are built.

Along with this condition there seems to have gone a lack of ability on the part of the people to adapt themselves to civilization. Although they were not formidable antagonists, they could never be induced to submit to either the Spaniards or the Americans for a long period. It was not until two hundred years after the occupancy of Panuco that Escandon overcame the tribes of Tamaulipas, his conquest practically involving the destruction of the conquered, and the Texans on their side of the Rio Grande were finally incited by Karankawa depredations to overwhelm and destroy the remnant of that coastal people. The tribes farther inland were for a time missionized, but they frequently decamped, and it is probable that hope of protection against their northern enemies, the Apache and Comanche, had more influence in inducing them to settle about the missions than any real desire for civilization. At any rate they steadily declined in numbers until no considerable body of any of these Indians, unless we except the Tonkawa, now numbering fewer than forty-five, is known to be in existence. The adaptable French of Louisiana appear to have been the only Europeans in contact with these people who avoided any serious difficulties with them; but the Atakapa, the particular branch with which they had dealings, rapidly melted away, until today only a few descendants remain, confounded with the so-called "Red-bones" of Louisiana. Of all the Indians in this immense area only the few Atakapa and Tonkawa above mentioned, and possibly one or two remnants in Tamaulipas, survive.

While, as we have said, these peoples all appear to have agreed closely in culture, or lack of culture, the fragments of their languages preserved to us show very considerable divergences, and on the basis of these fragments six or seven distinct linguistic stocks have been erected. These are the Atakapan between Opelousas and Vermillion bay, Louisiana, and Galveston bay, Texas; the Karankawan in Texas, from Galveston bay to Aransas bay; the Tonkawan

inland of the preceding between Trinity river and Cibolo creek; the Coahuiltecan, or Pakawan, from Cibolo creek to about Monclova, state of Coahuila, Mexico, reaching the Gulf of Mexico only at the mouths of the Nueces and Rio Grande; the Tamaulipecan, covering all except the northern, southern, and southwestern extremities of the state of Tamaulipas; the Janambrian, embracing the Janambres and Pisones of southwestern Tamaulipas; and probably the Olivean of the southern part of the same state.

The Olive, who give their name to the Olivean stock, were brought into this territory from somewhere in the interior of Texas by a Spanish expedition of the sixteenth century, were missionized, and afterward acted as a bulwark against the wilder tribes of the north. As it is not at all likely that this expedition penetrated beyond the territory under discussion, the natural inference is that the Olive belonged to the same group, but nothing of their language is known to have been preserved. The two other linguistic groups in Tamaulipas are given on the authority of Orozco y Berra and must stand until more documentary or other evidence is supplied. At present the only scrap of a strictly Tamaulipecan language available is a corrupted bit of Maratino, from the central part of the state near the Gulf. The results of an analysis of this will be given later.

The Coahuiltecan stock was originally based on a catechism of Bartolomé García, a Franciscan father in the San Antonio missions of southern Texas, and with the help of the notes accompanying his *Manual* and information from other sources collected by Professor Herbert E. Bolton we are enabled to outline the boundaries of the stock with considerable accuracy. In 1886 the late Dr A. S. Gatschet discovered a few Indians on the Mexican side of the Rio Grande who knew something of two of the former languages of that region, Comecrudo and Cotoname. These he considered dialects of the Coahuiltecan stock, and that assumption has persisted until today, although on Orozco y Berra's map we find the Comecrudo placed in the territory of the Tamaulipecan stock. The Karankawa material consists principally of a vocabulary collected by Gatschet from a Mrs Alice W. Oliver, a white woman, who had spent her

earlier years near the Texas coast and had acquired some knowledge of the speech of that people. It is limited in extent and probably somewhat corrupted. It was supplemented to a small degree by short vocabularies collected by him from two Tonkawa Indians. Although Atakapa is practically extinct as a spoken language, Gatschet was fortunate enough to visit the remnant of the tribe when it was still possible to secure material, and in consequence we have a fairly extensive vocabulary and several texts. He also collected a long vocabulary and a few texts from the Tonkawa. Tonkawa, however, is still spoken, although, as we have seen, by very few people, and work may yet be done upon it. So far as I am aware, this is the only language throughout the vast area we are considering of which such a thing may be said.

When a serious investigation has been made into the structure of Tonkawa and Atakapa we will have a better basis for comparison with the fragments of speech that have survived to us from farther south. From short preliminary studies of Atakapa and the language of García's *Manual* in connection with the fragments of Karankawa, Comecrudo, and Cotoname, I am of the opinion that neither the phonetic systems nor the structure of these varieties of speech differed very widely. All are vocalic, on the whole, clusters of two consonants being indeed fairly common, but not a dominant feature. Words and syllables often end in consonants, particularly *k*, *l*, *n*, *m*, and *s*. The other structural features known to me give indications that few striking differences will be found.

But, while waiting for such a study to be undertaken, the results of a lexical comparison made by the writer some years ago may be of interest, as it seems to bring out certain interesting facts. In preparation for this work the Comecrudo and Cotoname material collected by Gatschet has been carded, as has also the Coahuilteco of García's *Manual*, after the latter had been analyzed as thoroughly as possible. This was tabulated along with all that in Karankawa and all of the Tonkawa equivalents contained in Gatschet's Tonkawa vocabulary, and therefore includes practically all the cross comparisons now possible between the Coahuilteco, Comecrudo, Cotoname, Karankawa, and Tonkawa languages. All possible com-

parisons have also been made between the first four of these and Atakapa, but I have not attempted a complete comparison of Atakapa and Tonkawa.

The following table contains all of those words which seem, as a result of the above comparison, to bear some relation to each other, although exactness is unattainable in a matter of this kind, since some apparent resemblances no doubt have no real significance, while forms seemingly much wider apart are no doubt related. I suggest, however, that the errors in one direction may check off those in the other. But even though the total number of resemblances listed were actually greater than the facts warrant, it is to be presumed that, the same investigator doing the work, the proportional resemblances between tribe and tribe will remain practically uniform. The phonetic signs used agree with those in English, or rather show that the sounds for which they stand approximate the English sound so designated, with the following exceptions: the vowels in general have their continental values; *a* is the obscure *a*; *ɛ*, English *sh*; *ɛ*, *e* in bell; *ɪ*, *i* in mill; *ñ*, English *ng*; *tʃ*, English *ch* or *tch*; *dʒ*, English *j* in judge; *x*, velar spirant; *ɣ*, the palatal spirant; * indicates that the preceding vowel is nasalized; *m* is a final *m* in some Karankawa words, "pronounced short and with the lips tightly closed," according to Gatschet; *E* stands for "eastern Atakapa dialect"; *W* for "western Atakapa dialect." In Coahuilteco García uses an apostrophe (') to show that the preceding consonant is pronounced with stress, i e., like a fortis; elsewhere it merely marks a pause. This is the only phonetic feature of any importance which seems peculiar to one language, but it is probable that, if our material had been collected when the languages in question were in a better state of preservation, it would be found to have been more widely distributed. It may be noted that the subjoined tables show some indication of an interchange between *k* and *p*. I have enclosed in parentheses portions of the Indian words which appear to be affixes.

LEXICAL RESEMBLANCES BETWEEN THE TONKAWA, COAHUILTECO, KARANKAWA, COMECRUUDO, COTONAME, AND
ATAKAPA LANGUAGES

ENGLISH	TONKAWA	COAHUILTECO	KARANKAWA	COMECRUUDO	COTONAME	ATAKAPA
after		<i>uama</i> (1st)		<i>semi</i>		
again	<i>else</i> (n)	<i>isa</i> (x)				
alone, only	<i>pax, para atak</i>			<i>paluem</i>		<i>iputs</i> (only), <i>pa-a</i> (too)
also		<i>hin, in</i>	<i>tén</i> (no)			
angry		<i>p'egul</i>				<i>yot</i>
anus, backside		<i>ti'</i>				<i>tot</i>
arm	<i>hiton</i>			<i>el</i>	<i>kateruon</i>	
arrow	<i>caxai</i>			<i>lot</i>	<i>kná</i> (also reed)	<i>skenne</i> (E), <i>tk</i> (W)
bow	<i>nixa-u</i>		<i>got</i>	<i>xf, xaf palápie</i>		
aunt	<i>ahan, wacek,</i> <i>tahenényu</i>	<i>maki'an, tsol,</i> <i>milcal, xolál,</i> <i>talce, tate, mahé</i> <i>k'asax, axz(pam),</i> <i>edé</i>		<i>ken</i>		
bad	<i>þx</i>	<i>mandim, es p'an</i>	<i>te áa, kassikawakn</i> (to injure)	<i>xf, xaf palápie</i>		<i>hatsé-ec</i> (W), <i>ikau</i> (E)
good, well	<i>hinox</i>		<i>pla; klakom</i> (well, healthy)	<i>kéndx</i>		
be, to	<i>eno</i> (to live)	<i>lei, lexat, so</i>		<i>ameluem</i>		<i>-e, to, a, uc</i>
believe, to	<i>telena</i>			<i>yona</i> (to think)		<i>naí</i>
belly	<i>acwi</i>			<i>wax</i>		<i>kox, kuuele</i> (within) <i>kom, kimatí</i> (inside)

ENGLISH	TONKAWA	COAHUILTECO	KARANKAWA	COMECRUPO	COTONAME	ATAKAPA
bird	<i>kola</i>	<i>awuyam</i>	<i>kudn</i>	<i>xam</i>	<i>komióm</i>	
black			<i>pal, ma, mel</i>	<i>pa-yalaó</i>	<i>ba-é</i>	<i>mel, yañ</i>
body				<i>newasó</i>		<i>al</i>
break, to	<i>yatemaxet, yax-</i> <i>matce, kolaxa</i>	<i>k'xwákalap'</i>	<i>tákama</i>	<i>aptak</i>		<i>kéls, tsal</i>
breat	<i>yateax</i>	<i>tsots</i>				<i>tisk</i>
breat, female	<i>náyoman</i>	<i>tam</i>	<i>kanín</i>	<i>kném</i>	<i>kénám, knám</i>	
brother	<i>kema</i>	<i>kudniáp, mntáñ</i>		<i>kanosa</i>		<i>nisel</i>
burn, to	<i>ma-i, melne</i>			<i>(pa)makua</i>		
capture, catch, or	<i>he-ul, ta-an, nuku</i>	<i>ico (to take)</i>	<i>halín</i>	<i>hel, gutile</i>		<i>icul, yul, ko"</i>
take, to	(to take)					
cold	<i>hatsax</i>			<i>(pa)sewe-hiaó</i>	<i>háwéts, dwéss</i>	
come, to;	<i>yetoka (to arrive), kal</i>		<i>ka'i, kas, éwe,</i>	<i>unigió (come</i>		<i>mok, han, hi, to</i>
	(they gather to- gether), <i>we-ewen,</i> toward		<i>éwe-é (come</i> <i>here!)</i>	<i>here!)</i> , <i>yuk, to</i> <i>come</i>		<i>come near; ta,</i> <i>to come out; o, to</i> <i>come; m, to come</i> <i>in</i>
go, to	<i>xa, yaku(na), kux, kaal, kuan, (oux).</i>	<i>yé; wána (let us</i> <i>go! or go away!)</i>	<i>yé; wána (let us</i> <i>go! or go away!)</i>	<i>(pa)kió</i>	<i>awéyo (go over</i> <i>there!)</i>	<i>non, wan</i>
conceal, to						
companion	<i>tenpa</i>			<i>kama(i)</i>		
	<i>ta- (to go in com- pany)</i>					
crane	<i>k'a-u</i>		<i>kéd'd</i>	<i>kol</i>		<i>karakór</i>

ENGLISH	TOSKAWA	COAHUILTECO	KARANKAWA	COMECRUÑO	COTOSAME	ATAKAPA
cry or weep, to	<i>maka</i>	<i>uáyo</i>	<i>oué'ya</i>		<i>xakue</i> (to weep) <i>pama</i> (to cry)	<i>hái, yo-u</i> (<i>co</i>) <i>hák</i>
dance, to	<i>yákaze</i>			<i>evé, e-ué</i> <i>evé kái, evé evé</i>		
deer	<i>ao</i>	<i>hēuh, hāuh, hēux,</i> <i>hāux</i>		<i>mek</i>	<i>tildix</i> men (what do you want?)	
flesh		<i>lāpamō</i>	<i>ta</i>		<i>uúdxo</i> (he died) <i>mátsékuka</i>	<i>nok, yoxi, hólly</i>
desire, to;						
die, to	<i>luma(x)(o), waxa</i>	<i>xum, (kuan)isam</i>	<i>mał</i> (dead)	<i>(po)piái</i> (dead)		
sleep, to	<i>chaxno</i>	<i>isimōxam</i>	<i>im</i>	<i>(n)emēi</i>		
lie down, to	<i>tapixne</i> (to lie on one side)	<i>(oux)'dmo</i>	<i>wa-ak</i>	<i>(po)kol</i>		
divide or sepa- rate, to		<i>saxop</i>		<i>papuplak</i> (to di- vide), <i>xop</i> (far)		<i>hopa-i</i>
do, make, be-	<i>he-ikewa, yekewa</i>	<i>hawai, hōi</i>	<i>kəhawan</i>			
come					<i>kwee-u</i> (dog) <i>kissá</i> (fox)	
dog	<i>ekwan</i>	<i>kiss</i>		<i>pamkam</i>	<i>xudxe</i>	<i>am, ha-u</i>
drink, to	<i>(hen)uk(no), xane, ouxo</i>	<i>akweén</i>	<i>akweén</i>			
duck	<i>xana</i>					
ear	<i>cona</i>					<i>cohnok</i> <i>an</i>
eat, to	<i>yux</i>	<i>ham</i>	<i>akndmús</i>	<i>ali</i> <i>(po)kaí, (po)ka-</i> <i>kuf</i> (to masti- cate)	<i>haháme, xuxáme,</i> <i>akewamia</i> (to masticate)	<i>hul, ya</i>

ENGLISH	TOKAWA	COAHUILTECO	KARANKAWA	COMECRUPO	COTONAME	ATAKAPA
end, to	<i>shé(wa)</i>	<i>xái</i>		<i>eha plame</i>		
enter, to	<i>akuna, axuna</i>	<i>yáx</i>				
evening		<i>icun, lakóm</i>	<i>anook</i>	<i>(po)lesóm</i>		<i>mak</i>
fall, to	<i>ela (ʔ)</i>		<i>weal(nia)</i>	<i>mel. (po)mesai</i>		
far, far off	<i>lawal</i>			<i>wam, mawis, mox</i>		
father	<i>ewac</i>	<i>mama</i>		<i>(atig)wak(ʔe)</i>		
fight, to		<i>kóvako</i>	<i>hámhe, kwolca</i>	<i>len</i>	<i>mánlex</i>	
fire	<i>naxtean (nax, to burn)</i>	<i>talóm</i>				
fly, to				<i>unakéku</i>		<i>kua</i>
foot				<i>emí</i>	<i>ayésim, ayésemia</i>	<i>muk</i>
forehead				<i>pox</i>		
forget, to				<i>halékám</i>		
friend	<i>naxno</i> <i>ta (with, in com- pounds)</i>	<i>xám</i> <i>tówan (to be a friend)</i>				
give, to	<i>ax</i>			<i>ayemá</i>	<i>krub</i>	
goose	<i>xitik</i>		<i>la-ak</i>			<i>kulca</i>
grandfather		<i>pu'ál</i>				
grandmother	<i>ekak, ekac</i>	<i>kís, káka</i> <i>(ap)nán</i>	<i>ya-an, wol (a great deal of)</i>	<i>poskám, pokmát</i>	<i>katám, katara</i>	<i>hélz, kome, uc</i>
great	<i>kwalo</i>		<i>étsma (and finger)</i>	<i>mapí (and finger), xam mapí, "bird-arm" i. e. wing</i>	<i>mia-po (wing)</i>	
hand		<i>máux</i>				

ENGLISH	TOKAWA	COAHUILTECO	KARANKAWA	COMECUCHO	COTONAME	ATAKAPA
handle, touch, to	ta-un		ta-sá-tawál			
have, to	ka					ka, ke
he, she, it	el		tal			
that, this, the	tel, ta-ka, water, el, ta, pi		tal			
	wi					
hear, to		ta-ka-wéi		ye, kenkiwaye		
heart	yatsanan	xatál		kayasíl		
horn				yémó, yemó	yómo	
dwell, to		tsam		apayuemle		
house		tsam	ba-ah	tsamik		
husband		k'á'u		tshuasi		
I, me, my	ea, eaya, ka (obj.)	tsín, na-, ta- (obj.)	néyi, nd-i	yem (me, my), na		
if				(I)		
iron, gun, rifle	eyuk	awaxta, é, éz				
				(pa)mióp (gun)	komiof (iron), komiópo (gun)	
jump, to	tsuxámo, yakeave			(pa)káu		wok
kill, to		em	ahuk		ndixuka	
knife			silekoyi	xayepó	éhió-u	
know, to	ataxa		kwass, kúmma			wixt
laugh, to	xaxaya					kayu
leaf	xaxe-i	xó	katia			woc
lightning	metelcanen	mayá		xaisel (xal, tree) (pa)metól, (pa)mdé (thun- der), (pa)mok (thunder)		

ENGLISH	TOKKAWA	COAHUILTECO	KARANKAWA	COMECRUDDO	COTONAME	ATAKAPA
love, to	<i>kec, ha-a</i>	<i>karua</i>	<i>ka</i>	<i>kuail</i>		
maize	<i>tu'ixan</i>		<i>kuaiin</i>	<i>laweló</i>	<i>laweló</i>	<i>necóum</i> (E)
man, male	<i>haakon</i>	<i>xagú</i>		<i>gnax, gná</i>	<i>xuaináxe</i>	<i>ekiol</i> (male), <i>éaké</i> (man)
people, Indian		<i>filom</i>	<i>yámatue</i> (man)		<i>xaima</i> (Indian)	
many, much	<i>anohoh, ha-ac, hi-wél</i>	<i>oxáux, (ap)aux</i>		<i>yauet</i>		<i>hé-u</i>
marry, to	<i>ta-e</i>	<i>tóyagú</i> (said of a man; also sig. "wife")				
mesquite						
milk	<i>icana</i>	<i>keal</i>	<i>tenukúdyu</i>	<i>kan</i>	<i>dan, tánie</i> (?)	<i>nik</i>
miscarry, to						
moccasin, shoe						<i>na-u</i>
moon	<i>naacout, (nas, to shine)</i>	<i>ámta</i> (month)	<i>té-u</i>	<i>kan</i>		
mother	<i>ísta, xat</i>	<i>léic, lai</i>				<i>teñ</i>
mother-in-law	<i>icóm</i>		<i>tekal, pahuañt</i>			<i>hican</i>
near		<i>takóm</i>				<i>ípal, ol</i>
night						<i>tégg</i> (E)
nine	<i>sekwaac</i> (<i>kwalo</i>)					<i>woc</i>
no, not	<i>akai, kena, kapa-i</i>	<i>ox, oxua</i> (no)	<i>kóm, kwé-om, kwóm</i>	<i>kam</i>		<i>-ha</i>
nose		<i>axam, yaxam</i> (not)			<i>yá'ix, ya'x, yax</i>	

ENGLISH	TUNKAWA	COAHUILTECO	KARANKAWA	COMECRUDDO	COTONAME	ATAKAPA
now	<i>huc</i>	<i>nahue</i>	<i>ucáhak</i>			<i>nah</i>
old, ancient	<i>luca</i>					<i>maet</i>
one	<i>wece</i>		<i>ná'isa</i>	<i>ahua-p</i>		
place or put, to	<i>pa-p</i>	<i>xakauko</i>				
pregnant	<i>actorea</i>	<i>sahui(n)</i>				<i>tsah(c)</i>
push, to	<i>yakdan</i>		<i>dan</i>			<i>mah</i>
quick, quickly	<i>matan (?)</i>	<i>xuako ayê</i>	<i>evé-e, evé, tólos</i> (to run quickly), <i>xankéye, xanké</i> (to hurry)		<i>kiáxhem</i> <i>tsémás</i>	
rabbit				<i>kieuxén</i>		
rat, mouse	<i>icux (mouse)</i>			<i>kuemét (rat)</i>		
rattlesnake	<i>senun katalak (real snake), senun-snake), senun-tsavan-kas</i> (snake having rattle)			<i>wemáh (pa)sél</i> (<i>pasél</i> probably means "to rattle")		
red				<i>pamád</i>	<i>wsá-á</i>	
river, water	<i>tsakan (river)</i> <i>ax (water)</i>			<i>ax</i>	<i>almah-a, almahé</i> (river), <i>ax,</i> water	<i>akon(st), ts-i (river)</i> <i>ak, ka, kau</i> (water)
round	<i>pili, kopol</i>					
run, to	<i>yakana, yantsetsi</i> <i>xana, to go away;</i> <i>xoyen, going</i>		<i>tólos; xankéyo (to run or hasten)</i>	<i>(pa)wapél</i>	<i>mlára</i>	<i>paknan, tsat, akna-</i> (water)

ENGLISH	TOSKAWA	COAHUILTECO	KARANKAWA	COMECRUO	COTONAME	ATAKAPA
say, speak, tell, talk	<i>hepo, hetata</i>	<i>kā, masō, um,</i> <i>zum</i>	<i>kaupn, pāsim,</i> <i>gaxiaméti (1</i> <i>spoke)</i>			<i>uunt, ko-i</i>
scratch, to	<i>yutca, xwacaka</i>			(<i>pa</i>) <i>kawui</i> (to scrape)	<i>disin</i>	<i>kam</i>
sea (?)			<i>gliŋ-i</i>	<i>glai, klaf</i> (tor- oise—perhaps connected or a misunderstand- ing)		
see, to	<i>yutē</i>	<i>mas</i>	<i>leo</i>	<i>imāx, māhe</i>		
sexual organs	<i>nel</i> (both sexes)	<i>malāux</i> (male)		<i>mekuai</i> (female)		<i>pēm, pōis</i>
shoot, to	<i>yak, yelo</i>			<i>apokatlē, (pa)-</i> <i>yehēpt</i>		
sick	<i>alcān</i>	<i>tsa, f'al</i>	<i>kudico</i>	<i>pehnā</i>		<i>clis</i>
sing, to	<i>hikto</i>					<i>yok</i>
sister	<i>ula</i>					<i>hilet</i>
sister-in-law	<i>maceh ala</i> (also applied to other relations through mar- riage)	<i>mitcāl</i>				
sit, to	<i>yūla</i>		<i>hēkēi, hākal</i>	(<i>pa</i>) <i>nel pōi</i>	<i>pāwe</i>	<i>he</i>
six		<i>teākuāy</i>				<i>tsik</i>

ENGLISH	TOKAWA	COAHUILTECO	KARANKAWA	COMECRUDO	COTONAME	ATAKAPA
sky	<i>teleté-s</i> (above, etc.)	<i>uxuál</i> (heaven, of theology)		<i>apel</i>		
small, little, young	<i>yutca, catun</i>	<i>cán</i>	<i>huññ, huññ-an</i>	<i>hiññ</i>	<i>kuwóssam</i>	<i>éka, íx'on</i>
boy			<i>glo-ziññ</i>	<i>(pe)lavéñ</i>		
girl	<i>ahan, wixun</i>			<i>hiññ</i>		<i>kal, kuu</i>
south	<i>helepa</i>	<i>icdluk</i>		<i>nelpók</i>	<i>péwía</i>	<i>akípa-s</i>
stand, to				<i>woyekúñ</i>		<i>tsññ</i>
steal, to	<i>tsékan</i>	<i>iso (?)</i>	<i>dó-ozul</i>	<i>(pa)sevetian</i>		<i>wai</i>
stone, rock	<i>taxac</i>		<i>hákta</i>	<i>al</i>	<i>ó, o</i>	
strong	<i>taxac</i>	<i>f'il</i>	<i>turómká</i>	<i>(pa)malamáh</i>	<i>ó, o</i>	
sun				<i>tesumik</i>		<i>yíñ</i>
day	<i>hawet</i>			<i>(pa)piwet</i>		<i>lém, tññ</i>
yesterday			<i>táhamá</i>		<i>t'lem</i>	
tall			<i>nya</i>		<i>yo</i>	<i>nai</i>
tear, to	<i>hiyek</i>			<i>yene</i>	<i>cok</i>	
there	<i>yetsa(n)</i>	<i>naka</i>		<i>tokom</i>		<i>na, n</i>
think, to	<i>hítawux</i>					
thing	<i>eyo, haweták, na,</i> <i>yel, ya-, he</i> (obj.)	<i>xa-, ma-, xamaken</i> (pl.)	<i>awé, duna</i>	<i>náña, ye-ina</i> (you pl.)		
thou, you, thy						
three		<i>xohaimó</i>	<i>kaxayi</i>	<i>yiy</i>		<i>huk-</i>
together						
tired	<i>koxo</i>		<i>kudal</i>	<i>pohokut</i>		

ENGLISH	TONEKAWA	COAHUILTECO	KARANKAWA	COMECRUDO	COTONAME	ATAKAPA
tooth			é	í, íy, he-eun-í		kak, nee
tree, wood	nínácan, xate-í (leaf)		akumí	xai		
turkey	himaxan			esmakúit		
two	kela-í	axlé		alekmeten (or asequiten)		
very	anoók			etahkuah	nah	
where?	ala, ale (?)	anú, aní	mudá		ma	
whip, to	ya-xúca	waís			pals	
whistle, to	yókuwacana			(pa)pusamai	yoh, uoc	
white	maslak		pka	(pa)pók, (pa)pók		
wind	pozó (to blow)		ba	(pa)pót (and to blow)	pats-pats (L)	
witch		yéwal		terwalisel		
with	ta-	í'an		hel	ál	
you	hehe	áá, xa	hié-é	ya-unó	haha	

Following is a supplementary list of resemblances between Tonkawa and Comecrudo:

ENGLISH	TONKAWA	COMECRUDDO
another	<i>kalak</i>	<i>ap'hel</i>
beat, to;	<i>na-uyeni</i>	<i>aneluak(le)</i>
black	<i>kaxan</i>	<i>yatau</i>
buy, to;	<i>hayawa</i>	<i>huam</i>
chew, to.	<i>k'a-ile</i>	<i>kai</i>
cohabit, to	<i>la-e</i>	<i>tuilam</i>
cover, to	<i>nawai, ic'el</i>	<i>walai</i>
crow	<i>kal</i>	<i>pal</i>
cut, to	<i>kaelca; hama</i>	<i>kawi; wemak</i>
flexible	<i>kiyukyax</i>	<i>payayel</i>
follow, to	<i>yax</i>	<i>yup</i>
heavy	<i>k'estau</i>	<i>maketiau</i>
high	<i>takah</i>	<i>pakna</i>
hollow, hole	<i>saxal</i>	<i>pehiol, pohuel</i>
inside	<i>yakwa</i>	<i>ayapa</i>
just now, now	<i>hosh</i>	<i>pus</i>
lip	<i>k'alad (mouth)</i>	<i>xal</i>
low	<i>k'et</i>	<i>pus</i>
lower	<i>ayeri (under)</i>	<i>eulak</i>
mock, to	<i>maka, pap</i>	<i>emet pakale</i>
open, to	<i>teal, ya'hulaxé</i>	<i>ekokle, walai</i>
pipe	<i>kue-nuxun (pipe-stem)</i>	<i>kahuel</i>
seed	<i>xél</i>	<i>hekel (?)</i>
shall	<i>tuna</i>	<i>aneluem</i>
skin	<i>nawai (or covering)</i>	<i>emol (also hair on body)</i>
smell, to	<i>toxno</i>	<i>exno, pohuen</i>
thorn	<i>leh</i>	<i>tei</i>
tie, to	<i>yawewe</i>	<i>yenawile (tied)</i>
wound, to	<i>yela (to shoot and hit)</i>	<i>(pe)wnile</i>

To bring out the facts contained in these tables it will now be necessary to find how many opportunities for comparison there are between every two languages and what proportion the resemblances bear to that number. This is shown in the following table. It should be remembered, however, that the comparison between Tonkawa and Atakapa is not complete.

	CASES	RESEMBLANCES	PROPORTION
Coahuilteco-Karankawa.....	55	25	.454
Karankawa-Cotoname.....	43	18	.418
Comecrudo-Cotoname.....	74	26	.351
Coahuilteco-Comecrudo.....	105	36	.342
Tonkawa-Cotoname.....	71	24	.338
Coahuilteco-Cotoname.....	25	8	.320
Karankawa-Comecrudo.....	94	27	.287
Tonkawa-Karankawa.....	114	32	.280
Tonkawa-Coahuilteco.....	165	46	.278
Karankawa-Atakapa.....	129	22	.170
Coahuilteco-Atakapa.....	153	26	.169
Tonkawa-Comecrudo.....	425	65	.152
Comecrudo-Atakapa.....	202	29	.143
Tonkawa-Atakapa.....	294	38	.129
Cotoname-Atakapa.....	85	7	.082

In many instances the change of a single number would produce a very considerable alteration in the relative position of the above pairs in this table, therefore too much reliance must not be placed on it. In general we find about what was to have been expected: that peoples near each other show more mutual resemblances than those at a distance; but some of the results are quite unexpected. Thus Karankawa, which has been assigned to a distinct stock, would appear to have been closest to Coahuilteco, while Comecrudo and Cotoname, supposedly dialectically related to Coahuilteco, are farther away, and on the other hand little nearer to each other than they are to Karankawa. If Orozco y Berra believed, as his map appears to indicate, that Cotoname belonged to the Coahuiltecan and Comecrudo to the Tamaulipecan stock, he was very far out of the way, since Comecrudo is even nearer to Coahuilteco than is Cotoname. Nevertheless, all of these languages, including Karankawa, are as a whole nearer to one another than to Tonkawa or Atakapa, and as between the two latter languages nearer to Tonkawa. It is remarkable that Tonkawa appears to be much closer to Cotoname than to Comecrudo.

Considerable additional light has been thrown on the linguistic conditions in the area we are discussing by the researches of Professor Bolton. These seem to make it clear that, whether the stocks

hitherto assigned to this region are connected or not, they do represent so many divergent groups in the sections where they have been established. The position of the Tamaulipas tribes is, however, still very uncertain.

Among the things unearthed by Professor Bolton was a short vocabulary which he states was near the end of the original book of baptisms of San Francisco Solano mission, and dated 1703-08. This mission was founded in 1700 south of the Rio Grande, below Eagle Pass. In 1718 it was removed to San Antonio, but as that was after the period when these words were recorded, they are evidently from the speech of some tribe or tribes near its original seat, in a region usually assigned to the Coahuiltecan family, and Coahuiltecan it evidently is. Nevertheless an examination shows that this dialect diverges very considerably from the other known dialects. Below I give in tabular form the results of a comparison of the words in this list with corresponding expressions in the languages we have been considering:

ENGLISH	SAN FRANCISCO SOLANO	CORRESPONDENCES ¹
three	<i>genin</i> (or <i>genint</i> ?)	
four	<i>saath</i>	<i>sikt</i> (T), <i>tiets</i> (E A)
fur	<i>no</i>	<i>ela</i> (hair) (Com), <i>ng-u'</i> (W A)
tortilla	<i>kainika</i>	
I am hungry	<i>nabaog</i>	<i>amel</i> (hungry) (K)
tobacco	<i>sithik</i>	<i>ax</i> (Com), <i>toit</i> (W A), <i>tsigg</i> (E A)
salt	<i>tsiene</i>	<i>sepén</i> (Com), <i>dé-dn</i> (Cot)
meat	<i>nikaog</i>	<i>heux</i> , <i>ahaux</i> (Coa)
give me!	<i>sich</i>	<i>ayema</i> (Com); <i>yeu</i> (me) (Com); <i>ax</i> (give), <i>tsin</i> (I) (Coa); <i>hemic</i> (T), <i>(he)-weks</i> (gave me) (T)
water	<i>apam</i>	<i>ax</i> (Com, Cot, T), <i>almahan</i> , <i>atman</i> (river) (Com), <i>awana</i> (Coa), <i>ak</i> (W A)
there are	<i>taapam</i>	<i>tapa</i> (Coa)
there is none	<i>paam</i>	<i>paaxam</i> (Coa), <i>kam</i> (Com), <i>pa-i</i> (intensive) (T), <i>kom</i> , <i>kwó-om</i> , <i>kwóm</i> (K)
mother	<i>nuha</i>	<i>tai</i> , <i>tsawux</i> (Coa), <i>zai</i> (T), <i>haninma</i> (K)

¹ E A, Eastern Atakapa; W A, Western Atakapa; Coa, Coahuilteco; Com, Comenrud; Cot, Cotoname; K, Karankawa; T, Tonkawa.

father	<i>papam</i>	<i>ma'ma</i> (Coa), <i>mam</i> (Com), <i>behema</i> (K)
brother	(s) <i>oyd</i>	<i>oolaa</i> (sisters and brothers) (T)
sister	(s) <i>epadm</i>	<i>pen</i> (W A)
is she your sister?	<i>hyhomeyd</i>	
eat it!	<i>namd</i>	<i>ham</i> (Coa), <i>hahame</i> , <i>saxame</i> (Coa), <i>ya</i> (T), <i>akndmas</i> (K) (to eat)
bad	<i>krisen</i> (or <i>krigen</i> ?)	<i>k'aux</i> (Coa)
yes	<i>aspag</i>	<i>hehe</i> (T), <i>da</i> (Coa), <i>ya-unb</i> (Com), <i>hié-t</i> (K), <i>haha</i> (A)
he wishes (wishes)	<i>hypayd</i>	<i>tápumd</i> (Coa)

We find that out of the twenty-one words and expressions preserved from this dialect 11 have resemblances in Coahuilteco, 8 in Tonkawa, 8 in Comecrudo, 6 in Karankawa, 6 in Atakapa, and 3 in Cotoname. As in the previous cases, Tonkawa and Atakapa are at a great advantage, and Coahuilteco, Cotoname, Comecrudo, and Karankawa at a great disadvantage in this comparison, therefore the great number of resemblances between this dialect and Coahuilteco is more significant than the figures indicate, and the small number of correspondences with Atakapa of similar significance. With equally good material from all of these dialects it is probable that the order would be: Coahuilteco, Comecrudo, Karankawa, Cotoname, Tonkawa, Atakapa. There is at least little doubt of the dialectic relationship of this language to that incorporated in García's *Manual*.

A few isolated words from other mission archives yield a little information beyond this. From a group of tribes near the Rio Grande, embracing the Parchaque, Mescaleros (not the Apache tribe so called), Yoricas, Chomes, Alachomes, and Pamaís, the word *asaguan* [*asawan*], meaning 'heart,' is recorded, and *gunapetuan*, 'a large body of water,' their name for the Rio Grande. The first falls readily in line with Coahuilteco *xasál*, Comecrudo *kayasél*, and Tonkawa *yatsánan*. The first part of the second is evidently a variant of Coahuilteco *aguana* (probably pronounced *awana*), 'water,' while *-petuan* has points of resemblance with Coahuilteco *apnān*, Karankawa *yá-an*, Comecrudo *pakmát*, and Cotoname *katám*, all meaning 'large.' Again *yana guana* is given as the name

of San Antonio river in the language of the Payaya tribe. The second word is, of course, Coahuilteco for 'river' or 'water'; the significance of *yana* I have not determined.

From the Aranama, a tribe which lived near the present Goliad and persisted into comparatively late time, one expression survives, recorded by Gatschet from a Comecrudo Indian who had heard it used. This is *himidna tsáyi*, 'give me water.' *Himidna* is said to mean 'water,' and it suggests the Coahuilteco *awana*. The *tsa* in *tsáyi* is very likely the objective pronominal prefix of the first person singular, and if so evidently related to Tonkawa *ca*, Coahuilteco *tsin*, and San Francisco Solano *sa*. The whole word *tsáyi* may be nothing more than the Aranama equivalent of the Tonkawa independent pronoun of the first person, *cáya*, or it may consist of the pronoun *tsa* and a stem meaning 'to give,' related to the Comecrudo *ayemá*, and perhaps Coahuilteco *ax* and Atakapa *e*.

Although evidently related to Coahuilteco, the dialect of San Francisco Solano shows that there was considerable divergence on the part of some Coahuiltecan languages, and this fact makes it easier to conceive that several of the so-called stocks might really have represented dialects more divergent still. It is my own opinion that the number of resemblances between Karankawa on the one hand and Coahuilteco, Comecrudo, and Cotoname on the other—especially in view of the small amount of Karankawa material available for study—indicates that this group at least formed an offshoot of the Coahuiltecan stock. While we do not know that the same held true for all the tribes of Tamaulipas, the case of Comecrudo points strongly in that direction, and it is also indicated, though less strongly, by an analysis of Maratino.

All the linguistic material available from Maratino is contained in a war-song, or supposed war-song, in that language, one short sentence, and a few words, all copied into Prieto's History of Tamaulipas from an unpublished work of Father Santa María, a Franciscan missionary. This is corrupt and difficult to analyze, but a considerable number of stems may be isolated and some hints gathered regarding the grammatical structure. Following is a practically complete list of the words contained in this material

with their nearest correspondences in the languages of the group under discussion.

ENGLISH	MARATINO	CORRESPONDENCES
plural sign	-a	(see next—in same position after noun)
many (prefixed)	a-a	he-u (A); ha-ac (T); axāux (Coo)
drink, to	baah (ka) (let us drink)	piy, um (A); panham (Com); xixxe (Cot); ouxa (Coo)
wolf	bum	kambax (Cot)
and	he	xwe, el, ekla (T); mi (Coo)
not	-ha, -hé (a little uncertain)	-ha (A); akai (T); axam, yaxam (Coo); ka (Com); a (Cot); kam (K)
(diminutive suffix)	-i	
?	ka (the only word in which k is used in the original)	
shots	cālamā [kalama]	pēm (A); odu (K); komiop (gun) (Cot); upahat(ie) (Com)
us (?)	co, or comi [ko, komi]	
enemies, to the forces, strength	coapagtsi [koapagtsi]	kome, magasu (A); wol (K); tso (Coo)
deer	cokcoh [kohkoh]	(?); tsekau (T)
altho—but yet	cons(gio) [kons(gio)]	lans (A); kēma's, kēmasia (?) (Cot)
able (?)	cuahne [kuahne]	tukuxam (Coo) (at that, in that)
run, to	cugtimā (?) [kugtimā]	uxis (A); tam (Coo)
	cuino [kuino]	yakuna (T); pakna, akna (to run, as water) (A)
far	cuiūcuiūmā [kuiūi-kuinā] (there very far away)	mekām (Com)
lions [panthers]	juri [xuri]	xuepel (Com)
shout, to	maameho (to shout for joy)	pama (Cot); maha, meka (T)
jump, to	maukimetsu (giving leaps)	tsuxuma (T); m (K); pux, wak (A)
bird	magē [magē]	cokcac (A); komiam (Cot); xam (Com); awayam (Coo)
bow	mukē	nixau (T); kēmma (Cot); dēma (arrow) (K)
them	me-, mi-	mi- (Coo); nawis (Com); we (a Tonk demonstrative)
meat	migtikui [migtikui] (who eat meat)	titc (T); kēmas (Cot); nikaog (San Francisco Solano)

ENGLISH	MARATINO	CORRESPONDENCES
weep, to	<i>mimigiti</i> (will not be weeping)	<i>maka</i> (T); <i>wayo</i> (Coa); <i>awiya</i> (K); <i>(pa)ulamaí</i> (Com)
our, we	<i>ming, mi</i>	<i>mi</i> (an example in Com) (Atak has <i>mi</i> in 1st pers. -ing.)
now (?)	<i>muhka</i>	<i>nak</i> (A); <i>inukné</i> (Coa); <i>aco'hak</i> (K); <i>wan</i> (T)
like, after the manner of	<i>nigug, nighua</i> [niwó?]	<i>nak</i> (A); <i>lelea</i> (T)
to go or to shout (the context leaves the exact meaning in doubt)	<i>nehgima</i>	<i>non</i> (to walk) (A); <i>awdyo</i> (let us go!) (Cot); <i>ki(o)</i> to go (Com)
kill, to;	<i>paahchu, paahchu, paagchichte</i> [pauh-tu, paagteitcu]	<i>(pa)kamon</i> (Com); <i>nima</i> (A); <i>lumutxo</i> (T); <i>mal</i> (dead) (K); <i>(pa)plau</i> (dead) (Com); <i>pix</i> (A)
flee, they will make them	<i>tsi pamini</i> [tsi pamini]	<i>pako</i> (to go away) (Coa)
cord	<i>pang</i>	<i>o</i> (A); <i>yapluu</i> (to twist) (T)
arrow	<i>xiri</i> [ciri]	<i>caxai</i> (T); <i>akenne</i> (E A)
woman	<i>chiguzi</i> [zeiwat]	<i>kwan</i> (T); <i>tigu</i> (Coa)
the (pL)	<i>tes</i> [te]	<i>tei</i> (these) (T); <i>tee</i> (many) (Coa); <i>ya</i> (A)
children, the	<i>tsienini</i> [tsikuini] (<i>tsi</i> = these?)	<i>kwán</i> (little and child) (K); <i>tsile</i> (A)
mountain	<i>ha tamugni</i> (to war on the mountain), <i>mutoman</i> (to the mountain)	<i>natin</i> (T)
see, to	<i>(ming) metepah</i> ((we) see them)	<i>imay, maha</i> (Com); <i>mas</i> (Coa)
sleep, to	<i>megtuchá</i> [megtutez] let us sleep	<i>tooxno</i> (T); <i>oi</i> (A); <i>(n)emet</i> (Com)
come home, we	<i>coomutepá</i> [hoomute-pá]	<i>etu</i> (T); <i>ti</i> (to come near), <i>mok, o</i> (to come), <i>ewe</i> (come here!) (A)

At the best this is not very satisfactory. Still the method of indicating plurality and negation, the words for wolf, to run, to shout, them, arrow, the (or these), and traces of similar forms to indicate the first person plural, present resemblances strongly suggesting that further material would give us more certain grounds for classifying Maratino with the Coahuiltecan stock. It is sur-

prising to find so many similarities with words from Atakapa, but this may be due rather to the abundance of Atakapa material than to an actually close relationship.

The Tonkawan stock was evidently strongly marked off from both Coahuiltecan and Karankawan, and yet the resemblances which we find point to an ancient linguistic unity between it and those we have just considered. Atakapa is apparently more remote, and it has more features in common with Chitimacha, the next language to the east, while there are traces of contact with Tunica and even with the Muskogean tongues.

Perhaps the most striking point brought out by this investigation is the surprisingly close resemblance between Cotoname, which was spoken near the mouth of the Rio Grande, and Tonkawa. Referring to our table it will be seen that of all the languages compared with Tonkawa, exclusive of Atakapa, Cotoname seems to present the most relative resemblances and Comecrudo the least, although Comecrudo and Cotoname were exceedingly close to each other. On the other hand Atakapa seems to come closer to Coahuilteco in spite of the fact that the Atakapa tribes were anciently in actual contact with the Tonkawan tribes, which lay between the territories of the two. There would appear to have been two principal divisions of the Coahuiltecan stock: one including Coahuilteco, Comecrudo, and probably Karankawa, with which Atakapa was nearest related, or which had influenced Atakapa the most, and one represented by Cotoname and Tonkawa.

For it becomes increasingly evident that at least Karankawa and Tonkawa were anciently of one stock with the Coahuiltecan dialects, that is, if the three or four Coahuiltecan dialects known to us belonged to one stock. If Karankawa is nearer Coahuilteco than Comecrudo and Cotoname, and as near Cotoname as is Comecrudo, it is absurd to classify Coahuilteco, Comecrudo, and Cotoname arbitrarily in one stock and exclude Karankawa from it. The case for Tonkawa is not so good, but the surprising resemblances which it presents with the remote and little-known Cotoname, along with other similarities that crop out, leave little doubt that it belongs in the same connection, although until a structural examination has

been carried out it might be best to leave our classification *in statu quo*. While it would be premature to go any farther at present, I believe the time will come when we shall find it necessary to do so. Indeed we may discover relationships among Southern tribes to extend far beyond the limits we have hitherto believed possible. Consider, for instance, the suggestiveness in the following series of terms for 'water': Cotoname *ax*, Comecrudo *ax*, Tonkawa *ax*, Atakapa *ak* or *kakau*, Chitimacha *ku* or *kun*, Natchez *kun*, Choctaw *oka*, Alabama *oke*, Hitchiti *oke*, Creek *oiwa*. There are of course few cases as striking as this; but why the resemblance over such an extended area? That there should be some features in common between the Muskogean dialects and those languages spoken west of the Mississippi was to have been expected if Muskogean migration legends are to be relied on, and careful investigation will perhaps show it to have been closer than we have hitherto believed. If that should prove to be the case it will be another powerful argument against the strict correlation of race and culture. The tribes on the lower Mississippi and east of it were comparatively as cultured as were those west of it (the Caddoan tribes excepted) uncultured.

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LINKS BETWEEN RELIGION AND MORALITY IN EARLY CULTURE

BY ELSIE CLEWS PARSONS

IT is becoming a commonplace of ethnology that the connection between religion and morality is a late cultural fact. And yet this particular reaction against the ecclesiastical view of society is true only on the narrowest definitions of religion and of morals. It is not true if by morals we mean collective or social conduct as against conduct antisocial or individualistic, and by religion we mean supernaturalism.¹ To these meanings we shall undoubtedly hold unless our reaction against theology has not been thorough, leaving us still at heart theologues or their unwitting bastards, metaphysicians.

What then are the relations between religion and morality in early culture? They begin for the savage, as for us, in the nursery. In savagery, as in civilization, the supernatural sanction has a nursery rôle. Santa Claus, who writes down the names of the good children only in his book, the "bogey man" who carries off naughty children, the old witch who catches runaways, the god who promises longevity to filial offspring, all have their counterparts in the discipline of the savage child. In Australia, hard-pressed Illawarra mothers have been overheard to say, "Mirirul [the tribal high god] will not allow it."² Irritated West Victorian parents threaten to send for a moon spirit that does the bidding of Muurup, an epicure of child-flesh.³ Samoans have a juvenile scarecrow in *Sina 'ai Mata*, or Sina the Eye-eater, a bird-god. "Do not make such a noise; Sina the Eye-eater will come and pick out your eyes," an harassed parent would say.⁴ Thompson River and Kootenay

¹ In our sense. The supernatural to us is in other cultures unquestionably natural. Cf. Lévy-Bruhl, L., *Les Fonctions Mentales dans les Sociétés Inférieures*, passim.

² Ridley, Wm., *The Aborigines of Australia* (Sydney, 1864), p. 137.

³ Featherman, A., *Social History of the Races of Mankind* (London, 1881-91), Sec. Div., p. 172.

⁴ Turner, G., *Samoa* (London, 1884), p. 74.

Indian parents also threaten noisy children with a bird. "The Owl will come and take you," or "I'll give you to the Owl," they say.¹ Eastman, the Sioux, remembers how, in his less sophisticated days, his grandmother would say to him at night, "Do not cry! Hmakaga (the Owl) is watching you from the tree-top."²

A "good" child does not cry. Nor, for the peace of his elders, must he be adventurous. It is troublesome to look for children who run away. And so would-be explorers are threatened with supernatural mishap. A Koita child who strayed in the bush at night would encounter a *vadavada*, a man who travels by night and who brings sickness and death to those he meets.³ The Euahlayi tribe of New South Wales have a bogey called from his cry Gineet Gineet. He goes about with a net across his shoulders into which he pops any children he can see.⁴ Chemosit is a Nandi devil, half man, half bird, with one leg, nine buttocks, and a red mouth which shines at night like a lamp. He catches children who are foolish enough to be lured away from home by his night song.⁵ 'Nenaunir of the Masai is a kindred monster; he is an invulnerable, stony-bodied creature with the head of a beast of prey and feet with claws; "Don't go too far," a mother says to her children, "or 'Nenaunir will get you!'"⁶ An obedient child among the Masai or elsewhere ordinarily stays at home or within call, but sometimes if he hangs around he may be in the way. When their elders begin to eat it is etiquette for Caffre children to leave the hut. The older comply, but the younger hang around for "just one taste." Then their father bids them go out into the veld to call Nomgogwana, a dangerous and peremptory monster. If the children demur, the father will say off-hand, "Very well, sit where you are; the food will not cook, as you know, till Nomgogwana comes, and then when he does come he will be so angry at seeing the food uncooked that he will

¹ Teit, J., "The Thompson River Indians," *Mem. Amer. Mus. Nat. Hist.* (New York, 1900), II, 108.

² *Indian Boyhood* (New York, 1902), p. 9.

³ Seligmann, C. G., *The Melanesians of British New Guinea* (Cambridge, 1910), p. 187.

⁴ Parker, K. L., *The Euahlayi Tribe* (London, 1905), p. 137.

⁵ Hölzl, A. C., *The Nandi* (Oxford, 1909), p. 41.

⁶ Merker, M., *Die Masai* (Berlin, 1904), p. 202.

eat all the children he can find." As the frightened children slip off, the father calls out to them: "Be sure you go far, far away into the veld, for otherwise Nomgogwana will not hear you; the reason why he did not hear you call before was that you did not go nearly far enough away; so be sure to go far away this time, lest you get eaten yourselves."¹

Moral stories for the young are not lacking among savages. Once on a time in Pulu, an islet of the Torres straits, the boys and girls used to disobey their parents and play a game of twirling around with outspread arms. They played every night on the beach, until finally a great rock fell from the sky and killed all the islanders except one indispensable couple. Parents still tell their children never to play this game at night, and the old men remind bad children that by and by, if they are not good, the stone from Pulu will come and eat them up.² In another of the folktales of the Torres straits, a mother and grandmother threaten a fractious girl with the Dògai if she will not stop crying. She fails to heed them, and the bogey does carry her off to torture.³ The Bunya-Bunya of Queensland have a story about two boys who were once left alone in camp with strict orders not to leave it until the elders returned. Nevertheless, tiring of the camp, the boys went down to the beach. Then the Thugine, or Great Serpent of the Rainbow, came out of the sea, and, always on the watch for unprotected children, caught the boys and turned them into the two rocks that now stand between Double Island point and Inskip point. "Here you see," the old Blackfellow used to say to the boys, "the result of not paying attention to what you are told by your elders."⁴ On Rogea off southeastern New Guinea once lived a little girl, say the islanders, a little girl over-fond of wandering about. "At all times her mother and father they said, 'Don't wander, or else the sorceress in the bush will eat you.' The girl didn't listen, she walked

¹ Kidd, D., *Savage Childhood* (London, 1906), pp. 96-7.

² *Reports of the Cambridge Anthropological Expedition to Torres Straits* (Cambridge, 1904), v, 22.

³ *Ibid.*, v, 14.

⁴ Howitt, A. W., *The Natives of South-East Australia* (London and New York, 1904), p. 431.

about. The old woman saw the girl and called her and said, 'You come.'¹ She took the girl to a cave and tattooed her.² "She boiled the blood and ate it." Had not the girl run home, she would have eaten her too.³ In a story told by the Betsileo of Madagascar a naughty little boy is eaten up—by a *songòmby*, a creature big as an ox, but fleet-footed. The parents had put the boy outside of the house, calling out, "Here's your share, Mr Songòmby." The beast came and the child cried out, "Oh, here he really is!" "Well, let him eat you," cried the parents, thinking the boy was fooling. And he did.⁴ The Bilqula of the Northwest coast tell the story of a chief's daughter who one night would not stop crying. Finally her mother said to her, "Lie down and be still or the Snēnē'ik will come and get you." At midnight, when all were asleep, the Snēnē'ik did come in the shape of an old woman, and, catching the child through a hole in the wall, put her in a basket and carried her off.⁵

Terrifying ceremonial masks as well as "Sunday-school" stories are helps to primitive parents. In western Victoria the white kangaroo pouch masks worn over head and face by clowns at corroborees are often used to frighten misbehaving children.⁶ In one of the Zuñi summer dances there is a mask of an old woman, a ceremonial scold, and part of her "business" is to threaten to eat up the children.⁷ A kachina in a Hopi dance makes the same threat. The Hopi mask goes up to the child and says: "You are naughty and bad; we have come to get you. You fight the other children, kill chickens, etc., and we shall now take you away."⁸ Among the Pueblo Indians of the Rio Grande I have collected several

¹ The legend was told the investigator to account for tattooing.

² Seligmann, *op. cit.*, p. 493, n. 2.

³ Sitree, J., *Madagascar before the Conquest* (London, 1896), pp. 230-1.

⁴ Boas, Franz, *Indianische Sagen von der Nord-Pazifischen Küste Amerikas* (Berlin, 1895), pp. 248-9. At Masset, Graham island, a Haida half-breed girl told me this summer mothers threaten naughty children with an old woman. She comes from under the earth to carry them off.

⁵ Dawson, J., *Australian Aborigines* (Melbourne, etc., 1881), p. 83.

⁶ Fewkes, J. W., "A Few Summer Ceremonials at Zuñi Pueblo," *Jour. Amer. Ethnol. and Archaeol.*, 1 (1891), p. 42.

⁷ Voth, H. R., "The Oraibi Powamu," p. 118, *Pub. Field Columbian Mus., Anthropol. Ser.*, III, Chicago, 1901-3.

stories of refractory children frightened by masked figures, "like Santa Claus," one woman said to me. It is said that a "progressive" Santa Clara man once on a visit to San Juan tore the mask off a figure who was alarming the children and that because of the outrage he was kept imprisoned in the estufa for some time in danger of his life, and that he finally had to be ransomed with a horse and saddle.

Infantile bugaboos are replaced in many societies by spirits especially attentive to young people, "goody-goody" stories supposed to appeal to them succeed to the simpler nursery yarns, and renewed is the emphasis on the supernatural rewards or penalties for the filial or unfilial. Among the Tshis the family god is expected to appoint a *sassār*, a subordinate spirit, to walk behind the growing girls of the family.¹ Once on a time, goes a Kayan story, a woman and her daughter were reaping paddy. The girl left alone by her mother was told on no account to eat any of the rice, as it was against the tribal custom to eat while reaping. But the girl disobeyed. Thereupon hair began to grow all over her body and she had to take to the jungle like a coconut monkey.² Among the Fors, girls meddling with the milk-pots or stealing milk behind their mothers' backs are punished with epilepsy by a *sittan*, a spirit servant of the great mountain god of Gebel Marah.³ At Ponape, in the Caroline islands, the ancestral spirits put an unending curse upon the unfilial.⁴ Ainu women teach their daughters that were they to marry without being properly tattooed, after death the demons will do all the tattooing with very large knives and at one sitting.⁵ Aztec youths were said to be warned by their fathers against unfilial conduct in order not to be devoured by wild beasts or come to an otherwise bad end.⁶ The Ainu and the Aztecs

¹ Ellis, A. B., *The Tshi-Speaking Peoples of the Gold Coast of West Africa* (London, 1887), p. 94.

² Hose, C. and McDougall, W., "The Relations between Men and Animals in Sarawak," *Journal of the Anthropological Institute*, xxxi (1901), p. 191.

³ Felkin, R. W., "Notes on the For Tribes of Central Africa," *Proc. Roy. Soc. Edinburgh*, xiii (1884-6), p. 223.

⁴ Christian, F. W., *The Caroline Islands* (New York, 1899), p. 72.

⁵ Batchelor, J., *The Ainu and Their Folk-lore* (London, 1901), pp. 23-4.

⁶ Clavigero, *The History of Mexico*, ed. 1807, I, p. 332.

do not represent, of course, as early a culture as some of the other groups from which we have been drawing illustrations, groups where dependence on parents or subjection to them ends with or even before adolescence. In these more primitive groups it is the tribal elders who go on with the education of a girl or a boy.

It is at the tribal initiation, of course, that the elders step in. During it the young get considerable moral teaching of both a direct and an indirect nature from the elders, and taboos are laid upon the initiates which serve to strengthen the social hold upon them of the state, i. e., the elders. Besides, these taboos may increase materially the privileges and prerogatives of the old people—the more so as the taboos may extend over considerable periods both before and after initiation. Breaking the taboos is apt to be supernaturally punished, particularly breaking taboos relating to food, to sex conduct, and to preserving secrecy. In Australia the boys and girls of the Lower Murray tribes thought that if before initiation they ate emu, wild duck, swans, geese, or black duck, or the eggs of any of these birds, their hair would become prematurely gray and their muscles would shrink.¹ Wotjobaluk boys are forbidden to eat of the kangaroo or the padi-melon on penalty of falling sick, breaking out all over with eruptions, and perhaps dying. If young Wakelbura men or women eat forbidden game, they will probably pine away and die, uttering sounds peculiar to the creature they have eaten. Its spirit enters into them and kills them. Howitt heard of a Kurnai boy who had stolen and eaten opossum before he was permitted, in accordance with the food taboos, to eat of it. The old men made him believe he would never grow up to be a man. He did lie down, in fact, under the belief, and within three weeks he died.² Death by meteorite or lightning punishes boys and girls who break the food taboos in other Australian tribes.³ As for

¹ Beveridge, P., in *Jour. and Proc. Roy. Soc. N. South Wales*, xvii (1883), p. 27.

² Howitt, pp. 769-70.

³ Palmer, E., "Notes on Some Australian Tribes," *J. A. I.*, xiii (1883-4), p. 294; Helms in *Proc. Linnæan Soc. New South Wales*, Sec. S., x (1895), p. 393.

Supernatural penalties for breaking food taboos are common, of course, outside of Australia: nor are they confined either in Australia or elsewhere to adolescence.

The effects of food taboos, if not the alleged purposes, are more or less social or

sex taboos¹ and their supernatural sanctions, among the Lower Murray tribes the sight of a woman for three months after the novice's teeth have been knocked out would bring numberless misfortunes upon him—withering up of limbs, blindness, general decrepitude.² Were a Kurnai youth to touch a woman at a certain stage in the initiation he would, he is told, fall seriously ill. Were a woman's shadow to fall upon him he would surely become thin or lazy or stupid.³ At Bartle Bay, New Guinea, boys believe that if they do not keep from intercourse during and before initiation their hair will not grow.⁴

Initiates are told not only to keep away from women, they are explicitly warned to keep their secrets hidden from women lest supernatural evils befall. The Urabunna initiate is made to believe that should any woman see one of the secret sticks, he and his mother and sisters would drop dead.⁵ In New Guinea, Kiwai Island initiates are warned to maintain secrecy at the risk, among other consequences, of being seized with a fearful incurable disease.⁶ In the Elema district an impersonation of Kovave tells the initiates that if they divulge the secrets to the uninitiated,⁷ he will punish

moral. They may protect the food supply of a favored class, the old against the young, men against women, chiefs against commoners. Pregnancy or lactation food taboos may convey a sense of parental "responsibility." The totemic taboos are anti-cannibalistic, it not being sociable to eat your kinsman. The mourning taboos show "consideration" for the dead.

¹ Australian elders are greedy about women as well as about food; but the sex restrictions they put upon initiates are not so much for purposes of immediate monopoly as they are to insure a good start, so to speak, on that separation of the sexes in public so characteristic of primitive society.

² Beveridge, p. 27.

³ Howitt, "The Jeraell, or Initiation Ceremonies of the Kurnai Tribe," *J. A. L.* XIV (1884-5), pp. 306, 316, and *Native Tribes*, p. 402.

⁴ Seligmann, p. 496.

⁵ Spencer, B., and Gillen, F. J., *The Northern Tribes of Central Australia* (London and New York, 1904), p. 498.

⁶ Chalmers, J., "Note on the Natives of Kiwai Island, Fly River, British New Guinea," *J. A. L.* XXXIII (1903).

⁷ Aside from initiation, secrecy in esoteric affairs is often safe-guarded in primitive circles by a supernatural sanction. Among the Ewes the lightning-struck or poisoned are thought to be killed by Jehve for tattling about him (Speth, J., "Der Jehve-Dienst der Eyhe-Neger," in *Mitt. der Geog. Gesell. zu Jena*, XIII (1894), p. 19). When Fewkes insisted upon witnessing the Hopi ceremony of snake washing, he was cautioned to leave the kiva; if he stayed, he would "swell up and burst." Buratingor

them with disease and death. If they let it be known that the whining of Tiparu, the bull-roarer, is not the cry of a god but the work of a man, the curse of Tiparu, equivalent to death, is upon them.¹

Elema women flee their villages to escape the curse of hearing the voice of Tiparu.² In many other communities women are kept from prying by supernatural sanctions. Elsewhere³ I have pointed out how thoroughly in other particulars they are kept in their place by supernatural sanctions or by their mere fear of the supernatural, how they are discouraged from trespassing or straying from home, from eloping or committing adultery or marrying again, how they are rendered docile and obedient. To their husbands are given magical means of detecting their infidelity; for the undetected, a difficult labor or death in childbirth is in store;⁴ men disguised as ghosts or gods break their spirit for adventure or revolt. Sometimes the gods themselves condescend to discipline the wayward or the inquisitive.

Supernatural sanctions attach to violations of sex habits other than monogamy.⁵ For illustrations of what dire things happen to men who break through the taboos upon a woman during menstruation let me refer again to another discussion.⁶ But at Mowat, New Guinea, I have since noted a variation from the usual type of menstruation taboo. If a Mowat man have connection with a other direful troubles came to one beholding rites none but a priest might see ("The Snake Ceremonials at Walpi," *J. Amer. Ethn. and Arch.*, IV (1894), p. 83).

¹ Holmes in *J. A. I.*, XXXII (1902), pp. 421, 425.

² Chalmers, J., "Toaripi," *J. A. I.*, XXVII (1898-9), p. 329.

³ *The Old-Fashioned Woman* (New York, 1913), ch. xx, "Policing Her Supernaturally." See also Frazer, J. G., *Psyche's Task* (London, 1909), ch. iv.

⁴ There are other supernatural punishments too—misfortune for the whole kampong among the Bataks (Steinmetz, S. R., *Ethnologische Studien zur ersten Entwicklung der Strafe* (Leiden and Leipzig, 1894, II, p. 357); "accidental death" in the Sawi islands, at the will of their deified lawgiver (*ibid.*, p. 358); a plague of rain (for unchastity among the unmarried) among the Sea Dyaks (Perham, J., in *Jour. Straits Branch Roy. Asiatic Soc.*, No. 8, pp. 149 sq., Singapore, 1882).

⁵ Frazer has given illustrations (*Psyche's Task*, ch. iv) of the suffering falling supernaturally upon the group as well as upon the offender, and he suggests that this vicarious suffering leads to further collective pressure upon the individual to conform to custom—truly a very striking linking together of supernaturalism and morals.

⁶ *The Old-Fashioned Woman*, ch. xi, "In Quarantine."

woman after he has had it with a menstruous woman, it is supposed that he will die.¹ Incest, a peculiarly abhorrent offense to primitive man however he defines it, is very apt to be punished, he believes, either automatically or by an outraged spirit. In the Kêi islands the incestuous are supposed to fall ill;² among the Khasis they are struck by lightning or killed by a tiger or they die in childbirth; in the Omeo tribe of Victoria they are beaten by "jijigongs" or snakes, and the punishment is the more fearful because it may hang over them for years.³ The Kenai ascribe their increase in mortality to breaking their exogamous rules.⁴ Matthews once asked a Navaho what would happen if he married a woman of his gens. "I would have bad fortune," he said; "I would fall into the fire and get burned, the lightning would strike me, the cold would freeze me, or the gun would shoot me—something fearful would happen to me."⁵ On the Herbert river, Queensland, anyone marrying into prohibited sub-classes will sooner or later die in consequence, his behavior being offensive to Kohin, an earth-roaming spirit of the Milky Way.⁶ Among the Caffres, offspring of an incestuous union will be a monster, a punishment inflicted by an ancestral spirit.⁷ Aleuts too believe that incest is always followed by the birth of a monster with walrus tusks or beard.⁸

Whether or not the practice of avoidance is a safeguard against incest,⁹ it is apt to have, like indubitable exogamous rules, a supernatural sanction attaching to it. It is believed in Victoria that if a man see his mother-in-law, or is seen by her, evil spirits will afflict him or disaster of some other kind will befall him.¹⁰ That a woman's hair will turn white if she speaks to her son-in-law or even looks

¹ Beardmore, E., in *Jour. Anthr. Inst.*, xix (1889-90).

² Bartels, M., *Die Medizin der Naturvölker* (Leipzig, 1893), p. 29.

³ Helms, p. 392.

⁴ Steinmetz, II, p. 352.

⁵ "The Study of Ethics Among the Lower Races," *J. Amer. Folkl-Lore*, xii (1899), p. 6.

⁶ Howitt, *Native Tribes*, p. 498.

⁷ Shooter, J., *The Kafirs of Natal and the Zulu Country* (London, 1857), p. 45.

⁸ Petroff, I., "Report on the Population, Industries and Resources of Alaska," *Tenth Census of the United States* (Washington, 1884), viii, p. 155.

⁹ For another interpretation of it see *American Jour. of Sociology*, Jan. 1914.

¹⁰ Smyth, R. Brough, *The Aborigines of Victoria* (Melbourne and London, 1878), i, p. 95.

at him is the belief of other Australian tribes.¹ If a Uganda woman hands anything to her father-in-law she will be afflicted, she thinks, with tremor.²

In Nias intercourse during pregnancy is punished by sickness.³ In fact in very many places intercourse during pregnancy or during lactation is held to bring disaster to a woman or her offspring. In East Central Africa "it is believed" that a girl who does not mate at nubility will die.⁴

"It is believed," writes Macdonald of this African point of view. Who believes it? Presumably the girl herself, and assuredly because she got the idea from her elders. To make the young settle down in marriage is a favorite undertaking of the elders, and an important factor in the subjection in which they keep not only the adolescents of the tribe, but all their juniors. This ascendancy they establish at initiation, but most of the life of their juniors they regulate or at least meddle with. And this control is based for the greater part on their control of the tribal system of supernaturalism. Moreover, they may be heeded by their juniors, thanks merely to their very reputation as supernaturalists. In no end of places old women are feared because of the power of witchcraft imputed to them; besides, the curses of the aged,⁵ like the curses of the dying, are held to be especially potent and dreadful.⁶ The aged and the moribund alike are imminent ghosts, and ghosts are believed to be unusually well qualified to carry out threats. They are good at

¹ Howitt, *Native Tribes*, pp. 256-7.

² Roscoe, J., "Further Notes on the Manners and Customs of the Baganda," *J. A. I.*, xxxii (1902), p. 39.

³ Bartels, p. 29.

⁴ Macdonald, J., "East Central African Customs," *J. A. I.*, xxii (1892-3), p. 101.

⁵ Westermarck, E., *The Origin and Development of the Moral Ideas* (London and New York, 1906), I, pp. 619 sq.

⁶ Very entertaining is a recent illustration of this kind of gerontocratic control. "Not long ago," writes an observer of Turkish customs, "the wife of a former Grand Vizier, Halhiddin Pasha, died. On her death-bed she expressed as her last wish that her twelve-year-old daughter might take special courses in medicine, similar to those given to men. There was nothing for the government to do but to hastily open certain of these courses to women in order that they might not be cursed by ignoring the dying wish of a respected old woman." (Buell, Katherine, "Behind the Veil," *Harper's Weekly*, Aug. 15, 1914.)

bestowing favors too, so that kindness to those with one foot in the grave is at least a prudent policy.

But respect for age is sometimes specifically imparted by the elders by means of the supernatural sanction. Once during a general quarrel Spencer and Gillen saw one of the younger men, i. e., a man between thirty-five and forty, and a medicine-man at that, try to strike one of the older men. At once at this grave offense his precious medicine powers left him.¹ An Aleut who is disagreeable and disrespectful to the elders has no luck in hunting; on the other hand attentiveness to the old insures longevity and good fortune in the chase or in war.² The ancient Hindus are well outside the circle of peoples we have been accounting in quite a general way primitive, but one of their expressions of respect for seniority is inculcated so primitively that I cannot forbear mentioning it. "The vital airs of a young man mount upwards to leave his body when an elder approaches," declares Manu, "but by rising to meet him and saluting he recovers them."³

A deferential treatment of the elders may be prompted, we noted, by the fear of what as malevolent ghosts they might do to the living.⁴ Once they are ghosts the need of keeping them in a good humor is even more imperative. Hence the living and in particular the surviving kindred are bound to pay proper respect to the dead. Inattentiveness to a ghost is apt to be sorely punished by him. A slighted ghost in the islands of Torres straits would cause strong winds to destroy the gardens of his neglectful relatives and break down their houses.⁵ The Thompson River Indians believe that death

¹ Spencer and Gillen, p. 22.

² Petroff, pp. 153, 155.

³ The Laws of Manu, II, 120, *Sacred Books of the East*, xxv.

⁴ Other injuries in life besides neglect in old age may be punished by resentful ghosts. In the Elema district of New Guinea dead warriors visit their old enemies at night and keep them from sleeping by tickling their feet. The murdered invariably plague their murderers (Holmes, pp. 428, 429). Hudson Bay Eskimo have deserted the island of Akpatok since the murder on it of some shipwrecked sailors (Turner, L. M., "Ethnology of the Ungava District," *11th Rep. Bur. Amer. Ethn.*, 1894, p. 186). Greenlanders hold that an aborted child or an illegitimate deceased is transformed into an evil avenging spirit (Rink, H. J., *Tales and Traditions of the Eskimo*, (Edinburgh and London, 1875, pp. 45, 439 sq.).

⁵ *Reports Cambridge Anthr. Exped. to Torres Straits*, VI, 127.

or sickness would come upon one taking possession of the bow and arrows, leggings and moccasins of a departed kinsman.¹ Among the Koita of New Guinea relatives who infringed upon the dead man's funeral rights or who neglected them were punished by his *sua*²—in what way we are not told. Ghost haunting, a severe enough punishment in itself, is very commonly a consequence of funeral improprieties. Such considerations about the dead are quite pertinent, let me say, to a study of morality in early culture, for in it, we should not forget, the dead are an integral part of society. We have to realize, too, that in their treatment by the living morality and supernaturalism are indistinguishable.

Funerary destruction of property is partly prompted by the desire to preclude ghost walking, to keep the ghost from coming after his own, after what has been and still is a part of himself. It is one of the earliest and most marked ways of recognizing the right to property. But there are other primitive ways in which a supernatural sanction is invoked against the misappropriation of property, ways I particularly wish to indicate. Ignoring the fact that our own morality being a property morality compared with the morality of early cultures, primitive gods seem to us far more indifferent to theft than Jahveh or the god of the framers of our criminal codes. But like men, like gods—or ghosts. And theft, so far as it goes, is punished by primitive spirits. A ghost of the islands of Torres straits may be aggrieved not only by remissness as to his funeral rites, but by dishonesty toward his heirs, and he may be revengeful on their account also.³ It was the special business of one of the gods of the Tracy islands to watch and kill thieves.⁴ In East Central Africa magic stakes are driven into the ground on the edge of the corn fields. Thereafter anyone touching the crops will die on the spot.⁵ The Wanika protect their plantations and fruit trees in like way.⁶ Throughout the islands of the

¹ Teit, p. 331.

² Seligmann, p. 191.

³ *Reports of the Cambridge Author. Exped. to Torres Straits*, vi, p. 127.

⁴ Roth, W. E., *North Queensland Ethnography* (Brisbane, 1903), Bull. v, p. 29.

⁵ Macdonald, p. 120.

⁶ New, C., *Life, Wanderings, etc., in Eastern Africa* (London, 1874), p. 105.

Malay archipelago sickness followed from eating food stolen from tabooed fields.¹ On the Bloomfield, in North Queensland, the older men to whom the country originally belonged will give out that certain tracts of it are "yirru" (yirru is an underground spirit), so that if any but themselves eat or camp there or disturb the soil in any way whatever, Yirru will punish them with grievous sores.² Indeed boundary fetishes of one kind or another are not at all uncommon among primitive peoples. The automatic supernatural sanction also attaches again and again to the preservation of property.

In the Bowditch islands a man dead is asked to confess through the voice of a priest what he had done to cause his death. Among other offenses he might confess to theft.³ The god's proxy or priest is often called upon in cases of theft. Batak thieves were cursed through the magic staff of the great priest of Balige.⁴ Pilfered, an Ossete goes with the *kurimezok*, "the wise man" or sorcerer, and his cat to the house of anyone under suspicion. "If thou hast stolen the article," exclaims the *kurimezok*, "and dost not restore it to its owner, may this cat torment the souls of thy ancestors!"⁵ A Tshi bereft of his property will make an offering to his local god and ask his priest to beg the god to proceed against the thief.⁶ Quakery, the Ju-Ju king of New Calabar, who ranked above the king in all purely native palayers, religious or civil, told de Cardi that if the king tried to detect robbers it would have little effect, because the king was a man like themselves from whom they would steal if they got the chance. "But if I sent round a notice that if the thieves did not immediately bring me the stolen articles, my Ju-Ju would cause them (the thieves) to swell up and burst, you would see how quickly they would come to me and deliver up the stolen goods."⁷

¹ Bartels, pp. 28-29.

² Roth, p. 29.

³ Turner, G., p. 272.

⁴ Brenner, J. von, *Besuch bei den Konnibalen Sumatras* (Würzburg, 1894), p. 226. Turner, G., p. 283.

⁵ Haxthausen, *Transcaucasia* (London, 1854), pp. 398-9. Needless to say the imprecation is often effectual.

⁶ Ellis, p. 75.

⁷ de Cardi, C. N., in *Jour. Anthr. Inst.*, xxix (1899), pp. 51-2.

To recover stolen or lost property, especially ponies, is one of the principal tasks of the Apache medicine-man. He does it through crystal gazing.¹ Through some unspecified magical means the Koita sorcerer also recovers stolen things.² In fact the medicine-man is for theft as for other offenses the first professional detective.

The medicine-man, or priest, is apt, too, to preside over ordeals, on the theory perhaps that his god will be on the side of the innocent.³ At any rate the emphatic presence of the priest at the ordeal makes for an association in thought between the moral and the supernatural. So does his presence at initiation ceremonies. Quite often he is in charge of them, and it is he instead of the elders who teaches the youth the tribal morals. His tendency to take a hand in all the daily affairs of life, a tendency quite as marked in primitive as in modern times, has a like effect. Being a representative of deity his slightest interference with any social relation gives it a supernatural coloring.

A priest's authority is naturally supported by his god. From their priestly derivation, if for no other reason, early forms of chieftaincy might be expected to have a supernatural backing. But a mystical, representative quality too seems to attach to chiefs or leaders. They express or embody the welfare of the community and of each of its members. Subservience to them means communal and individual prosperity; contradiction or disobedience means disaster. The Massim of Bartle Bay work in the garden of their chief, believing "if they did this their own gardens would be good."⁴ In Nias a certain severe throat ailment is supposed to be due to quarreling with a village headman.⁵ The Tonga gods were under-

¹ Boutke, J. G., "Medicine Men of the Apache," *9th Ann. Rep. Bur. Ethn.* (1887-8), p. 461.

² Seligmann, p. 133.

³ That the ordeal (or the oath) may be merely magical (see Westermarck, II, pp. 118 sq., 687 sq.) does not concern us, for we are not weighing the character, moral or non-moral, of the gods. It is enough for us that to the ordeal (and to the oath) a supernatural sanction attaches. But into a fuller discussion along this line I will not go, as its viewpoint would be somewhat different from that to which I am limiting our discussion.

⁴ Seligmann, p. 458.

⁵ Bartels, p. 28.

stood to punish disrespect to chiefs almost as severely as disrespect to themselves.¹ In the Mortlock islands the spirits of dead chiefs punished offenses against their colleagues in the world with sickness, curable only by the gods through the mediation of the living chiefs.²

It is not only political rebels who have been punished by ghosts. Among the Dakota and in the Malay archipelago they are believed to torment iconoclasts of all kinds.³ For any infringement of tribal customs the Koita *sua* might smite offenders with sickness or call down upon them bad luck in hunting or fishing.⁴ Elsewhere the gods, too, posing as backers of custom as custom, are against iconoclasts. If the Narrinyeri are asked why they keep to any custom, they answer that Narundere, their "All Father," commanded it.⁵ Daramulun, the high god of the coast Murring was believed to have laid down the food rules and to punish those who broke them.⁶ The Tchiglit Inuit believe that they are injuring deity and calling down divine punishment upon themselves because they are adopting foreign customs.⁷ Ainu iconoclasts know they are sure to suffer from the wrath of the gods.⁸ With these instances from primitive society of what is perhaps in modern life the most conspicuous part of its rôle, its support of custom as custom, I may fitly conclude my sketch of the supernatural sanction on morals.

At the outset of this paper we contented ourselves with identifying moral with social conduct and then passed on at once to give illustrations of the supernatural sanctions attaching to such conduct. It is plain, I trust, that from this far from novel point of view morality has been little if anything but the prevailing system of keeping people in their place, out of other people's way, juniors out of the way of seniors, one sex out of the way of the other, kindred

¹ Mariner, W., *An Account of the Natives of the Tonga Islands* (London, 1817), II, pp. 135, 237.

² Kubary, J., in *Mitth. d. Geogr. Gesell. in Hamburg*, 1878-9, p. 256.

³ Eastman, M., *Dances* (New York, 1849), pp. xx, 87. Schoolcraft, H. R., *Indian Tribes* (Phila., 1851-57), II, pp. 195-6. Bartels, p. 28.

⁴ Seligmann, p. 192.

⁵ Woods, J. D., *The Native Tribes of South Australia* (Adelaide, 1879), p. 55.

⁶ Howitt, in *J. A. I.*, XIII (1883), p. 192.

⁷ Petitot, E., *Les Grands Esquimaux* (Paris, 1887), p. 35.

⁸ Batchelor, pp. 58, 177-8.

out of the way of kindred, the desitute or the subject out of the way of the man of property or the chief, lay or ecclesiastic, the dead out of the way of the living, the adventurer out of the way of everybody. For accomplishing this social distribution there seem to be three main methods: public opinion (including, of course, ridicule, its most potent weapon), the sanction of the group working naturalistically (ostracism, i. e., execution, exile, imprisonment, and mutilation or fine), and the sanction working supernaturally, i. e., automatically or magically, or through spirits. The availability of these several methods varies in different cultures. In particular the availability of the supernatural sanction varies, as one might expect, with the scope of supernaturalism characteristic of the given culture. Just as supernaturalism is far more a part of life in early culture than in modern, so concomitantly is the supernatural sanction. Our obliviousness to this fact has been due mostly to our unwillingness to recognize how insignificant religion has become to us, to what extent we get on without it,¹ how remote it is from our daily life.² Furthermore, denial of a relation between morality and religion in early culture may be due to our habit of studying the content of one moral code in terms of another, the Blackfellow's,

¹ How seldom, for example, do we hold that an untoward event is a punishment for our sins, a point of view common enough in primitive circles. When several deaths occur about the same time in the same For family, it is thought to be due to lying by one of its members (Felkin, pp. 230-2). In Samoa, if the offspring of a consanguineous marriage died prematurely, it was taken as a sign of the disapproval of the marriage by the household god (Turner, G., p. 92). Several centuries ago, the Chinese of the province of Camul, urged on by a reform governor, gave up their practice of sexual hospitality. Poor harvests and general misfortune ensued, because, said the people, they had foregone a custom cherished by the gods (*Marco Polo*, ed. by Yule, London, 1871, I, pp. 189-90). When the Merkedes, an Arab tribe, became Wahábys, they had to give up the same custom; a drought followed and, considering it a punishment, they got permission from the Waháby chief to return to the good old practice of their forefathers (Burckhardt, J. L., *Notes on the Bedouins and Wahábys*, London, 1831, p. 102).

² Of its remoteness the mere existence of spirits is evidence according to Professor Lévy-Bruhl. The primitive mystic has no need of spirits; everything has for him an immediate mystical quality. The gods originate, so to speak, in secularization. From this point of view, the magical automatic sanction is earlier than the sanction imposed by deity. Such sanctions on morality as those of the historical religions may mean therefore that our morality is less religious than the morality of the savage.

for example, in terms of our own. An offense great enough in our eyes to keep its perpetrator out of heaven may be too petty in the eyes of the Blackfellow for such an automatic penalty to attach to it as attaches to the breaking of Australian food taboos or the rules of class exogamy, offenses quite without meaning to us.¹ The very claim that only the historical religions are related to morality is part and parcel of the antique conception that only our own morality or the morality of kindred cultures is morality at all. It is the final attempt of self-righteousness to pull the wool, so to speak, over the eyes of ethnology.

STONOVER FARM

LENEX, MASSACHUSETTS

¹ To the savage the supernatural or mystical attaches to much that to us is natural and merely objective. Defilement through death or through sex, for example, is still assumed in certain ways by us, but it does not begin to loom upon us as upon the savage. Impressed by such mysticism in savage life, one of its close observers writes me that to him there appears to be little or no relation between religion and morality in primitive life, supernaturalism attaching primarily to matters of a non-moral character. Even so, does it not attach as well to the social organization?

THE GUSLE SINGER AND HIS SONGS

By BEATRICE L. STEVENSON

THE occasion of the outbreak of European war serves to endow with importance and interest all matters connected with Servian customs and nationalism, and significant in the light of folklore psychology as well as in the realm of current events is the gusle (gusla) art of the South Slavic peoples. The *gusle javorove* is a little instrument of white-maple wood, with rounded back and parchment front, and a single string of horsehair—seemingly nothing more than a mere musician's trinket but found in many a Servian home, and vividly able to recall centuries of poetic outpouring of artistic impulses as well as many a living picture of the guslar singers themselves, those bards who sang and still do sing the songs of the people in Servia, Bosnia, Kroatia, Slavonia, Dalmatia, Montenegro, and all the provinces of the Adriatic. Hitherto but little noticed by dwellers in the outside world, these singers yet date their rise from before the era of the Troubadours in France, who, like the skalds of old in Scandinavia, went from palace to hut made eagerly welcome by the beauty of their balladry. From ancient Greece itself the guslar may have sprung, for Serbo-Kroatia and the south-lying districts have really for all time seen the figure of the blind old man who, like the Scotch bard and the Greek rhapsodists, was the nourisher of a people's patriotism. In the music that the blind old man made are to be detected figments of a people's life, the hidden existence which is led by all of us, detached from duties and extraneous pleasures,—intense, solitary and yet dominant, the idyllic life as it may be called. This the guslar with his queer, wedge-shaped instrument, sitting perhaps at the foot of a tree, strumming contentedly idyllic measures, or tumultuously heroic measures, or wantonly capricious measures, or longingly sorrowful measures,—all this the poet wayfarer has expressed for the people of Serbo-Kroatia.

That he is a relic of the past cherished only by a few individuals

who recognize the importance of this messenger of an older time, is regrettable. The many pass on unattentive to the sensitive melody of his compositions, or to the significance which these compositions may bear to the folklorist, the ethnologist, and the musician. For many reasons gusle music is important, for many reasons the songs of the Slavs should not be neglected but preserved and raised to a position of importance among the cultures of the nations. The songs as sung were a people's possession, passed down from father to son, mother to daughter, but unfortunately they were wild flowers in the hands of heedless children, for seldom were they cherished.

Except for the efforts of Vouk Stephanovich-Karajich, who early in the nineteenth century collected and preserved for posterity the ballads of the Servian nation, except for the work of various collectors since then, and of the valuable present-day services of the *Matica Hrvatska*, a Kroatian literary association in Zagreb (Agram), much of this precious legacy of the Slavic peoples would have been lost. There have been few examples of guslar poets such as Kachich-Mioshich of the eighteenth century, who both sang as well as created and left records of his songs. Unless recorded with music and text as is instanced by the collection made by Francis Xavier Kubach, the songs are likely to vanish; but collected and standardized, the texts have been translated into other tongues and so have reached the outside world. Thus did Servian verse make its way into the literary output of Goethe, Prosper Mérimée, and Jacob Grimm. Of all the work, however, of this character which is being produced today, there is no contribution more significant to Americans than the "Heroic Ballads of Servia," translated into English verse by Noyes and Bacon. In this recently-published volume the authors have succeeded in giving to the English-speaking world an illuminating insight into the picturesque content of Servian song.

But of more intense interest than the superficial setting of the guslar's jewel is the living content of the jewel itself, that is, the spell of gusle music and the imagery of its verse. Unfortunately the music cannot be conjured up here, but the imagery of the verse is glimpsed again and again in the stories, fanciful pictures of the fire and flash of Ravanitsa's golden walls, the milk-white beauty of veelah

maids, and the sumptuous show of bearskin horse-trappings. Stories of piety, of forcible love-making, or the rescue of loved ones, were woven by the guslar as he sat at the church gates on holy days, or sang to lovers gathered beneath the trees in the long, shadowy twilights. From out of the middle ages perhaps came such a song of God and the angels three sent down from heaven to earth, as sung once on a time by a blind old woman in the streets of Zemun (Semlin). A Fra Angelico setting seems to encompass this story of God who sent his angels, disguised as beggars and bearing gusles of maple wood, to find out how devout his people were. Many a



FIG. 8.—A guslar playing.

pious home was found before the beggars entered the castle of the rich Gavana to be haughtily repulsed by Helena, the proud mistress who offered only a crumpled crust of bread, the like of which was "set of Friday, baked on Saturday, and taken from the oven on Sunday." For such an act God's curse would fall, in secret thought the angels three, till a sudden gift was offered them by Stephan, a lowly servant man, who proffered his pet, a lamb of his heart. A reward for goodness and a reward for evil followed the gift of the lamb, as the old song goes on to say, for God then blessed the servant

man, but the mistress he caused to be dragged down by stones and drowned in the midst of the sea. To be drowned in the depth of the sea, to be walled alive in the mortar of standing fortresses, to perish in dungeons, or to waste on the battlefield are deaths unsought which have nevertheless overtaken the heroines and heroes of many of these old ballads. In the walls of Scutari lies the record of an unforgotten, half-mythic legend of the girl wife of Goyko, the king who, for the safe building

of the city, sacrificed his young bride to the tower walls. The creeping horror of such castle walls and the damp dinginess of dungeon pits are not passed over when the guslar sings his songs, for a tale is told of Zanko, who for ten long years rotted in prison, till horror entered his soul, as disgust had claimed his body, and he wrote to his beloved, "Wait not for me, but marry another, that I may abandon myself to woe." But the story goes that the beloved, slyly employing deception, rode with her sister-in-law as Turkish viziers, tricked from the sultan the long-suffering prisoner, and carried him to safety once more.

Guile and sinister cunning, always the weapons of the Orient, have been employed again and again in the land that lies as a fringe on the Orient. A drinking song begins this way, as told in Zadar, the white: "I drink neither to you nor to me, but to the hero who would dare to go to Kotor and bring back the beautiful maid Aykuna." To which the doughty Smilyanich Iliya replied by springing upon his waiting mare and dashing off to the Turkish camp disguised as a Turkish vizier, there to deceive the assembled Turks, playing at hurling the deadly *topus* (javelin), by pretended stories of Iliya's weakness and a suggestion of facile conquest. Such genial frankness, fittingly met by the Turks with the courteous offer of coffee and tobacco, apparently persisted when Iliya politely begged instead for a kollo dance with Aykuna, the maid of his heart's secret desire. But a whispered confession between the dancing figures, a sudden covert sneer on the faces of the beholders, and the trickery of guile was discovered. With a leap and a forceful toss, the hero had fastened his conquest to the back of his kneeling mare, and flashed away as a fairy prince, aided by the veelahs, who ever desire to help the daring.

The conception of veelahs, a phantasy of all imaginative people, which is shown alike by children and peoples with a childlike mind, is also found in the poetry of the South Slavs. In the songs, in ballads, heroic legends, and almost in history itself the veelah persists. Like those faint noises which are heard at early evening, which seem as though they are and at the same time are not, so the imaginative Slav nature discerned evanescent traces of supernatural beings, maidens who, beautiful, young, and white-robed,

sympathetically concerned themselves with human affairs. Living in the streams, the high mountains and clouds, veelahs were joyous creatures who would dance at midnight or ride on the morning breeze. Rightly treated they were beneficent, but vexation produced irritation and mistrust, and their interference sometimes played havoc with human happiness, as is strikingly told in the tale of "The Serpent Bridegroom." King Budim, it was said, in complaining because of childlessness, was instructed by veelahs how to supply his lack. The fin of a fish taken in the depth of the Danube would prove the secret cure for his wife. But disaster followed this strange advice, for the son that was born was no human son but merely serpent spawn, and great was the chagrin in that royal house. Still shame could not outlive a parent's love, and, the serpent demanding a human bride, the father must do his bidding. That the veelahs' whim turned at the lovers' embrace proved only eventual ruse and deception, for the discarded skin of the serpent son, that was eagerly burnt by the queen mother, carried the charm of the prince's life, and gave a dead groom to the bride's embrace, as the veelah no doubt could long have foretold.

Likewise a summons to death could be pronounced by veelahs when heroes' lives were waning. So spoke a veelah to Marko Kralyevich on the height of Mount Urvina. A stumbling horse and a veelah's cry told Marko his end was near, for the veelah sang of two fir trees that grew on the top of the mount, where a spring ran bubblingly forth. In the spring was mirrored the day of death and the closing hour of conquering years to the glorious Marko, alone on Mount Urvina. Sometimes a hero's character was portrayed in veelah recitations. The story is told of a conversation between a veelah, an eagle, and this same Marko Kralyevich, whose kindness was remembered by the warrior bird which he succored in the battle of Kosovo. Blood-wet wings and a thirsting beak were carefully tended by Marko, who tenderly lifted the exhausted bird and bore it away to safety.

National figures like Kralyevich are extolled by the tongue of all peoples, and this is no less a characteristic of the South Slavs. Like Kralyevich for the Servians and Kroatians, Mustey Bey has been the particularly accepted figure for the Mohammedan Serbs in

Bosnia. Of these heroes many are the tales that are told and many the wonderful exploits recounted, phenomena which reveal the eternal youth of folklore story. Further, pictures of Tsar Lazar, big, bold, and black-bearded, riding over the hill, and of Turkish hosts, "like the clouds of heaven are their banners over all; and like the snows from heaven their tents upon the plain," are sights which vividly recall the heroes of old Servian war-days. The picturesque mood of those heroic days lies in the creative atmosphere of such phrases as—

"A gray hawk from Jerusalem with a swallow in his beak,
Flew onward into Servia, Tsar Lazarus to seek."

Conflict, turmoil, attack, and rebuff characterized the life of heroes. That the lives of women were less riotous is to be expected from the almost Oriental seclusion of their habits. Women were not supposed to go to the camp of their lords, as Hassan Aga's wife so bitterly cried out when she was repudiated by her lord for lack of love; women were supposed to stay at home, to tend the white castle and the young ones growing there. In the "Building of Skadar" it is told that even a prince's wife was accustomed to wash and dress her baby, prepare her husband's lunch, and set the house in order. Marko Kralyevich's mother, when she was growing old, addressed her son in terms of sorrow because she could no longer prepare his meals, light the lamp, or pour the yellow wine.

The women's songs give an insight into the lives of the feminine quarter, where the mistress and her household were accustomed to gather and listen to the visiting bard singing gusle songs to the lord and his attendants in an adjoining room. When a troubadour was especially trustworthy he would be permitted to go into the ladies' apartment. In that case he was allowed to sing only women songs, for nought do females care for heroic deeds, thought the master, who was accustomed to adjure his poet to sing of love and hope, of woman's devotion to man and the blessings of a double life.

The subjects of the women's songs cover a wide scope, from the peasant songs of faithful love or dirges for the dead, to the aristocratic handling of themes of honor and of passion. "The grievous ill of heartache" is most often the theme of feminine discontent. There is a song which recounts how a young wife repining at her

lack of children, wanders in a scented garden singing of her grief. Overheard by the mother-in-law, the idle complaint is repeated to the husband, who in great anger kills his wife only to find he has likewise killed his babe with her. Jealousy between mother and daughter-in-law or between sisters-in-law is frequently reprimanded by the moralist in song. Other songs show snatches of passion Oriental in splendor, as when kings promise their worldly all to obtain, as a beloved, the wife of another. "Castles in which no one has entered, horses which no one has ridden, sabres which no one has carried, all these will I give you," says a royal suitor to a reluctant innamorata, gowned with the splendor of the sun, moon-beam girdled, and jeweled with crowns and finger-rings. Vanity, thoughts of self, and adoration bounded a pretty woman's horizon. There is a story of Ali Aga's beloved who, though more beautiful than all other maids in Bosnia, and even Herzegovina, nevertheless was beautiful in vain because the love of her *banus* was turned instead to Omar's golden child, who lived like a bird in a cage knowing none of the lure of sunshine, nor the attraction of the white wheat springing on the hill. Peacock feathers in the hair and bright eyes that looked upon streets, where the merchants and the Turks would pass, are images that conjure up the Orient, as does also the motif of the Turkish fez in a little ballad, which sets a query thus: "To whom belongs the maiden who rides on the open sea, and winds her far-streaming hair under her Turkish fez?" The Byzantine influence marks certain ballads predominantly, as for instance, "The Maiden Margit and Rayko the Voyoda" and "The Marriage of Stoyan Yankovich," which originated in Servia while that country was under eastern rule.

Showing the influence of Constantinople and the East, reminiscent, furthermore, of old Greece and of the still earlier migrations of the Asiatic tribes, the Balkan songs, nevertheless, most strikingly revive a sense of the middle ages, for the art of the bard is distinctly feudal in nature. Very different from the life of the *guslar* today, was his existence in the days of knighthood. Employed by special Beggars, the singers a century or more ago were accustomed to luxury and refinement; they rode about on the masters' horses, ate plentifully at a rich and sumptuous table, and lived withal a life of ease.

The employment sometimes lasted for life, in other instances, for a season; but in either case the singers were in the habit of changing their repertoires and inventing new variations to old songs. Even today this is done to a great extent, and it is on long winter evenings or during the days of fasting that the singer finds the best opportunity for such composition. Gathered in the coffee houses, in the *žaršija* or open market places, in the barracks or, during the summertime, in the out-of-door gardens, the poet singer finds his audience ready to listen and to reward him by rich presents of weapons, horses, cows, and heavy purses, or by flowers, fresh vegetables, and little coins, according to the affluence or niggardliness of his hearers. An audience may be made up of rich peasants, manual laborers, merchants, Christians, Beggars, teachers, priests, or officials. Generally among the bystanders is a young boy who is learning to become a gusle singer. By word of mouth almost all songs are learned, and a lad generally begins at about his tenth or fifteenth year. Only one hearing is sometimes necessary to acquire a song, and a boy may often be taught at home, for the talent can descend from great-grandfather to grandfather, father to son. Up to the thirtieth year the singer readily picks up new songs, but after that he learns few. Most of the singers to be seen about the country are forty to fifty years of age; some give up singing when the cares of life overtake them, others are unable to sing after the occurrence of sorrow, as the death of a loved one.

The gusle instrument itself is like a little violin with one string. Sometimes two-sided gusles are seen, but both kinds are unfortunately being rather rapidly supplanted by the violin, and most recently by the accordion. Especially among the Hungarian gypsy players one hears the violin or the flute accompanying the *chardash*, the dance which, among the Hungarians, takes the place of the *kollo* of the South Slavs. The origin of these dances, of the gusle instrument and its music, is more a matter of conjecture than of knowledge. Historic traces sometimes lead to China and India, and the influence of Sanskrit culture may be detected. Deep in the life of the race runs the vein of gusle-music, which for the most part is simple and spontaneous, except where marked by the erotic features of outside factors. The time of *kollo*-dance music is $\frac{2}{4}$ as a rule, and $\frac{3}{4}$ or $\frac{3}{8}$

time generally signifies Tyrolese or Germanic influence. The accompaniment to the melody is generally very simple, composed of the tonic and the dominant. That the ballad or dance music is, in a cultural sense, merely fragmentary, awaiting formulative treat-

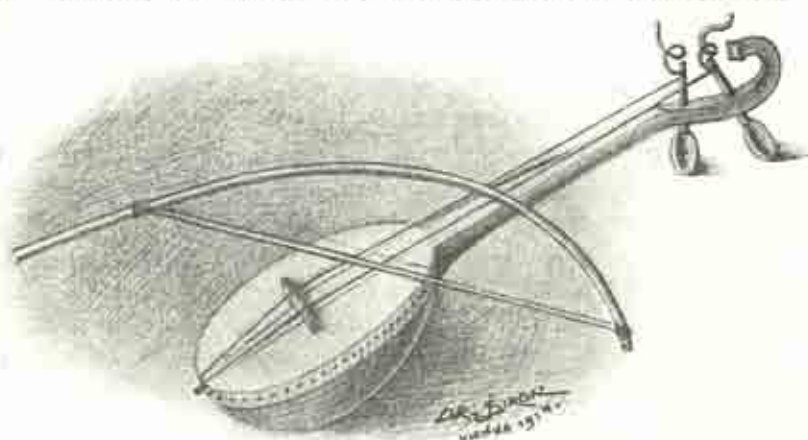


FIG. 9.—Gusle with two strings.

ment as rhapsodies, etc., by a master's hand is illuminatingly suggested by the discovery of Slavic themes in the music of Haydn and Beethoven.

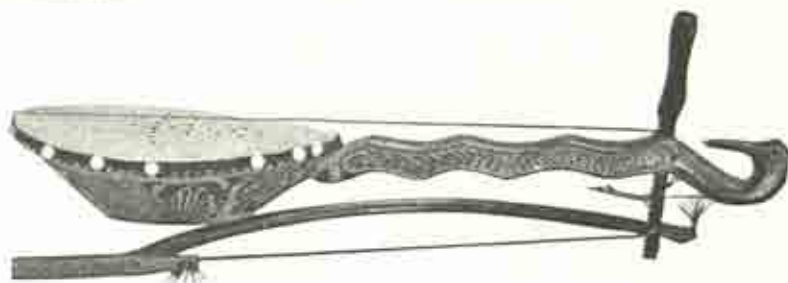


FIG. 10.—Gusle with one string. (The bridge is missing.)

Further, because of their nearness to the life of the people, these kollo dances are instrumental in showing the kinship of all peoples which is manifested in their plays. The "Pillow Kollo," a dance with words and actions, is no other than the "Pillow and Keys"

game played by American children, while the song of the peacock is reproduced the world over by children who sing of the imaginary woes of a pig, a dog, or a wolf. The good-luck tidings expressed in the phrase "When my ships come in" is retold in the kollo song of the veelah who was robbed of her bracelet by a prince. "One ship shall bring powder, another the guns, and a third the warriors to revenge my loss," the angry veelah is said to have cried.

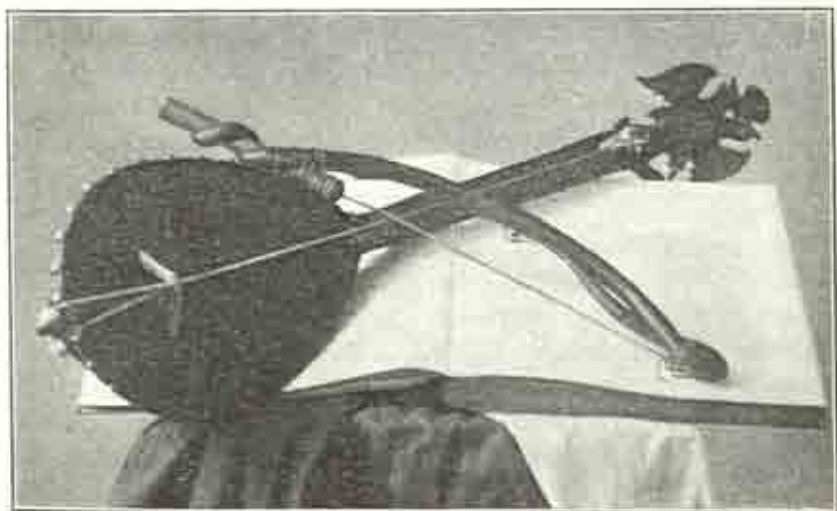


FIG. 11.—Gusle with one string.

But that the kollo was usually danced without words demands that to enjoy the dance to the fullest, one must hear the music and see the dancers themselves. The sight of embroidered jackets, blue stockings, and the flashing glint of ducats under a Turkish fez argues for enjoyment, for abandonment and joyous animation. White scarfs wave and dark eyes play to the answering sparkle in swains' eyes as maids and youths dance under the open sky. The scent of wine on the cooling air, the call of nature in the summer breeze, and the sight perhaps of ruined walls dark against the twilight sky, weave gusle music into heart music, and the spirit of long-ago creeps out to envelop the dancing forms. We see again in the light of the past the scarlet trains, the golden spears, and the bright,

white tents of sultan hosts. We lay up memories of jeweled women, nine pendants hanging from resplendent breasts, as relics of bygone days, when sultans saluted their slaves with surreptitious kisses in the shadow of tents, and heroes rode fearlessly, carelessly forth on steeds that were silk-saddled and black with the pelt of the bear. We ask ourselves as we peer in the past, Do we yet today in our dreams of self, so ride and kiss and laugh in tents composed of the stuff of our moods?

NEW YORK UNIVERSITY

POTTERY FROM CERTAIN CAVES IN EASTERN SANTO DOMINGO, WEST INDIES

By THEODOOR DE BOOY

IT was the privilege of the author to conduct certain archeological investigations in the Republic of Santo Domingo during the months of July to October, 1913, in behalf of the Heye Museum of New York City. This expedition confined itself mainly to the eastern part of the Republic, with headquarters first on Saona island and later in the woods near Cape Macao, in the vicinity of a small settlement called Salado (fig. 12).

Both Saona island and the district of Macao are virtually a virgin field to the archeologist. In the numerous general accounts and the comparatively few archeological writings on the island of Santo Domingo the author was able to find only a single mention bearing on the antiquities of the region. This is in a paper by Sir Robert Schomburgk, who makes brief reference to the shell-heaps of Cape Engaño, a promontory south of Cape Macao,¹ but does not state whether he made further investigation.

EARLY HISTORY

While information respecting the archeology of these regions is meager, one can find in early historical writings a certain amount of data on Saona island, the district of Macao, and in general on the eastern portion of Santo Domingo.

After Columbus had coasted the southern side of Jamaica on his second voyage, he steered eastward and soon saw the coast of Haiti rising above the horizon. He did not know which island this was, as he was familiar only with its northern coast, but on skirting the southern coast he found that he had returned to Hispaniola, when an Indian came off in a canoe to his ship, hailed him by name, and spoke to him in Castilian.² The Admiral continued eastward

¹ Schomburgk, *Ethnological Researches in St. Domingo. Report of British Association for 1851*, pp. 90-91.

² Irving, *Life of Columbus*, book VII, chap. VII.

along the coast, and, passing the islands of Beata and Alto Velo, finally reached Saona and anchored in the channel between that isle and the mainland. Saona was called *Adamano*, or *Adamaney*, by the natives.¹ No mention is made by historians whether or not Saona was found to have inhabitants when Columbus was lying in the channel between it and the mainland, and the author can find no mention of the origin of its present name, Herrera merely men-

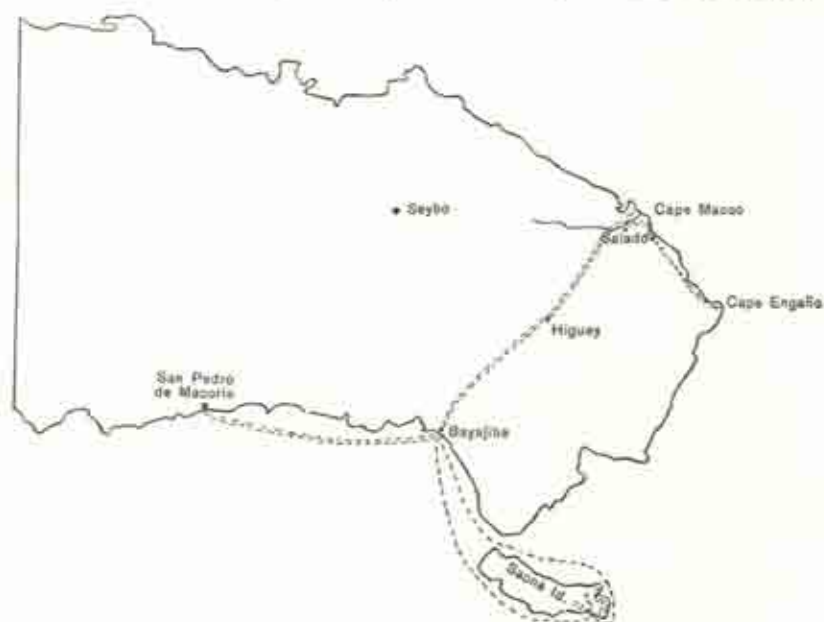


FIG. 12.—Map of eastern Santo Domingo, showing the route traversed.

tioning that the Castellians thus called² it, while Las Casas thought the name *Saona* was applied to it by the Admiral or the Adelantado, but does not give the reason.³ In Irving's *Life and Voyages of Christopher Columbus*,⁴ we find the following statement: "He [Signor Belloro] states that a public square in that city bore the name of Platea Columbi, towards the end of the 14th century: that

¹ Herrera, *Historia General de las Indias*, dec. 1, lib. 11, cap. xv. Las Casas, *Hist. Ind.*, lib. 1, cap. xcvi.

² Herrera, *op. cit.*

³ Las Casas, *op. cit.*

⁴ Appendix, note vi, "The Birthplace of Columbus."

the Ligurian government gave the name of *Jurisdizione di Colombu* to that district of the republic, under the persuasion that the great navigator was a native of Savona, and that Columbus gave the name of Saona to a little island adjacent to Hispaniola, among his earliest discoveries." This, then, may be the origin of the name of the island, for while Irving says that the proofs which Signor Belloro brings forward to show that the Admiral was born in Savona are fallacious, he does state that the records show that the father of Columbus was for a long time resident of the town named. It may therefore well be that Columbus named the island in memory of his father.

We next find in the ancient chronicles that Saona was frequently visited after the establishment of the city of Santo Domingo on the southern coast of Haiti, and that the inhabitants of this settlement held constant communication with the natives of the island in order to obtain cassava bread. These relations appear to have been friendly for some time, and the aborigines of Saona readily supplied their visitors with provisions.¹ Owing to the customary Spanish cruelty, however, this condition of affairs did not last long. On one occasion a party of Spaniards came to Saona in a shallop and were well received as usual. It so happened, however, that one of the bloodhounds which accompanied the soldiers saw the cacique of the island moving about with a staff in his hand, directing the activities of his followers who were loading the Spanish vessel. The dog, under the impression that the cacique was making threatening motions, strained at his leash, and the Spaniard holding the animal, thinking to have some sport, released the hound, which forthwith sprang at the chieftain and killed him. The enraged followers fell upon the Spaniards and killed eight of them before the remainder could escape to their boat.²

This occurrence being reported in the city of Santo Domingo, orders were given to Don Juan de Esquibel (who at the time was about to undertake an expedition of conquest against the inhabitants of the Higüey district, to whose chief cacique, Cotubanama, the cacique of Saona owed allegiance) to make a special

¹ Las Casas, *op. cit.*, lib. II, cap. vii.

² *Ibid.*

trip to Saona in order to avenge the death of the eight Spaniards. Esquibel had with him a party of about 350 men, some of whom were sent to Saona.¹

The scenes following the landing of this expedition baffle description. The Indians, on discovering the hostile intentions of the invaders, gave battle, but to no avail: their arms were of small use against the cuirasses of the Spaniards, and their stone weapons no match for the swords and spears of their enemies. After great slaughter the surviving Indians retreated to the hills and caverns, but even here they were pursued, and Las Casas mentions that about 600 or 700 of them were found in one place and put to the sword. We must here make allowance for the historian, as it is not likely that so many Indians lived on Saona island or that they were found in one "casa" (house), as related by Las Casas, who received his information from hearsay and probably was misinformed respecting the number of Indians mentioned. Nevertheless, after this expedition no aborigines remained on Saona; such as were not killed were taken as slaves and the island depopulated.²

The early writers make one more mention of Saona island. After the second war on the inhabitants of Higüey, Cotubanama, the cacique of that district, fled to Saona with his wife and children and a few followers, who hid themselves in some caves in the interior.³ Another expedition was sent to capture Cotubanama, and he was finally made prisoner and taken to Santo Domingo City, where he was hanged by order of Ovando.⁴

From all accounts Saona appears not to have been inhabited after the massacre of its native inhabitants about 1502. The author has been able to find only one account to the contrary; this is in a modern work by Samuel Hazard, but no original authority can be found in support of his statement.⁵ This author says: "The course of the steamer being now entirely changed, she heads almost due west, and we pass the island of Saona, once famous in the annals

¹ Las Casas, *Hist. Ind.*, lib. II, cap. viii.

² *Ibid.*

³ *Ibid.*, cap. xvii.

⁴ *Ibid.*, cap. xviii.

⁵ Samuel Hazard, *Santo Domingo, Past and Present: with a glance at Hayti*, New York, 1873, p. 207.

of the Jesuits as a place where they held exclusive control over fertile fields. It is as large as the Dutch island of Curacao and said to be infinitely more fertile, though now desolate and unproductive." It cannot be urged that Mr Hazard may have meant that the period of "exclusive control over fertile fields" antedated the massacre of the Indians, as the Jesuit order was not established in Europe until 1534, whereas the massacre of Saona took place about 1502; and even if the Jesuits had settled on the island in later years, some traces of their occupancy, such as the walls of houses or the walls surrounding fields, would be visible. While the present writer did not visit the western portion of the island, he saw no evidence of such occupancy in the eastern half. Several fishermen from the village of Bayajibe, on the adjacent mainland, assured him that they had often walked through the interior of western Saona and along its shores, but had never seen any remains of buildings.

The history of the district of Macao and Higüey is essentially the same as that of the island of Saona, so far as the aboriginal inhabitants are concerned. Bloodshed, rapine, and wanton destruction of agricultural property, the main resource of a non-mineral country like the district of Macao, mark the brief period of existence of the Indians after the Spanish invasion. When the Spaniards established their rule on Haiti, the eastern portion of the island was known by the Indian name of Higüey and was ruled by the powerful cacique Cotubanama. The inhabitants of this province were the most warlike of the island, having become proficient in the use of defensive weapons probably through the frequent invasions of the Caribs from the neighboring islands to the eastward. The cacique himself has been described by Las Casas, who refers to him as the strongest and tallest man of his tribe; that his bow was so strong that a common man could not bend it, and that his other weapons resembled those of a giant.¹

About the time of the killing of the eight Spaniards by the inhabitants of Saona, the Indians of Higüey province, under the leadership of Cotubanama, revolted against Spanish rule. Their relations with the invaders had already become strained, owing

¹ Las Casas, *Hist. Ind.*, libro ii, cap. xvi.

to the demands made upon them; and for some time they had been aware that their first conception that the Spaniards were supernatural beings was a delusion. A Spanish officer, Juan de Esquibel, was dispatched by Ovando from Santo Domingo City in 1504 to punish the natives, and after a few insignificant defeats Esquibel succeeded in driving the Indians to the mountains; but the luckless people were doggedly pursued and systematically killed whenever discovered.¹ Finally, in desperation, the natives sued for peace, which was granted them on harsh terms: they were to cultivate land for the invaders and pay tribute in provisions. Esquibel built a wooden fort in an Indian village near the sea, probably where now is the pueblo of Higüey, and left in it a guard of nine men under Captain Martín de Villaman, who was supposed to collect the tribute and to enforce the cultivation of the land.

This peace was of short duration. The resident Spaniards of Higüey, following the usual practice, treated the Indians with great cruelty, made demands on them to which they could not accede, while women were taken from their husbands and fathers, and abused. Driven to desperation the Indians rose against the Spaniards, set fire to the fort, and killed the defenders.² This revolt forced the Spanish governor to organize another expedition against the natives, again under the command of Esquibel.

Las Casas, then a young man of twenty-eight, was a witness of the greater part of this second campaign, and while it was not until twenty-five years later that he commenced to write his history of the West Indies, a work which was not finished until he was eighty-five years of age, the cruelties of this campaign made such a vivid impression on him that oftentimes he thought the scenes he witnessed were the result of an unhappy dream. It is not necessary here to recount the atrocities committed by the conquerors: the murder of women and children, the burnings at the stake and other revolting tortures committed by the Spaniards on a people that had every right to defend their native soil. The entire population of Higüey was exterminated, with the exception of the chief Cotubanama, his wife, children, and a few retainers, of whose fate we have already

¹ Las Casas, *Hist. Ind.*, libro II, cap. viii.

² *Ibid.*, cap. xv.

learned. Nor is it the purpose to discuss at greater length the history of the primitive inhabitants of this region, but merely to point out such connection as existed between Saona island, Higüey, and the district of Macao, which localities were undoubtedly inhabited by people of one tribe. The early accounts of these regions are of great interest to students of the history of early Spanish settlements in the New World, and it would be difficult to find in all history anything like the atrocious means by which the complete annihilation of the aborigines of the West Indies was effected.

SAONA ISLAND AND ITS ARCHEOLOGY

The island of Saona was surveyed in 1902 by the staff of the U. S. gunboat *Dolphin*, under Lieutenant-Commander Albert Gleaves, and an excellent chart (Hydrographic Office chart 2106), embodying the results of the survey, was published. At the present time the island is uninhabited; but this is not to be wondered at, inasmuch as it is not fertile, it is the resort of an unbelievable number of insects, and its eastern part is completely devoid of

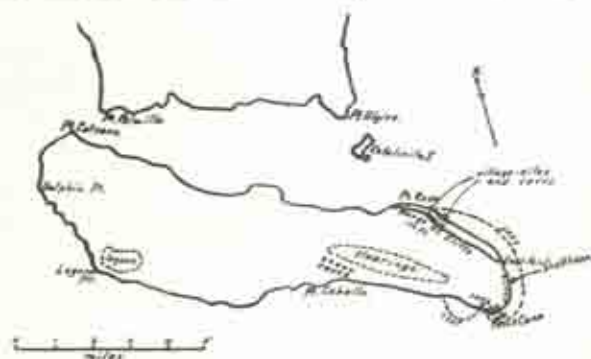


FIG. 13.—Map of Saona Island.

potable water. The author was told by fishermen who occasionally visit the island in order to find shelter for a night or to salt and sun-dry their catch, that in the western portion of Saona can be found a few wells, but that the water is almost undrinkable on account of the lime contained in it.

From San Pedro de Macoris, on the mainland, the author, accompanied by William Godet, a Turks Islander who accompanied

the expedition in the capacity of handy-man, proceeded to the small fishing village of Bayajibe where a sailing vessel was chartered to take the party to a point on the southern coast of Saona, one mile to the westward of Point Cana (fig. 13). This is one of the few spots suitable for pitching a tent and establishing camp. There is a brackish lagoon within half a mile of the shore, and there is also a well the water of which can be drunk in case of absolute need. This also is the nearest available camping spot to the eastern coast of



FIG. 14.—Sandy southern coast of Saona.

Saona. The entire southern coast has a sandy beach (fig. 14), while the entire eastern and northern coasts are of a coral formation (fig. 15) on which one can neither effect a landing nor erect a tent, there being neither trees of any size, nor soil. The author and his helper remained on the island sixteen days, during which time the chartered vessel called twice with a supply of drinking water.

The necessities of life which one finds on Saona are few, an occasional wild pigeon and a fish or two being the only articles of food that were not imported. But while food is scarce on Saona,

so much cannot be said of animal pests, mosquitoes, sandflies, centipedes, scorpions, and a particularly vicious variety of wasp being found in great numbers on the beach and in the interior. At times mosquitoes and sandflies especially were so bad that it was impossible to enter the bush on the southern side of the island. Fortunately the greater part of the work to be done was in the neighborhood of Point Roca, where hardly any of these pests were to be found; perhaps it was for this reason that the aborigines had



FIG. 15.—Typical coral formation on eastern coast of Samaná.

their villages around Point Roca, and that they merely visited other localities to cultivate their crops, to build and keep their canoes, and to dive for conchs, an important article of food. It was often necessary for our little party to retire before sunset and not to get up until an hour after dawn, a trying ordeal when one considers that sleeping under a cheese-cloth canopy, in order to keep out the tiny sandflies, has much the effect of a Turkish bath. It was not possible to transport the tent and the rest of the camp outfit to Point Roca through the dense brush and over the honeycomb coral,

and as there is no landing place on the eastern coast of the island, transportation by boat is out of the question.

Saona is 12 miles long and 3 miles wide, at the widest point, with an area of about 25 square miles. The rocky parts of the coast consist of the characteristic honeycomb coral, but the southern coast is chiefly a gently-sloping sandy shore. The greater part of the southern and eastern coasts is bounded by barrier reefs which are continually building up and forming new land. The bush on the eastern part of Saona is that characteristic of all West Indian coral islands, but the geological structure of Saona is different from that of the mainland, and is not unlike the Bahama islands. A great deal of the shrub consists of buttonwood, and there are also quantities of candelabra cactus and a species of small mahogany tree. The western part of the island is densely wooded, and there are said to be some valuable hardwood trees there. The interior of the eastern coast of Saona exhibits a remarkable phenomenon: the core of the island, some 116 feet high, has evidently been suddenly pushed upward by two distinct marine upheavals in pre-æolian times, and, as a result, in the top of the cliffs at Point Roca one finds caves formed by the action of the waves at a period when the core of island protruded only about ten feet above sea-level. After the first upheaval, other caves were formed in the base of the rocks, now about a hundred feet above the sea, when a second upheaval forced the core of the island upward another ten feet and

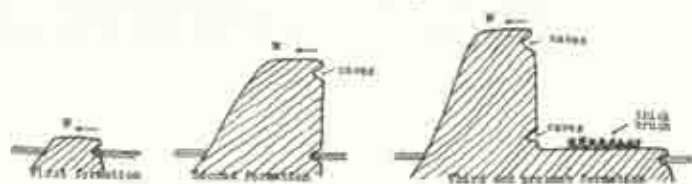


FIG. 16.—Eastern coast of Saona at different geological epochs.

formed the plateau now found between the high rocks at Point Roca and the sea (fig. 16). It was in this second range of caves, at the foot of the high cliffs, that abundant evidence of former aboriginal occupancy in the way of sherds, broken stone implements, etc., was found. It was necessary to blaze a way through the dense brush from the coast to the foot of the cliffs, a distance varying from half a mile to a mile.

One also finds on Saona, on a small bluff half a mile inland from the eastern coast, at East Point (see the map, fig. 13), the ancient foundation of a lighthouse that was never completed; the foundation is in good repair and could be used for a much-needed lighthouse to protect vessels coasting the shores of the Dominican Republic. No information regarding the structure could be gleaned from fisherman, but it is not unlikely that the work may have been commenced on the recommendation of Sir Robert Schomburgk, who made an extensive geographical survey of Santo Domingo in 1850-52.

The author made daily trips from the camp near Point Cana to points along the eastern coast, but during the first three days' sojourn on the island was unable to find any indication of former aboriginal occupancy, with the exception of scattered conch-shells with typical Indian perforations. In determining, throughout the West Indies, whether the aborigines had visited certain localities, the author has been greatly aided by an examination of old conch-shells (*Strombus gigas*) lying about. One often finds these shells in the interior of an island, sometimes as much as five or six miles from the sea; then again small heaps of the shells have been found on the coast, and they have been seen also in caves. Frequently the semi-fossilized condition of the shells indicates that they were opened in pre-Columbian times, but where the original pink coloring is preserved it is evident that they were taken from the sea at a comparatively recent date. There is one way, however, by which one can determine with certainty whether the shell was opened by a prehistoric or a post-Columbian inhabitant, and that is the condition of the aperture by means of which the conch was loosened from its shell and the meat extracted. If the aperture is a small round one (fig. 17), it is certain that the conch was opened and used by an Indian. The author has asked many West-Indians how the conch could have been taken from its shell in this way, as the hole is far too small to admit the introduction of an instrument like a knife to loosen the muscle from the inner convolutions. The modern conch-fisher makes either an elongate orifice in the shell of the type shown in figure 18, and then with a knife-blade loosens the muscle, or else with a hatchet knocks off the entire top of the

shell. After the muscle has been cut loose, the soft conch can be pulled through the mouth of the shell. No negro conch-fisher with whom the writer has ever talked, could explain how an Indian could have extracted a conch by making merely a small round hole, hence the process can be explained only by the theory that the pre-Columbian inhabitant caused the conch to release its hold on the shell by pouring boiling water in the aperture. Whatever the value of this conjecture, it is a fact that the difference in the apertures is an important guide in determining where the aborigines lived, and has proved of great value in our West-Indian explorations.



FIG. 17.—Conch-shell opened by an aborigine.



FIG. 18.—Conch-shell opened by a modern negro conch-fisher.

From Cuidado reef, at the extreme southeastern point of Saona, to a point half-way to the inland bluff called East Point, a distance of about a mile, one encounters, at no great distance from the sea, small heaps of conch-shells, and as no indications of an Indian village-site in the immediate vicinity is found, it is evident that the Indians came to this spot only to collect the conchs on the rocky shoals between the reefs and the beach, then to extract the meat from the shells, and to carry it, possibly after salting, to their habitations. Extensive excavations in some of these small heaps of shells mixed with brain coral (fig. 19) failed to produce potsherds or other artifacts.

The explorations were extended day by day farther to the north along the eastern coast, when finally, in cutting a path through the brush almost due west from a point on the beach about half a mile from Point Roca, we found, at the very foot of the cliff, a large quantity of potsherds and some fractured stone celts (figs. 20, 21).



FIG. 19.—Deposit of conchs and brain coral.

As above stated, the cliffs at Point Roca, at a distance of half a mile to a mile from the shore, rise perpendicularly from a plateau about ten feet above sea-level and which is densely covered with brush through which one has to cut his way with a machete. The survey map above mentioned gives the actual height of Point Roca as 116 feet above sea-level. The cliff slopes gradually to the southward and still attains a height of about 100 feet at a distance of two miles from the northeasterly extremity of Saona. It is impossible to scale these cliffs directly at Point Roca, but half a mile from Point Roca, ascent is possible, though dangerous and difficult. The limestone is greatly weathered, and the rough surface, combined

with the small cacti which have found a hold on the almost sheer face of the cliffs, makes climbing an unpleasant task. No evidences of Indian occupancy were found on the high plateau; but this lack is not to be wondered at, since the vegetation is almost impenetrable and the rock formation such that walking is impossible. At the foot of the cliffs are a great many shallow caves, or, rather, overhanging shelves of rock. Caves are found also at the top of the cliff, but these are not accessible. After climbing the cliff, the author



FIG. 10.—Dense brush between beach and inland cliffs.

attempted to descend into one or two of these caves with the aid of a rope, but as this was found to be impossible, the theory that the upper range of caves was used by the aborigines for any purpose may be dismissed as untenable.

Potsherds, chiefly fragments of cooking vessels, were found in several of the caves at the foot of the cliffs, but nothing was found to prove that these shelters were used for habitation, for burials, or as shrines. The sherds found here may be parts of

vessels left in the caves to collect water from the drip of stalactites. As previously mentioned, a large quantity of sherds was found at the foot of the cliffs outside of the caves, over an area of about two miles in length and about fifty yards in width. It might therefore well be that the aborigines had a village at the foot of the rocks and stationed sentinels on the summit to guard against invasion by enemies, and that in case of severe storms the inhabitants sought shelter in the numerous caves and under the shelving rocks.



FIG. 21.—Foot of inland cliffs and caves.

It cannot be said that the inhabitants of Saona were troglodytes, principally because in the caves explored in the interior of Saona no indication of Indian occupancy could be found. One of the most noteworthy finds among the potsherds collected along the base of the range of cliffs was a new type of neck of a water vessel, subsequently found in large numbers in the caves of the Macao district. This sherd possibly indicates that the aborigines of Saona were in the habit of going to some inland well for their drinking water,

since no potable water can be found within a radius of three miles from Point Roca, unless one excepts the drip, negligible in quantity, from the cliffs and the stalactites. It may also be stated that practically no shells were found in the area where the potsherds occurred, and that twelve broken petaloid celts were collected, of the usual Antillean type, but no entire ones were found.

No kitchen-middens were met with on the eastern part of Saona, but this condition is not unusual on these soilless coral islands. It is possible, however, that one might find middens and village-sites on the western half of Saona, because the presence there of large trees would indicate a supply of soil that preserves the hummocks upon which the Indian habitations were built and their accompanying refuse-heaps accumulated. It is hoped that further researches in the western part of Saona will be conducted.

Another village-site was found due east from the site under the rocks, within 20 yards of the shore. While not covering so extensive an area as the first site, a large quantity of sherds was collected, notably a number of the typical pottery heads of the general region.

Extended explorations were conducted also to the westward from the camp at Point Roca, especially in the interior and through the brush. The author was guided to some inland caves by visiting fishermen, but could find no remains in any of these.

While it is not desirable to theorize on the means employed by the Indians to protect themselves against the insect life found on Saona, one can picture the mode of life of its early inhabitants. It is known that their principal settlement can have been at no other place than the foot of the cliffs of Point Roca, judging from the occurrence of the large number of potsherds there; that they went along the shore to the southward to collect conchs, their chief food staple, and that undoubtedly they also caught fish on the shoals surrounding this part of the island. They doubtless stored their canoes on the southern beach, the only place where they could have effected a landing, as previously mentioned. There is no question that the Indians went to the interior to cultivate cassava and other vegetables, as this was not possible in either the rocky ground of the eastern coast or the sandy soil of the south. It may also be said that at practically all seasons the aborigines were prevented

from living in the interior, on the southern coast, and on such parts of the eastern coast as provided their supply of sea-food, owing to the innumerable mosquitoes and sandflies. These conditions, therefore, may have led to the selection of Point Roca as the most suitable abode, since this point is exposed to the southerly, easterly, and northerly winds (as may be known, there is no westerly wind ten times a year in the Antilles), and where in consequence mosquitoes are scarce and sandflies not found at all.

Whether or not the utia (*Capromys*) ever existed on this island is not known, but from the fact that skeletal remains of this animal were found in the kitchen-middens of the mainland, at Point Barbara, it is probable that it occurred also on Saona, although no bones were found on that island, possibly due to lack of soil. There are three species of non-venomous snakes on Saona.

In concluding this short report of investigations on Saona, it may be said that it is practically impossible to remain on this island for a considerable time without danger of serious illness from the stings of insects. In consequence it was deemed best to conclude the Saona work and to be contented, for the time being, with the exploration of the eastern half of the island, trusting at some future time to be able to explore the western portion by means of a vessel which at night could anchor far enough off-shore to be out of range of mosquitoes and sandflies. It will also be noted that in a later part of this paper no mention is made, nor illustrations given, of the potsherds collected on Saona. This is for the reason that in the explorations at Cape Macao so many sherds of similar type, but in better state of preservation and of larger size, were found, that the illustration and description of these apply to the Saona specimens as well.

INVESTIGATIONS NEAR SALADO AND CAPE MACAO

After leaving Saona, the author returned by the chartered sailing vessel to the fishing village of Bayajibe, where a pack-train was hired to conduct the party and its equipment to the pueblo of Higüey in the interior. From Higüey the author continued across the island to the cacao plantation of Mr F. Goussard, a French settler in this district, who generously placed his house at the disposal of the expedition. Mr Goussard's plantation is near Salado,

on the Anamuya river, about four miles from Cape Macao on the coast. While this gentleman was not residing on his property at the time, the author was fortunate in finding there Major Daniel Tenaille, a young Frenchman who had bought land in the neighborhood and who was stopping at Mr Goussard's plantation. The author takes this opportunity to extend his thanks both to Mr Goussard and to Major Tenaille for their hospitality and many courtesies during his stay in Santo Domingo, especially to Major Tenaille for the specimens found on his property and given by him to the Heye Museum.

The party spent three weeks at the house of Mr Goussard, and a similar period on the plantation of Major Tenaille. During this time we were enabled to explore thoroughly the Macao district and to conduct excavations at various sites. The usual mode of travel was on horseback, and comparatively good horses could be obtained for this purpose.

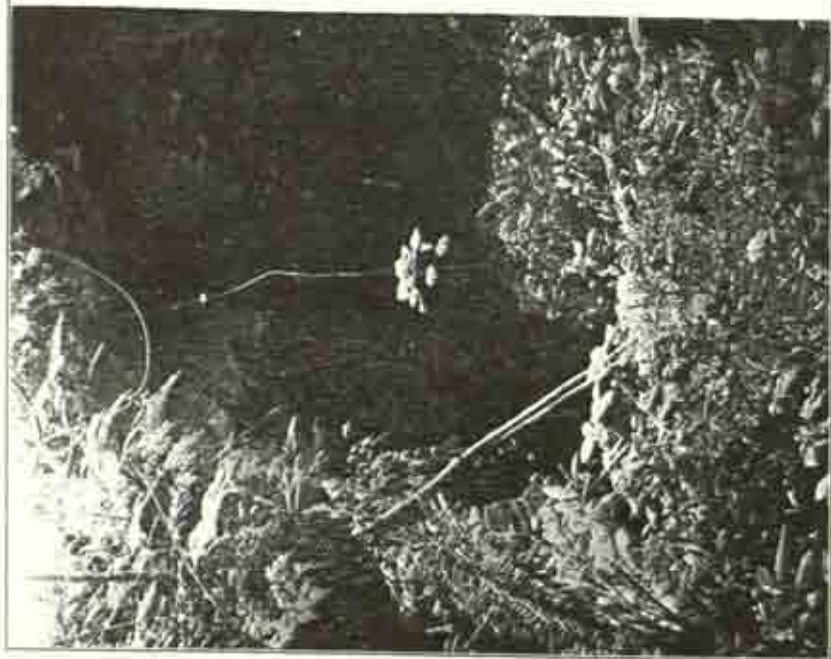
On Major Tenaille's plantation and the adjacent property it was our good fortune to find several caves which evidently had remained undisturbed since the annihilation of the aboriginal inhabitants. These caves are found in the midst of a virgin forest, within an area of a square mile (fig. 22). There can be no doubt that all these caves would be found to communicate, if one cared to open the tunnels which at present are too small to allow the passage of a human body. In the accompanying photograph (pl. IV, *a, b*) are shown the mouth and the interior of the first chamber of one of these caves. In all, eight caves were found, the openings sometimes being hidden in the dense forest, making it difficult to relocate them after they had once been left. Pottery was found in all these caves.

The caves explored are in the typical limestone formation of the West Indies. Two of them are quite large, and contain underground lakes of fresh water. It was in these two caves that the greater part of the pottery was found. Practically all of this earthenware was broken, due in part to the falling of slabs of limestone from the roof, and partly from having been thrown about by the original occupants; for example, in two instances parts of a vessel were found separated by a distance of ten yards or more.

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a. Mouth of Cave



b. Interior of Cave

THE CAVES NEAR SALADO

There is every reason to believe that these caves had not been entered since the advent of the Spaniards, as they open on land that had been cleared only after Major Tenaille bought the property, and even then it was impossible to persuade the Dominicans of the laboring class to enter the caves unless accompanied by either

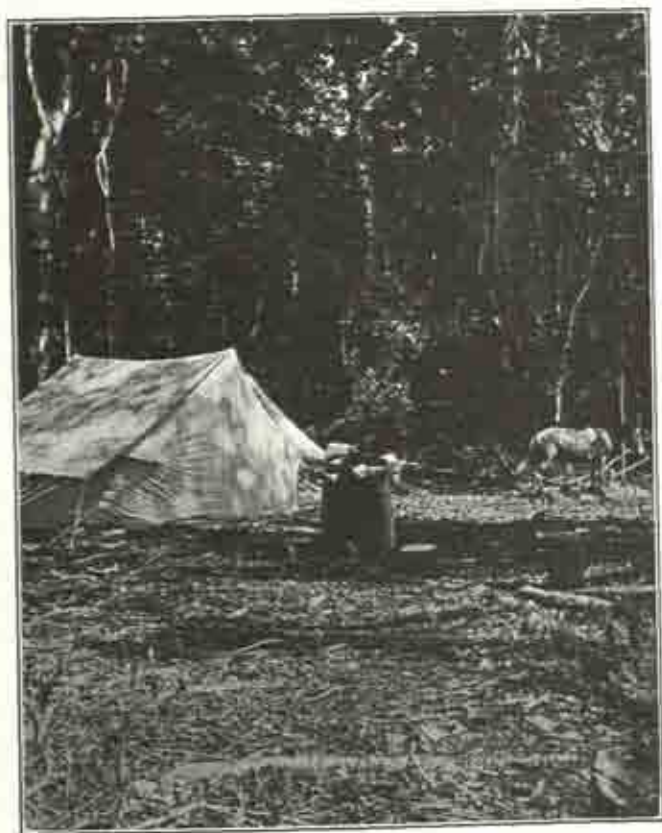


FIG. 22.—Camp near Salado, in the neighborhood of the caves.

Major Tenaille or the writer. In the two caves with the underground lakes a great many potsherds were lying in the water, some of which were recovered by diving on the part of Major Tenaille, the author, and Godet, our colored helper. A fragment in the lake bottom, in some places twelve feet in depth, was first located by burning a piece of magnesium wire; a long pole was then put in the

water alongside the sherd, and the diver, following the pole with one hand, recovered the pottery with the other.

Most of the sherds found were lying between the boulders that cover the floor of the caves, and which, in the course of centuries, had fallen from the roof. Between these boulders are small chambers and tunnels, making the thorough exploration of a cave a tedious task of several days. One cave especially was hard to explore, owing to the dense air in the bottom which made breathing difficult. The entrance of this cave has a downward slope of about forty-five degrees, and the lakelet at the bottom is not less than thirty feet lower than the mouth.

Chemical analysis of water from the cave lakes, made by Dr. Frederick W. Zons, to whom the author wishes to acknowledge his indebtedness, indicates 975 parts per million of mineral matter, of which 550 parts are sulphates, and 216 parts oxide of lime present chiefly as sulphates. The mineral matter contains, in addition, considerable sodium sulphate and chloride, also 36 parts per million of iron and aluminium oxides, and 33 parts per million of silica (SiO_2). The water contains also 1010 parts per million of organic matter, but this of course may be of recent origin. The water is extremely unpalatable, and the author drank it only when his supply of rainwater was exhausted. The horses and mules refused to drink it, even after they had been without water for two days.

As has been said, the area in which these caves are found does not exceed a square mile. Taking this area as the limit of investigation, the author attempted to find the exact location of the Indian village-site, which presumably was within a short distance of the water supply. While odd fragments of pottery were found in the undergrowth within a radius of two miles of the caves, in no instance were they discovered in sufficient quantity to enable the exact determination of a former settlement, hence it cannot be said definitely that the Indians had a permanent abode in this vicinity. Furthermore, in view of the quality of the cave water, and the fact that typical village-sites and kitchen-middens are not found along the coast within a distance of eight miles from the caves, it is probable that the aborigines came to these parts only in the planting season, during which time they lived in temporary shelters.



4. Water Vessel



8. Part of an Effigy Vessel

EARTHENWARE FROM THE SALADO CAVES

The month of April, 1914, was likewise spent in the Macao district, with headquarters in the new house of Major and Mrs. Tenaile, by whom the author was hospitably entertained. As in the case of the first expedition, much of the success of the second visit to this region was due to Major Tenaile, who had obtained from the natives much valuable information for the use of the author in the interim of his two expeditions. The caves were again visited, and a new range of caves was explored in the Peñon de la Vieja Rufina, near Cape Engaño. The Bonao district was also reconnoitered with the view of future work in the inland district.

DESCRIPTION OF THE POTTERY

Perhaps the most interesting potsherd from the Salado caves is the top of a water vessel seemingly designed to serve as a filter. This fragment was found among the boulders covering the sloping floor of one of the caves, and on careful examination several large pieces of charcoal were found in proximity to the sherd. Figure 23 shows the fragment in an upright position, while figure 24 pictures



FIG. 23.—Top of "filter jar."



FIG. 24.—Bottom view of "filter jar."

the bottom of the specimen. In the latter illustration the "filter disk" can plainly be seen, dividing the upper part of the vessel from the lower, and figure 25 illustrates the probable appearance of the original vessel and the use to which it was put. The author

knows of no other specimen of this type, with the exception of one, also from the Salado caves and kindly presented by Major Tenaile to the Heye Museum; it consists only of the disk of a "filter jar," with the perforations, but shows clearly that it is of the same type as the specimen illustrated. The author considers it



FIG. 25.—Probable outline of "filter jar."

remarkable that the aborigines of Santo Domingo should have known the principle of filtering water through charcoal. It is difficult, however, to conceive what good it did the pre-Columbian inhabitants of Salado to filter their water through charcoal in this manner, as this process would not remove the lime, and the cave water does not contain other impurities necessitating its employment. The sherd illustrated is of yellow-brown clay, with a band of incised

lines ornamenting the body and a conventionalized parrot-head serving to decorate one side. Height of specimen, $4\frac{1}{8}$ inches (10.5 cm.).

What must originally have been a well-constructed effigy vase is shown in plate v, *b*. Unfortunately the remainder of this excellent vessel was not found, otherwise it would rank as one of the most remarkable vessels from the West Indies. It is more than probable that the bottom part of this vase was globular and that it joined the effigy at the remaining edge of the under side. This vessel, which is of dark-brown clay, is of good workmanship and excellent finish. The details of the head are well executed, the nose, nostrils, eyes, and mouth being prominently shown, while the ears are fashioned in a conventionalized manner with incised circles. There is a slightly elevated ridge on the crown of the head, surrounding a circular opening which served for filling and emptying the contents. The upper part of the body, below the neck, is decorated with an



WATER VESSELS FROM THE SALADO CAVES

intricate, symmetrical, geometrical design which reminds one of that seen on the backs of wooden stools (*duhos*) found in certain parts of the Antilles, especially on the Caicos islands and the Bahamas.¹ Height of specimen, 7 inches (17.8 cm.).

One of the few entire vessels found in the Salado caves is shown in plate VI, *a*: it is of reddish-brown clay, is well finished, and in an excellent state of preservation, having only one small hole in the side. It was probably on account of this hole that the aboriginal owner discarded the water-jar, and, instead of breaking it to pieces, as appears generally to have been done, it was deposited between boulders, where it was found by our party. The lower portion of this vessel, when found, was somewhat incrustated with a calcareous deposit, occasioned by the drip of the limewater from the roof of the cave. The top part of the neck of this vessel has a somewhat conical enlargement; the lower part is decorated with a grotesque head which, judging from the sunken eyes, may have been intended to represent a monkey, a not unusual feature of decoration in Antillean pottery. Eyes, nose, nostrils, and mouth are clearly shown by deep, incised lines and circles, and the top of the head is covered by a raised, cylindrical ornament with incised decoration. The ears appear to be divided into halves, with a deep pit in each half. On the reverse side of this lower portion of the neck of the vessel can be seen a convolute design in high relief, probably representing a snake. Two parallel incised lines surround the base of that portion of the vessel where the neck merges into the globular body: these lines are half an inch apart, and the space between is divided into four equal parts by four rectangular lines joining the two circles. In each of the four spaces thus formed, the potter cut another line parallel with the two circles and at an equal distance between them. This line in each case is almost a quadrant, and terminates at each extremity in a shallow pit made with the instrument with which the incised line was cut. Height of specimen, 14 inches (35.6 cm.).

The three necks shown in plate VII, *a*, *b*, *c*, belong to the same type of vessels as that illustrated in plate VI, *a*, and show varied ornamentation.

¹ Otis T. Mason, "The Guempe Collection of Antiquities in Pointe-à-Pitre, Guadeloupe, West Indies," *Smithsonian Report for 1884*, fig. 202d, p. 828.

Specimen *a* is a highly conventionalized head, showing only the outline of the face in a raised band; it has oblique eyes and a perforated nose. Height of specimen, 5 inches (12.7 cm.).

Neck *b* is more elaborate: the spout is ornamented with a design of incised circular lines, terminating in shallow pits, after the usual Antillean fashion, which possibly represents a type of head-ornament. The face is fairly well fashioned, with slightly oblique eyes and two very prominent nostrils. The ears, like those of the vessel shown in plate VI, *a*, are divided into halves and have a shallow pit in each half. Height of specimen, 4 inches (10.2 cm.).

The third specimen (*c*) differs slightly in that the neck is more elongate and the head is modeled in higher relief. The ears are of the same type as those of specimen *b*, and the eyes and mouth are represented by deeply incised lines. The nose stands out prominently from the face. Height of specimen, $5\frac{3}{4}$ inches (14.5 cm.).

A simple water vessel, derived from the gourd, or calabash, can be reconstructed from the sherd shown in plate VIII, *a*. This specimen is of light-brown clay, is well modeled, and is without ornamentation. Height of specimen, $4\frac{1}{2}$ inches (11.4 cm.). The gourd motif appears to be the fundamental form of the ancient water vessels from Santo Domingo.

The tops of more elaborate vessels, of which the form of the body is derived from the gourd, are shown in plate VIII, *b*, *c*, *d*, and in figure 26. These sherds may be described as belonging to the double-gourd type of vessels, the body of the jar representing one gourd, while the top simulates a smaller gourd superimposed on the larger one. This is especially noticeable in plate VIII, *c*, a sherd decorated also with two monkey-heads which served as lugs or handles. This specimen is $5\frac{1}{2}$ inches (13.9 cm.) in height.

Plate VIII, *d*, is part of a highly decorated vessel, the spout of which is lacking. The upper part of the neck is ornamented with a series of geometrical, incised lines, and also with two highly conventionalized heads which served as handles. Height of specimen, 6 inches (15.2 cm.).

Plate VIII, *b*, exhibits a sherd of similar design, with two conventionalized heads and a raised band forming a V-shaped decoration on each side of the neck. Height of specimen, 6 inches (15.2 cm.).



a



b



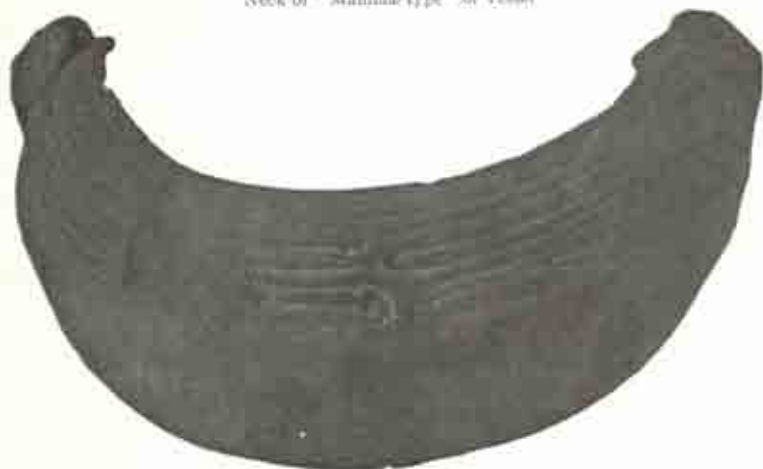
c

Spouts of Water Vessels



d

Neck of "Mammum type" of Vessel



e

Fragment of Food Bowl
POTTERY FROM THE SALADO CAVES

Figure 26 illustrates another highly decorated neck, with straight-line and circular incisions, and two conventionalized heads. The spout of this vessel terminates in a somewhat conical enlargement, like that of plate VI, *a*. Height of specimen, 7 inches (17.8 cm.).

Another type of jar was found, having a large flaring spout upon a gourd-shape body. In many instances this form of spout is provided with two handles, giving the jar a classical appearance not found in other West Indian water vessels. Two specimens are shown in plate VIII, *e*, *f*. Specimen *e* has the usual conventionalized heads which served as handles, and incised lines forming a decorative band between them. Height of specimen, 4 inches (10.2 cm.). Figure *f* originally had two handles, broad and flat, joining the body of the vessel and curving over, forming a junction with the neck, and continuing around the latter in a raised band. This type of handle appears to be new in Antillean pottery. Height of specimen, 4 inches (10.2 cm.).



FIG. 26.—Neck of water vessel from Salado caves.

Two other entire vessels, besides the one shown in plate VI, *a*, were recovered from the Salado caves. One of these (pl. V, *a*) is the simplest form of the double-gourd type of water-jar and lacks even the most elementary form of ornamentation. The body of the vessel is globular, narrowing into a neck superimposed by a conical spout. This specimen is of dark-brown clay of a poor quality, and is 8 inches (20.3 cm.) in height. The other vessel (pl. VI, *b*) was recovered, by diving, from the lake in one of the caves. When first seen in the water, the vessel was entire, possibly having slipped out of an Indian's hand while being filled with water. On coming to the surface with the vessel, the diver accidentally struck it against a projecting rock, breaking it, but the missing part was

recovered after further diving. The jar was in an extremely poor condition from long soaking, and showed a tendency to crumble at the slightest touch. Despite every precaution in packing, the specimen arrived broken into about fifty pieces. It was, however, finally mended and now ranks as an important accession to the Santo Domingo collections. This vessel, which is of yellow clay, has a flask-shaped body; the neck is ornamented with two small lugs. Height of specimen, 9 inches (22.9 cm.).

The author collected a few fragments of vessels of the *mammæ* type described by Dr Fewkes,¹ but was not fortunate enough to be able to procure an entire specimen of this shape. Plate VII, *d*, shows enough of one of these vessels, however, to admit of the reconstruction of the original jar. An attempt to model and incise a human face has been made on the neck of the vessel, and two conventionalized heads are added to serve as handles or lugs. The spout has the conical enlargement noted in a few other specimens. In the object illustrated, these extensions are not tipped with a nipple, as in the specimen figured by Dr Fewkes; otherwise the jar is similar. Height of specimen, 7 inches (17.8 cm.).

The writer does not attribute any phallic significance to the fact that the lateral extensions of such vessels resemble *mammæ* and that the shape of the necks may suggest a phallus, as noted by Dr Fewkes. This author does not definitely state that this similarity has a phallic meaning, merely saying that it suggests phallism. The resemblance referred to was justified at the time Dr Fewkes wrote, inasmuch as other specimens with this form of neck had not been described. As the present writer, however, was so fortunate as to find a number of fragmentary vessels with necks bearing more or less resemblance to phalli, regardless of whether the vessel was of a "*mammæ* type" or a "gourd type," he does not consider that the form of the neck has any bearing on the fact that the "*mammæ* type" of vessel has two breast-like terminations.

Practically no pottery, other than water vessels, was found in the caves of Salado. A few fragments of heavy clay griddles, such

¹ J. Walter Fewkes, "The Aborigines of Porto Rico," *25th Annual Report of the Bureau of American Ethnology*, 1907, p. 186.



3



4



5



6



7



8

NECKS OF VARIOUS TYPES OF WATER VESSELS. FROM THE SALADO CAVES

as the author has described in a paper on the archeology of Jamaica,¹ were found, and the sherds of a few cooking pots and eating bowls. One of the latter is shown in plate VII, *e*. This shallow bowl, of reddish-brown clay, is of graceful outline, with a broad, incurving rim, and resembles somewhat the boat-shaped vessels from Jamaica. The ends of the vessel extend slightly upward and each terminates in a conventionalized head. The rim is ornamented with incised lines, terminating in pits, in typical Antillean style. The lower part of the bowl is plain. Width of bowl between handles, $7\frac{1}{2}$ inches (19 cm.).

In the Salado caves were found also a number of pottery objects resembling stamps. These may be classed in two varieties: (1) those



FIG. 27.—Clay disks with incised design.

that are circular or oval and have an incised design on both sides (fig. 27, *a*, *b*), and (2) those surmounted by a raised figure on one side and with an incised pattern on the reverse (pl. IX and fig. 28). The circular specimens illustrated in figure 27 have the same incised design on each face. A number of objects of this type was found, including some oval in shape. The diameter of *a* is 3 inches (7.6 cm.), and of *b* 2 inches (5.1 cm.). It will be noted that the specimens shown in plate IX and figure 28 are surmounted by small animal figures with outspread legs, luted to the surface of the stamp. In the body of the animal, which is raised and hollow, the potter

¹ Theodoor de Booy, "Certain Kitchen-middens in Jamaica," *American Anthropologist*, N.S., vol. XV, no. 3, July-Sept., 1913, p. 434.

put certain small objects, such as seeds or stones, so that they served both as stamps and as rattles. The method of manufacture of these objects can be clearly seen in figure 28, *a*, as evidently the semi-globular clay covering of the stamp-rattle did not adhere to the body in the firing or else it afterward became detached. This specimen also enables one to observe that the potter first made the stamp, and then fashioned a shallow cup-like depression in the body of the animal surmounting it. The cup was then covered with a semi-globular disk of clay, some small seeds or stones being first placed in the cavity. The covering overlapped the edges of the lower part, and then was smoothed down until united with the stamp proper. Of the stamps illustrated, those shown in plate IX, *a*, and figure 28



FIG. 28.—Clay stamp from the Salado caves.

are circular, and those in plate IX, *b*, *c*, *d*, rectangular. The reverse sides of the five stamps are exhibited in *a'*, *b'*, *c'*, *d'*, and figure 28, *b*. As will be seen, *a'*, *c'*, and *d'* have the same type of incised design as the flat disks shown in figure 27. Design *b'* is quite different, and to some extent resembles the swastika. Figure 28, *b*, also differs from any of the others in that it probably represents a highly conventionalized bird. Diameter of *a* (pl. IX), $2\frac{1}{8}$ inches (5.4 cm.); width of *b*, $2\frac{1}{4}$ inches (5.7 cm.); width of *c*, $2\frac{1}{4}$ inches (5.7 cm.); width of *d*, $2\frac{3}{4}$ inches (6.9 cm.); diameter of *a* (fig. 28), $2\frac{1}{8}$ inches (5.4 cm.).

One of the objects described above is figured in Dr Fewkes' report on the Aborigines of Porto Rico (plate LXXXVI, *b*, *b'*). The reverse side "suggests that it had a handle (now broken) attached to the middle," which handle probably was the body of an animal



1



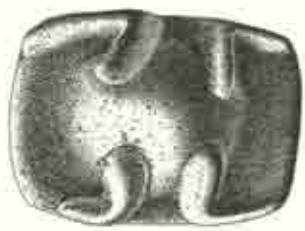
2



3



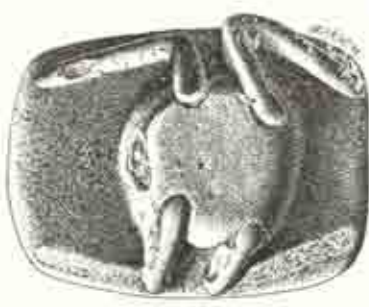
4



5



6



7



8

CLAY STAMPS FROM THE SALADO CAVES

figure, of which the legs, shown by incised lines, can still be seen. One may also observe two incised lines, resembling antennæ, which suggest that the animal intended to be represented by the potter is an insect of the Coleoptera family.

This account does not include a description of many water vessels of the same type, but with slight variations as to design and ornamentation, from the Salado caves. Extended description of these would be out of place in this report, but will be considered in a later publication.

THE HEYD MUSEUM
NEW YORK CITY

SOUTHERN PAIUTE AND NAHUATL—A STUDY IN UTO-AZTEKAN. PART II¹

By EDWARD SAPIR

SUPPLEMENTARY Note on Uto-Aztekan *o*.—In pp. 399 and 400 of Part I of this paper examples were given of Nahuatl and Sonoran *o* corresponding to Southern Paiute open *ɔ* (Ute *ō*) as distinct from Southern Paiute close *o*, *u* (Ute *o*, *u*), which also corresponds to Nahuatl *o*. We suspected that Nahuatl *o*: Shoshonean *ɔ* represented a Uto-Aztekan vowel distinct from Nahuatl *o*: Shoshonean *ɔ*, and found confirmatory evidence for this in Cora. Before definitely positing a Uto-Aztekan *ɔ*, however, I stated that "more evidence, based on more carefully recorded material (as regards vocalic qualities) than is generally available for comparison, is highly desirable."² Since these words were penned the required evidence has appeared in the shape of Juan Dolores' "Papago Verb Stems."³ It is clear from Dolores' material that whereas S. P. close *o* (*u*) corresponds to Papago *u*, the Papago *o* (doubtless an open vowel) is the regular representative of S. P. *ɔ* (Ute *ō*). The S. P.-Papago⁴ examples noted of this latter correspondence are:

Pap. *oŋ*⁵ "salt": S. P. *ɔa*- "salt"

Pap. *koɪ* "to sleep (sing.), die (pl.)": S. P. *qɔʔɪ*- "to go to sleep (pl.)"

¹ Part I of this article appears in the *Journal de la Société des Américanistes de Paris*, N. S., X, 1913, pp. 379-425. It was the intention of the author and of the Société des Américanistes to publish Part II in the same journal, but owing to the war and the consequent unsettled condition of scientific work and publication in Europe, it has been impossible for Dr Sapir to obtain a response to his inquiries regarding the proposed publication in Paris, or whether, indeed, the manuscript of Part II of his article had been received. Therefore, to avoid further delay the remainder of his contribution will appear in this and following numbers of the *American Anthropologist*.—EDITOR.

² *Journal de la Société des Américanistes*, op. cit., p. 401.

³ *University of California Publications in American Archaeology and Ethnology*, vol. 10, 1913, pp. 241-263. All Papago forms cited in this paper are taken from Dolores' work.

⁴ Abbreviated Pap.

⁵ Dolores' small capitals represent voiceless or aspirated sounds.

Pap. *noh* "to bend"; S. P. *noy* ɔ̄, "to bend"

Pap. *o'ohr* "sand"; S. P. *af'a* "sand" (< **af'a*-, cf. *taqa* "knee"; < **təqa*-)

Pap. *toksū* "knee"; S. P. *tiqa* "knee" (< **təqa*-); Tübb. *toqa*

Pap. *se'rā* "awl" (originally "little piece of wood" ?); S. P. *se* "stick"

Pap. *oh* "back"; S. P. *əq* "back"; Ute *əā*

Examples of corresponding long ɔ̄ are:

Pap. *wəhrū* "to run (pl.)" (*wə* < **pə*-); S. P. *pəya* "to run about"

Pap. *wə'kū* "trail," *wə'kah* "to have a trail"; S. P. *pə* "trail"

With these examples contrast such as:

Pap. *huh* "to stop burning of itself"; S. P. *huwi* "fire goes out," Uto-Aztekan
**taki*

Pap. *wu* "eye"; S. P. *pu'i* "eye"

Pap. *ur* "to have wind on the bowels"; S. P. *u* "to break wind"

Pap. *u'uh* "war arrows"; S. P. *u'* "arrow"; Hopi *hə-hū*; Luis. *hu-la*; A. C. *hu-l*

The combined evidence of Southern Paiute (and Ute), Papago, and Cora thus makes it certain now that open ɔ̄ was a Uto-Aztekan vowel distinct from close *o* (*u*). Both seem to have fallen together into *ə* (*u*) in Nahuatl. Shoshonean or Sonoran testimony will in many, if not most, cases, however, indicate which was the original Uto-Aztekan vowel. Thus, Nahuatl *tona* "faire chaud" (*tonatiuh* "sun") and *chocōa* "to cry" are proved to have originally had ɔ̄, not close *o*, in their first syllable by comparison with Papago *ten* "to shine" and *šohšah* "to cry" respectively (*šoh* < **tšh*-, as will be demonstrated farther on).

(b) CONSONANTS

The consonantal system of Southern Paiute is even more extensive relatively to that of Nahuatl than its vocalic system. As in the case of the Southern Paiute vowels, however, many of its consonants are only secondary forms of other, primary, consonants and, when thus recognized, must be referred to these latter when etymological comparisons with Nahuatl are instituted. Thus, the total number of Southern Paiute consonants that have to be directly accounted for in terms of Nahuatl consonants is considerably less than might at first blush appear. Before proceeding to a specific treatment of the Uto-Aztekan prototypes of the Southern Paiute and Nahuatl consonants, we must briefly review the consonantic systems of these languages.

Nahuatl Consonants.—The total number of distinct consonants in Nahuatl is not large. They are represented in the following table:

	VOICE- LESS STOP	VOICE- LESS AP- FRICATIVE	VOICE- LESS SPIRANT	VOICED SPIRANT	NASAL	VOICED LATERAL	VOICE- LESS LAT- ERAL AP- FRICATIVE
<i>Bilabial</i>	p		w	w	m		
<i>Dental (alveolar)</i>	t	ts	s		n	l	l
<i>Prepalatal</i>		tʃ	ʃ	y			
<i>Palatal</i>	k				ɲ		
<i>Labiolized Palatal</i>	kw						

Of these, *k* is regularly represented, in the Spanish orthography which has become the standard for Nahuatl, by *c* (before *a*, *o*, *u*, and consonants) or *qu* (before *e*, *i*); *kw* by *qu* (before *a*) or *cu* (before *e*, *i*); *ts* by *tz*; *tʃ* (*ch* of English *church*) by *ch*; *s* by *ç* (before *a*, *o*, *u*), *c* (before *e*, *i*), or *z* (before consonants); *ʃ* (*sh* of English *ship*, at least approximately) by *x*; *w* by *u* or *hu*; *W* (approximately *wh* of English *when*, but, it would seem, regularly with *i*-timbre) by *-uh*; *ɲ* by *n* (only before *qu*, *cu* = *kw*, and *qu*, *c* = *k*); and *l* by *tl*. Phonetic *p*, *t*, *m*, *ɲ*, and *l* are so represented in Nahuatl orthography. *ll* is simply long or geminated *l*, resulting from assimilated *-ll-* (*-lll-*), and need not detain us further.

Not all the sixteen consonants of the table are primary. *W* (*uh*) results, as we have already seen,¹ from original *w* followed by syncopated *a*, *e*, or *i*; *ɲ* from original *n* or *m* before *k*-sounds (*k*, *kw*). *ʃ* (*x*) is in part apparently a primary consonant (e. g., *xalli* "sand," *xochitl* "flower"); in large part, however, it is a resultant of original *y* followed by syncopated *a*, *e*, or *o*,² of syncopated *i*,¹ or of original *s* followed by syncopated *i*.³ *tʃ* (*ch*) is in large part a primary consonant (e. g., *chococ* "to cry," *chiua* "to make"), in part a resultant of original *t* followed by syncopated *i*.³ It may turn out ultimately that all cases of apparently primary *ʃ* are really resultants of original *s*. There are thus only fourteen, or even thirteen, Nahuatl consonants that need to be directly treated from a comparative standpoint.

¹ Part I of this paper, pp. 417, 418.

² Ibid., p. 417.

³ Ibid., p. 418.

The so-called "saltillo" (indicated by ^ over vowels) should also be reckoned as one of the Nahuatl consonants, as shown by its phonetic treatment (e. g., *pilli* "older sister," with -*lli* as in *tlantli* "tooth," not with -*tl* as in *tepell* "mountain"). Carochi's account of it seems to indicate clearly that the saltillo is a glottal stop: "The (^) indicates the pronunciation which they are accustomed to call saltillo (little jump), for the vowel on which this accent falls is pronounced as though with a jump or hiccough or difficulty and with a halt. . . ."¹ However,² the saltillo does not seem to be pronounced alike in all Nahuatl dialects, those of Oaxaca (Tuxtepec, Pochutla) making use of a voiceless mid-palatal spirant (x) instead of the glottal stop (e. g., *ox-* "road," instead of *o'-*, generally written *ô-*). The salto (indicated by ^ over vowels) occurs only at the end of a word and regularly turns into the saltillo when the suffixing of another element removes it to the interior of the word. It seems to differ hardly more than orthographically from the saltillo; perhaps, as its name ("jump") indicates, it sounded more forcible to Spanish ears than the saltillo because it abruptly ended the word. The etymological value of the saltillo will be discussed farther on.

Southern Paiute Consonants.—Every Southern Paiute consonant, except *s* and *ʃ*, which are always completely unvoiced, appears in two forms—a voiced or, for stops, unvoiced but unaspirated form, and an unvoiced and markedly aspirated form; *y*, however, when unvoiced, unites as *i* with a preceding vowel, the resulting diphthong being followed by aspiration (thus, *pa* is related to *pʰ* as *aya* to *aiʰ* or *aiʰ*). The unaspirated (voiced) consonants are used before voiced vowels, the aspirated (unvoiced) consonants before voiceless vowels.³

Initially and after voiceless vowels stopped consonants appear in their simple or primary form, unaspirated or aspirated (according to

¹ "La (^) es señal de la pronunciación que suelen llamar saltillo, porque la vocal sobre que cae este acento se pronuncia como con salto ó singulto, ó reparo, y suspensión."—Carochi, p. 402.

² As I have been informed by Dr F. Boas.

³ The conditions under which vowels become voiceless in Southern Paiute have been already defined. See I, pp. 385, 386. Analogous sets of voiced (or partly voiced) and voiceless aspirated vowels and consonants occur also in Papago; see Kroeber's remarks in Dolores, *Papago Verb Stems*, p. 242.

the nature, voiced or unvoiced, of the following vowel) in the former case, unaspirated in the latter. These consonants are *p*, *t*, *ts*, *tʃ*, *q* (about midway in point of articulation between mid-palatal and true velar), and *qw* (labialized *q*, always felt as a simple sound); *kʰ*, a palatalized form of *q*, regularly occurs after *i*-vowels, *k* before *i*-vowels (these must be considered as purely secondary forms of *q*). In aspirated form these are *pʰ*, *tʰ*, *tʃʰ*, *tsʰ* (generally heard as *tsʰ*), *qʰ*, *qʰw*, (*kʰʷ*). *ts* and *tʃ* are doubtless variants of one sound, *tʃ* occurring before *a*, *o*, *ɔ*, and *i*, *ts* before *i* (compare *q*: *k*). Medially after voiced vowels this set of primary stopped consonants appears in one of three forms: geminated (or lengthened), spirantized (*tʃ* and *ts*, however, do not become spirantized), and nasalized; each of these three types may again be unaspirated (in part voiced) or, in final syllables, aspirated (and voiceless, except that aspirated nasalized stops do not lose voice in their nasal element). The geminated stops are *pʰ*, *tʰ*, *tʃʰ*, *tsʰ*, *qʰ*, *qʰw*, (*kʰʷ*); in aspirated form: *pʰʰ*, *tʰʰ*, *tʃʰʰ*, *tsʰʰ* (this is generally heard as *tsʰ*, *sʰ* assimilating to long *s*), *qʰʰ*, *qʰʰw* (which may also be interpreted as *qʰW*, i. e., *qʰ* + voiceless *w*), (*kʰʷʰ*). The spirant developments of the stops are *v* (bilabial, as in Spanish), *r* (moderately trilled with apex of tongue), (*tʃ*, *ts*), *ɣ* (voiced guttural spirant, about like *g* of North German *sagen*), *ɣw*, (*ɣʰ*, nearly but not quite *y*); in aspirated form: *ɸ* (voiceless bilabial spirant), *ɾ* (voiceless *r*), (*tʃʰ*, *tsʰ*), *x* (like *ch* of German *Bach*), *xw*, (*xʰ*, like *ch* of German *ich*). The nasally affected stops are *mp*, *nt*, *nts*, *ntʃ*, *ntʃw*, (*ntʃʰ*); in aspirated form: *mpʰ*, *ntʰ*, *ntsʰ*, *ntʃʰ* (generally heard as *ntsʰ*), *ntʃʰ*, *ntʃʰw* (which may be interpreted also as *ntʃW*), (*ntʃʰʷ*).

We cannot here go into the various rules as to when geminated, spirantized, or nasalized consonants are used, as that would lead us too far into the details of Southern Paiute phonology and grammar. Certain suffixes regularly appear in only one of the three forms (e. g., geminated *-qʰa-*, verbal suffix denoting plurality; spirantized *-va-*, postpositive element "at"; nasalized *-ntʃi-*, indirective verbal suffix "for"); still others in either spirantized or nasalized form (e. g., spirantized *-vānʰia-*, nasalized *-mpānʰia-*, verbal suffix denoting futurity; the latter form is used after stems possessing a nasal consonant *m*, *n*, or *ŋ*); still others in all three

forms, there being no obvious rules as to which of these is demanded by a given stem (e. g., *-q'ai-*, *-γai-*, and *-ηqai-*, verbal suffix "to have"; *-ñi-*, *-ri-*, and *-nti-*, participial suffix; *-p'i-*, *-vi-*, and *-mpi-*, absolute suffix for body-part nouns). We have thus geminating, spirantizing, and nasalizing stems (stems with nasal consonants tend to belong to the last type, though there are also many nasalizing stems that possess no nasal consonant, e. g., *ovi-* "stick," *ayo-* "tongue"). When two stems are compounded, the second has its initial consonant, if it begins with one, geminated, spirantized, or nasalized, according to the character of the first stem. Thus, from *qan*¹⁴ "house" are formed *aṇqá-γan*¹⁴ "red house" (*aṇqa-* "red" spirantizes), *ṭimṭi-k'an*¹⁴ "stone house" (*ṭimṭi-* "stone" geminates), and *ovt-ṇk'an*¹⁴ "wooden house" (*ovt-* "wood" nasalizes); in the last two examples *-qan*¹⁴ is at the same time palatalized to *-k'an*¹⁴ because of preceding *i*. Suffixes also, in reference to such following suffixes as may have forms of two or all three classes, belong to one of the three types. Thus, adjectival *-q'a-*, *-γa-*, *-ηqa-* spirantizes, hence *aṇqá-γa-k*¹⁴ "being-red, red"; *-q'a-*, *-γa-*, *-ηqa-*, verb suffix "to have" (another form of *-q'ai-*, *-γai-*, *-ηqai-* already listed) nasalizes, hence *ṭimṭi-k'an*¹⁴ "having a stone."

Analogous to the stopped consonants is *m*. After vowels it is either geminated (or nasalized) to *-m'*, or spirantized to *-ṇw-*; aspirated forms are *m'* and *ṇ'w*, in which *m* and *ṇ* are voiced, at least in part (initially, however, aspirated *m*, which stands before voiceless vowels, is entirely voiceless, *ɱ*). After vowels *n* regularly appears long, *-n'*; its aspirated forms, used analogously to those of *m*, are *n'* and *ṇ'*. Besides these two nasals must be listed also *ṇ* (*ng* of English "sing"), palatalized *ṇ'*, with its aspirated form *ṇ'*; it cannot occur initially. *w* and *y* have corresponding aspirated forms *'w* and *'y* when initial; postvocalic *w* is regularly nasalized to *-ṇw-*, aspirated *-ṇ'w* (thus, *-ṇw-* or *-ṇ'w* may go back to original *-m-* or *-w-*).

Postvocalic *s* and *š* are regularly long, *s'* and *š'*. There are no "spirantized" forms of *n*, *s*, and *š*. We shall see reason later on, however, to believe that original postvocalic non-geminated *n* disappeared; similarly, that original postvocalic non-geminated *s*, *š* became ' (glottal stop). In other words, originally *p* : *p'*, *t* : *t'*,

$q : \gamma$, $m : \eta w$, n : zero, and $s, \xi : '$ were equivalent pairs. The latter two, however, are not now felt as equivalent pairs in Southern Paiute.

Glottal stops are rather frequent in Southern Paiute and of considerable grammatical importance. They are found not only medially between vowels but also initially (in which case the first syllable with short vowel counts as two moræ; e. g., 'at'i- "good," often heard as *at'i- with murmured *) and finally. Frequently a glottal stop coalesces with a preceding stopped consonant, a glottalized stop resulting in which the glottal closure and release are synchronous with those of the oral chamber. Thus we have a new series: $p', l', l's, l's, q', q'w, (k'w)$, each of these again occurring in geminated and nasalized form (e. g., p'', mp''). As glottalized stops, however, are of purely secondary origin in Southern Paiute, they need not, as such, concern us further in this study. The Southern Paiute glottal stop does not (except possibly in S. P. ni' "I": N. ni' "I") seem to be historically connected with the Nahuatl saltillo (or salto).

Abstracting, then, from aspirated, palatalized, geminated, spirantized, nasalized, and glottalized consonants as being all of more or less secondary origin, we have left in Southern Paiute for specific comparison with Nahuatl consonants only $p, t, q, qw, ts-ts, \xi-s, m, n, \eta, w, y$, and '.

Nasalized and Geminated Consonants in Shoshonean.—Before deciding what are the Uto-Aztekan prototypes of the primary Nahuatl and Southern Paiute consonants, we may ask whether it is possible to define the phonetic conditions, from a Uto-Aztekan point of view, under which consonants became spirantized, geminated, or nasalized in Southern Paiute (or Shoshonean generally). The spirantized consonants, which arose also in other Shoshonean dialects (e. g., Shoshone), are easy enough to understand; they doubtless arose regularly whenever a non-initial consonant came to stand immediately after a vowel.

The nasalized stops are to at least some extent also intelligible. In some cases, as we have seen, the nasal of the stem assimilated to itself the consonant of the suffix by affecting it with its nasal quality (e. g., $ni\eta wu-nlxi$ - "person"; $n^w qwi-nti$ - "flowing, stream"; $la\eta wa-$

mpi- "tooth"; *siŋwa-mpu-* "sand"); yet this is not observed in all such stems, even where the suffix frequently occurs in nasalized form in other stems (e. g., *mʷʷ-vi-* "hand" with spirantized, not nasalized, form of suffix *-pi-*; *muvi-pʷi-* "nose" with geminated form of same suffix).

We have already seen reason¹ to believe that the nasalizing power of *vi-* "stick" goes back to an old nasal at the end of the stem that has disappeared as such. If *vi-* (plus its nasalizing power) corresponds in all respects to N. *uapali-* "planche," we must suppose that final *i* of **ʷpin-i-* was syncopated and that *-n-*, not being able to stand at the end of a word, could maintain itself only when followed by a stopped consonant, in other words, lingered on as a nasalizing peculiarity of the stem. There is no doubt, from comparative evidence, that there are several cases in Southern Paiute (and other Shoshonean dialects) of nasalized consonants resulting from the syncope of a vowel between an original nasal (*m*, *n*, or *ŋ*) and a stopped consonant. Such are:

- S. P. *pa'a-ni-* "high" (< **pa'an-i-ni-*; *-ni-* is participial); N. *pani* "en haut, au sommet"
 S. P. *ŋimpi-* "stone" (< **ŋima-pi-*); *ŋiŋan-i-* "cave" (< **ŋima-qan-i-* "stone house"); Tüb. *dün-t* (< **dūma-t*); Ser. (H.) *dūma-t*; Git. *dūmt-t*
 S. P. *tuŋqu'ū-* "to get clumsy" (< **tuma-qul'ū-*); N. *toma-ua* "grossir, devenir gros"
 S. P. *ŋimpa-* "mouth" (< **ŋim-pa-*); Fern. *tōŋi-*; Cora *tenī*; Pap. *lihn*
 S. P. *-lampā-* "only, except" (< **-lan* + some vowel *-pa-*); N. *čan* "only, but" (< **san* + some vowel). This example only implies syncope; at any rate, it clearly indicates that S. P. *mp* is etymologically *-n* (or *m*, for *-m* becomes *-n* in N.) + *p*
 S. P. *nantsi-* "to fly" (< **nan-i-tsi-*); Ser. (H.) *hinyi-k*; Cora *eni-te*; Pap. *nūhn* "to fly up, fly away (pl.)"
 S. P. *miŋgəə-* " (frightened animals) come out in one bunch" (< **min-i-qwə-*); N. *mi-miloo* "bouleverser" (< **mi-mili-ua*, reduplicated)
 S. P. *naŋqə-va-ŋ'* "ear," *naŋqə-ŋ'ai-* "to hear" (< reduplicated **nanaga-*); Fern. *nānak*; Tep. *nanaco*. Unreduplicated *naka-* is more common; N. *nacaz-ili*; Tar. *naka*; Pap. *nahkū*
 S. P. *ampara-* "to talk" (< **am'ə-para-*); Pap. *aumoh* "to talk loud" (< **am'ə-*)

In many cases, however, I can give no reason for the occurrence of the nasalized stop. Such are:

¹ Part I, p. 401.

S. P. *tuγumpa-* "sky"; Shosh. *toγumda-*; Tüb. *dogumda-l*; Möh. *duguda-l*;
Gabr. *tukupa-r*

S. P. *paγa-mpu-* "reed": Cora *haká*; N. *acu-il*

S. P. *oγo-mpu-* "fir": Cora *huka* "Kiefer"; N. *oco-il* "pinus tenuifolia"

S. P. *k'e^utu-mpi-* "anus"

S. P. *wiγa-mpi-* "vulva"

This Southern Paiute (to what extent it is general Shoshonean cannot at present be stated) law of vocalic syncope in the neighborhood of a nasal consonant may explain also *-γai-* (*-q'ai-*, *-ηgai-*) "to have" as compared with its participial form *-γa-nñ-* (*-q'a-nñ-*, *-ηga-nñ-*) "having," original **kani-* regularly becoming **kai->-γai-* (see below under Uto-Aztekan *n*), while **kani-ñ-* with loss of *i* develops into **kanñ->-γanñ-*; similarly, perfective *-q'ai-* (as in *-q'ai-n'a-* "what has been -ed") as compared with its participial form *-q'a-nñ-* "having been -ed." Under what circumstances this vocalic syncope takes place is still undetermined.

Still another set of Southern Paiute nasalized stops is due to reduplication, inasmuch as stems with nasal as their second consonant reduplicate both first and second consonants; examples are *qanqan* "houses (distributively)" from *qan*¹ "house," and *pumpun*¹ "k'a" "to see (plural subject)" from *punik*¹ "to see."

These three causes, then—assimilation to nasal of stem, syncope of vowel following nasal, and reduplication—may, in the present state of our knowledge, be advanced as responsible for the presence in Shoshonean of nasalized stops. They are clearly not, any more than the spirantal developments of stopped consonants, to be attributed to original Uto-Aztekan.

A far more difficult problem is presented by the geminated stops, which are known to exist not only in Southern Paiute but in other Shoshonean dialects as well.¹ As far as can be seen at present,

¹ In Northern Paiute, a dialect of the Mono-Bannock group, for instance. It is necessary to distinguish after vowels between lightly stopped fully voiced consonants (etymologically parallel to Shoshone, Ute, and Southern Paiute voiced spirants) and firmly stopped geminated consonants (see T. T. Waterman, *The Phonetic Elements of the Northern Paiute Language*, University of California Publications in American Archaeology and Ethnology, vol. 10, 1911, p. 33). In some Shoshonean dialects (e. g. Uncompahgre and Southern Ute) nasalized stops developed into geminated stops, thus falling together with the old geminated stops (see, e. g., J. P. Harrington, *The Phonetic System of the Ute Language*, University of Colorado Studies, vol. VIII,

Shoshonean geminated stops have exactly the same reflexes in Nahuatl and Sonoran as the simple stops (S. P. postvocalic spirants). Yet there is little doubt that we are here dealing with one of the fundamental points of Shoshonean phonology. Despite the very fragmentary data at hand, I believe it can be demonstrated that the geminated stops exist not only in Plateau Shoshonean but also in Tübatulabal and Luiseño-Cahuilla. S. P. *r*, the spirantal development of original *l*, is paralleled in these two Shoshonean groups by *l*; e. g., Tüb. *šulu-* "nail" < **sulu-* (cf. Tar. *sutu-*), Cahu. *kelawet* "wood" < **kela-* (cf. Fern. *kola*). Now it is extremely suggestive to note that the difference between the noun endings *-l* and *-t* in Tübatulabal and Luiseño-Cahuilla may be interpreted as due to the influence of a preceding spirantizing and geminating stem respectively. Thus, we are dealing with spirantizing stems in A. C. *hu-l* "arrow" (cf. S. P. *u-γun'a-* "quiver," literally "arrow-sack," *gun'a-* "sack" being spirantized to *-γun'a-* by preceding *u-* "arrow"); Cahu. *pa-l* "water," Tüb. *ba-l* (cf. S. P. *paγārī-k* "lake," literally "water-sitting," from *pa-+qarī-* "to sit"); Cahu. *eqi-l* "salt," Tüb. *uqa-l* (cf. S. P. *ɔa-vi-* "salt," *-vi-* being spirantized from *-pi-*); Tüb. *nūba-l* "snow" (cf. S. P. *nira-vi-* "snow"); Cahu. *wewa-l* "rain" (cf. S. P. *uqwa-rī-* "raining, rain" < original stem **uwa-+spirantized* form of participial *-ñi-*). On the other hand, we seem to be dealing with geminating stems in Cahu. *duku-t* "wildcat" (cf. S. P. *t'ʰqú-p'v-ts* "wildcat"; *t'ʰqú-m'umu-ts* "panther," with *-m-*, not *-ñw-*); A. C. *ahwa-t*, *ahwu-t* "crow" < **atwa-* (cf. S. P. geminating *at'a-* in *'a'lá-p'v-ts*, *'a'lá-q'wa-ts* "crow"); A. C. *muu-t* "owl" (cf. S. P. *moó-p'v-ts* "owl"); Tüb. *gu-t* "fire," Cahu. *ku-t* (cf. S. P. *gun'a-* "fire," with geminated *-ñ-*; *qu-*, geminating verb prefix "by means of fire"); Cahu. *kumi-t* "smoke" (probably cognate with Mono (N. F.) reduplicated *gukuhī-p* "smoke," *-kuhi-* being identical with S. P. *kwa-* < **kuhi-* in *kwá-k'a-rī-* "smoke" with geminated form of *-qa-* suffix; Cahu. *-m-*: Plateau Shoshonean *h*, zero, is perhaps paralleled by Cahu. *yamiš-* "mountain": S. P. *qai-* in *qaiwa-* "mountain" and Möh. *gai-tc* "mountain");

1911, in which no mention is made of nasalized stops, Harrington's material being taken from Southern Ute). These secondary geminated stops are naturally of no further interest here.

Cahu. *samu-t* "grass" (cf. Shoshone *sòni-p* "grass," Shoshone *-p* evidently corresponding to geminated form of S. P. *-vu-*, *-p'u-*, *-mpu-*, noun suffix regularly used for plants; for Cahu. *-m-*: Shoshone *-n-*, cf. A. C. *-lami* "knee": Tüb. *toño-*, Cora *tunu*). There is, as might indeed be expected, some conflicting evidence to contend with (e. g., Luis. *hunwo-t* "bear": Tüb. *una-l*), but I believe the case is strong that Luis.-Cahu. and Tüb. *-l*: *-t* corresponds exactly to the Plateau Shoshonean difference between spirantizing and geminating elements.

While, then, geminated stops doubtless form a fundamental class of sounds in Shoshonean phonology, we are quite at a loss, as already noted, to find reflexes for them in Nahuatl and Sonoran. The following examples illustrate this:

S. P. *t'w'gwa-* "deep" = *tuq'a-*: Cora *tika-nl̥e* "in der Tiefe"

S. P. *tuγwa-* "to be dark, night" (< **tuka-*); Tüb. *duga-l* "night": Cora *tika* "Nacht sein"; Pima *t̥oka-* "night"

S. P. *tuγwa-* "to put out the fire," *tuγwi-* "the fire goes out" (< **tuka-*, **tuki-*): N. *toquia* "attiser le feu"; Pap. *t̥uh* "to stop burning of itself," < **tuki-*

Note that Cora *tika-* corresponds to both S. P. *tuq'a-* and *tuγa-*.

S. P. *ḥγā-* "to measure, try": N. *teca* "poser des pierres, construire, planter"; Pap. *ḥūh* (< **ḥka-*) "to put away"

S. P. *t'w'ga-* "to eat" = *ḥq'a-*: Pap. *t̥ūh* "to taste" (< **ḥka-*)

Note that Pap. *t̥ūh* corresponds to both S. P. *t̥q'a-* and *ḥγā-*.

S. P. *t'w'ṣu-* "to grind seeds" (< **tuṣ'u-*): N. *teci* "moudre le maïs sous la pierre"; Pap. *t̥ui* "to grind" (< **tuṣi-*)

Note that Pap. *t̥ui* here corresponds to S. P. *tuṣ'u-* with geminated consonant, *t̥uh* to S. P. *tuγi-* with spirantized consonant.

S. P. *n'w'wi-* "to stream" = *nuq'i-*: N. *noquia* "verser une chose, avoir la diarrhée"

Note that N. *noquia* seems to rime perfectly with *toquia*, despite S. P. *nuq'i-*: *tuγi-*.

S. P. *si-* "cold," regularly geminating following consonants: N. *ce-tl* "glace"; Pap. *hū-hpih* "to become cold"; Cora *sē* "es is kalt"

In the following examples, S. P. *ṣ* and *q* (?) correspond to Pap. *hh*. Whether this is of any consequence as regards our problem I cannot say, though I should hardly be inclined to attach much importance to it.

S. P. *t'u'qūa-φ* "meat" = *tuq'ua-*: Pap. *tūhhu'kū* "meat" (< **tuk'u-?*)

S. P. *q'wa'šī-φ* "tail" < *qwa'fī-*: Cora *kwasī* "der Schwanz der Tiere"; Pap. *pahht* "tail" (< **kwasī*)

So far, we must conclude, the existence of a definite series of geminated stops has been demonstrated only for Shoshonean. These, then, like the nasalized stops, must be considered a specifically Shoshonean development (or Uto-Aztekan feature retained only in Shoshonean?).

UTO-AZTEKAN CONSONANTS

Comparison of Nahuatl, Sonoran, and Shoshonean consonants leads to the setting up of fourteen, possibly only twelve, distinct consonants. These are *p*; *t*; *tl*; *tš* (of which *tš* may be considered as variant); *k*; *kw*; *s* (of which *š* may be considered as variant); *m*; *n*; possibly *ŋ*; *l*; *w*; *y*; and possibly *h*. It is very doubtful if also the glottal stop (') is to be assigned to the Uto-Aztekan period. The Uto-Aztekan consonants will now be taken up in that order.

Uto-Aztekan *p*.

Initial Uto-Aztekan *p* ordinarily appears as N. *p*, Cora *h* (*x*) and *p*, Shoshonean *p*, Pap. *ʷ* (before *a* and *i*) and *w* (before *o*, *u*, and *ū*).¹

N. *poc-tē* "smoke, vapor, fog, mist," *popoca* "fumer, jeter de la fumée": S. P. *pa-γi-n'a-* "fog"; Cahu. *paxi-š* "fog"; Fern. *paki-š* "cloud"

N. *poçaua* "s'enfler," *poçati* "se gonfler de nourriture"; Cora *kuša* "gesättigt sein, sich sättigen": S. P. *p's-tša-* "to be filled up"

N. *pia*, *pie* "garder quelqu'un; mettre en réserve"; Pap. *vik* "to stay, be left," *viāh* "to leave something purposely"; S. P. *piyai-* "to be left remaining"

N. *pellā-ni* "se verser, se répandre (en parlant d'un liquide)," frequentative *pepetla-ca*: S. P. *pāra-γa-γā-n-i* "rain is pattering"

N. *pauia* "mâcher" (transitive in -a, perhaps originally meaning "to cause to go down one's throat"); S. P. *paṽai-* "throat" (< **pawi-*); A. C. -*para* "throat"

N. *pani* "en haut, au sommet": S. P. *pa'dni*¹ "high"

N. *paina* "courir vite"; Pap. *wāhpū* "to run (plur.);" (< **pai-kwī-* ?): S. P. *pōya* "to run about" (< **pai-wa-* ?)

N. *pipina* "sucrer des cannes à sucre," *pipinia* "s'impregner d'humidité": S. P. *piyd-φ* "sap, juice"

N. *pl-ti* "elder sister": S. P. *pia-* "mother, female;" S. J. C. *pā-i* "younger sister"

¹ Dolores, *Papago Verb Stems*, p. 242.

- N. *pil-li* "son, child"; Cora *péri, pári* "Sohn, Tochter, Kind, vom Vater gesagt";
 A. C. *pulyini-i* "baby" (*pulyi- = pul'yi-*)
 Cora *-paa* in *ki-paa* "Haar"; Pap. *wohpoh* "hair on the skin" (< **paa-koo-* ?);
 S. P. *pua-* "hair, fur"; Fern. *puā-* "head"; Gabr. *pwa-* "head, hair"
 Pap. *vah* "to go in" (< **paka*); S. P. *payā-, payai-* "to go, walk"
 Pap. *vahat* "to rise from lying" (< **pami*); S. P. *paawi-* (< **pani-*) " (lying)
 on one's belly"
 Pap. *wa* "to call" (< **pai*); S. P. *pai-* "to call"
 Cora *kure, -xure* "eine Kugel, einen Ball machen" (< **pole* ?); S. P. *pōr'-a-gwa-*
 "to be round"
 Cora *híne* "nach einem schreien, brüllen" (< **puwe*); S. P. *puw'wi-* "to make a
 peeping noise"
 Cora *hétka* "töten" (with singular object) (< **paika* ?); S. P. *paq'a-* "to kill
 one"

Under as yet unknown conditions initial Uto-Aztekan *p* became *h* not only in Cora¹ but also in Nahuatl (and Huichol), where it then disappeared. Examples of N. zero, Cora *h-*: Pap. *v-*, *w-*: Shoshonean *p-* are:

- N. *aca-tl* "roseau" (< **paka-*); Cora *hakā* "das Schilfrohr"; Pap. *va-p'ak*
 "reed"² (doubtless reduplicated from **vak*); S. P. *pa-ya-mpu-* "reed"
 N. *āch-tli* "frère aîné" (< **patsi-*); Cora *ha, has, hatsi(n)* "älterer Bruder";
 perhaps also Huich. *matsi* "frère aîné"; Cahu. *par* "elder brother";
 S. P. *puri-* "elder brother," *patsi-* "elder sister"
 N. *ix-tli* "face, visage, oeil" (< **usi-* < **puri-*); Cora *hisi*; Huich. *utli, hūti*
 (so I understand Diquet's *kougy*); Tar. *puri-*; Cah. *pusi*; Pap. *wut*
 S. P. *pu'i-φ'* "eye"; Tüb. *puntsi-* (why nasalized -*nts*-?); Cahu. *-pus*
 N. *ā-tli* "path, road" (< **poi-* or **poe-*); Cora *huyé* "Weg"; Tepecano³ *vri*, plur.
vóp'ri; Pap. *wō-xū* "road, trail," *wō-kah* "to have a road" (*wō-* < **poi-*,
 cf. Pap. *wō-* < **poi-* in *wōhrū* above); S. P. *pō-* "trail"; Hopi *pā-hū*;
 Cahu. *pí-t*
 Huich. *ya* "tobacco" (< **thā*, dissimilated from **hiha* < *pīpa* ?); Cora *ya-na*
 "Tabak rauchen"; Tep. *viva* "tobacco"; Pap. *vikwū* (> **pīpū*);
 Hopi *piva* "tobacco"; Möh. *piva-i*; Luis. *piva-i*, Uto-Aztekan
 **pīpa*
 N. *ā-tl* "water"; Huich. *hu*; Cora *ha*; Cah. *ba*; S. P. *pā'* "water"; Tüb. *pā-i*;
 Git. *bā-le*; Gabr. *pa-r*; Cahu. *pa-i*

It is remarkable that in certain derivatives of Uto-Aztekan **pā-* "water" Nahuatl has preserved *p*, e.g. *pāti* "se fondre, se liquéfier,

¹ It is not clear to me when original *p* remains as such (or as *w* ?) in Cora and when it develops to *h*. Perhaps it regularly becomes *h* (*x*) before original *a*, *o* (Cora *i*),
² (Cora *u*), but remains *p* (or *w* ?) before original *i* and *e* (N. *e*, Pap.-Shoshonean *i*).

³ On Dr Mason's authority.

⁴ Information obtained from Dr J. A. Mason.

se mettre en eau" (-ti "to become"). I can suggest no reason for this curious fact.

To judge from the one example available, this N. *k* < *p* was shifted before *e* to *y*, which then remained (though variants without *y* also occur, significantly enough):

N. *ye(i)*, *e(i)* "three" (< **hai* < **hai* < **pai*); Cora *wá-ká* (perhaps changed from **pai*- by analogy of *wá*- "two"); Tar. *bai-ká*; Cah. *bahi*; Pima *vai*- (< **pai*-); S. P. *pai*- "three"; Tüb. *pai*; Git. *bahi*

After vowels, Uto-Aztekan *p* appears in Southern Paiute as geminated *p'*, spirantized *v*, or nasalized *mp*. Examples of geminated *p'* are:

N. *pichauh-tica* "être engourdi, transi, mort de froid"; *pichau-litli*, *pichau-litli*, "flétrissure, engourdissement"; S. P. *i'-p'i'-ta*- "to crush by trampling" = *ta-p'i'-ta*- (geminating *ta*- "by means of the feet")

N. -*pa*, -*ppa* "so and so many times," suffixed to numeral stems (e. g. *ce-ppa* "once," *a-ppa* "twice," *mutlac-pa* "ten times"; has -*ppa* original geminated *pp*, or is *pp* developed from **cem-pa*, *am-pa* ?); S. P. -*p'a*-, -*p'a*- "in (this, that) way"

Pap. *na'xú* "hole"; S. P. *ʔ-páq-i* "hole" = *ʔ-p'aq-i* (with geminating prefix *ʔ*); Cora *táxí*, *táxí* "aufwachen" (< **ta-pus*, **ta-pu*); Pap. *wuhhá* "to awaken" (< **pus*): S. P. *i'-pu-n'ni*- "to wake up" = *iup'u-n'ni*-

Cora *mpi* "sich niederlegen zum Schlafen" (< **hupi* ?); S. P. *ʔ-p'ri*- "to sleep" = *ap'vi*- (< **hap'ei*- or *hap'eti*- ?)

Examples of spirantized *v* are:

N. *paca* "to wash"; Tar. *pago-la*; S. P. *na-aq'i*- "to bathe oneself" (spirantizing *na*- is reflexive; *paq'i*- does not occur without prefix in S. P.)

N. *napal-li*, *napali-il* "planche, ais, petit poutre, bois"; Pap. *eri-rát* "awl"; S. P. *vai*- "wood"

N. *flapcopa* "orient, levant" (< **flapa*- or **flapi*-, old stem for "sun"; -*copa* "de, par, vers"); Huich. *tau* "sun" (< **tawa* or -*i* < **tapa* or -*i*); Cora *táy-ni* "sun" (antiquated); S. P. *awa*- "sun"; Hopi *dawa*; Ban. *tavf*. Probably -*m*- of Git. *damia-t*, Gabr. *tami-t*, Cahu. *dami-t* is also developed from this intervocalic -*p*-

N. *tepitain* "peu, petít" (-*tain* probably diminutive); S. P. *fluiti*- "very"

N. *tepe-il* "mountain"; Pap. *tšwühř* "dirt, earth, world"; S. P. *flai-p'v*- "earth"; Hopi *dōca* (< **tepa*); Git. *dūwa-tc*; Cahu. *tema-t* (-*m*- as in *dami-t* above)

N. -*pa* local suffix of indefinite meaning (e. g. *cam-pa* "where, whither"; *ne-pa* "here, there"; *ipam-pa*, *pam-pa* "because"; *am-pa* "where"); possibly Cora *he*- (< **pa*- ?) in *hemi* "vor," *hete* "unter," *helsán* "auf"; S. P. -*ed*-, -*es*- "in, at"

- N. -*pan* "upon"; Cora *ha-poa(n)* "auf, in, über"; S. P. -*v'an'a*, -*va'an'a*,
 N. -*cpac*, -*ti-cpac* "sur, au-dessus, en haut" (probably compounded of -*c*, -*ce*
 "in" and *-*pac*): S. P. -*v'āyi*, -*va'āyi* "over" (< *-*p'āki*)
 Cora *tawi* "sich niederlegen" (sing. subj.) (< *-*ta-awī* < *-*api* ? cf. *taḡ* < *-*tawa*-
 "sun" < *-*tapa*- above): S. P. *avi* "to lie" (sing. subj.)

Examples of S. P. words with nasalized *mp* corresponding to Nahuatl or Sonoran forms seem hard to find.

Uto-Aztekan t and tl

To Nahuatl *tl* regularly correspond in all Shoshonean and Sonoran dialects reflexes of Uto-Aztekan *t*; in other words, it is possible to keep apart Uto-Aztekan *t* from *tl* only in Nahuatl itself (in Pipil and Nahuatl dialects spoken in Oaxaca, however, *tl* has developed to *t*). If it were possible to formulate some law accounting for N. *tl* as developed from original *t* according to certain phonetic circumstances, we could dispense with a Uto-Aztekan *tl*. As this cannot be done, it seems necessary to assume Uto-Aztekan *tl* as well as *t*. It may be that more complete and carefully sifted evidence than can now be presented will later show that the reflexes of Uto-Aztekan *t* and *tl* are not always identical even outside of Nahuatl itself.

- Examples of Uto-Aztekan *t*: S. P. (Shoshonean) *t* initially are:
 N. *toquia* "attiser le feu"; Pap. *tluk* "fire goes out" (Pap. has regularly *tl* before *u*, *ū*, and *i*, but *t* before *a* and *o*); S. P. *tuḡwa* "to put out the fire," *tuḡwi* "fire goes out"
 N. *tequi* "couper"; S. P. *tiḡu-n'ni* "to butcher (meat)"
 N. *te-tl* "stone"; Cora *teḡ*; S. P. *ti* "stone"; Fern. *to-ta*
 N. *tepe-tl* "mountain"; Pap. *teḡwūḡ* "earth"; S. P. *tiḡi* "earth"; Cahu. *tema-tl*
 N. *topeua* "pousser, arracher une chose"; Pap. *tiḡuaim* "to drag"; S. P. *tiḡa* "to come loose." Uto-Aztekan *-*tope*, *tepe*-
 N. *tiḡa-tl* "sorte de vernis, terre ou poudre blanche"; Pima *tlhai* "white"; Huich. *teusa* "blanc"; Cah. *toḡa-tl*; S. P. *tiḡa* "white"
 N. *ten-tli* "lips, mouth"; Cora *teḡi*; S. P. *tiḡpa* "mouth"; Fern. *-tiḡi*
 N. *toch-tli*, *tochin* "lapin"; Luis. *do-i-xi-t* "rabbit"; Gabr. *toḡo-xo-t*
 N. *tema* "remplir une chose de semente ou de terre"; S. P. *tiḡwa* "to cover up, close up (hole)"
 N. *teḡuān* "we," *teḡ* "us"; Tar. *tame*; S. P. *tiḡwa* "we (inclusive)," *tam-i* "we two (inclusive)"; Hopi *i-tamō*

¹ Dolores' *tl* is identical with our S. P. *i*, both corresponding to Nahuatl *e*.

- N. *teci* "moudre le maïs sous la pierre"; Pap. *tšut*; S. P. *tʰʷʷa-* "to grind seeds"
 N. *te-, tequi-* "beaucoup, extrêmement"; S. P. *tš-* "much, greatly"
 N. *teneua* (refl.) "se nommer, être appelé," *teneui* "devenir illustre"; S. J. C. *-tʰuŋ* "name"; Fern. *-tuano-* "name"

Examples of Uto-Aztekan *tl-*: S. P. (Shoshonean) *l-* initially are:

- N. *tlāca-tl* "person"; Cora *tāta* "Mann"; Hopi *tāga* "man"; A. C. *-laʔa* "person"
 N. *tlā* in *tlānčēi* "to dawn," *tlāthui* "to dawn, become light"; S. P. geminating *ta-* in *tʰʷʷa-* "to dawn"
 N. *tlap-copa* "orient, levant"; Cora *taŋ-mi* "sun"; S. P. *tawa-* "sun"; Hopi *dawa*; Tüb. *da-i*; Gabr. *tami-t*
 N. *tlēco* "monter"; Pap. *tšāhš* "to go up, climb, ride"; S. P. *tʰi* "up," *tuŋu-mpa-* "sky"
 N. *tlān-tšī* "tooth"; Cora *tamez*; S. P. *tāŋwa-* "tooth"; Hopi *tama*; Tüb. *dama-*; Fern. *-tama*
 N. *tlān-guaitl* "knee"; Cora *tunū*; Pap. *tohNū*; S. P. *tāŋa-* "knee"; Hopi *dami*; Tüb. *toŋo-*; Git. *-tama*

Examples of Sonoran *l-*: Shoshonean *l-* are:

- Huich. *tope, topi* "are"; Luis. *katapi-š* "bow"; A. C. *gatapi-š*; S. J. C. *-qulup*
 Cora *tika-nlše* "in der Tiefe"; perhaps also Pap. *tšukʰe* "to sink"; S. P. *tʰʷʷma-* "to be deep"
 Cora *tevi* "der Mensch, die Person" (< **tewi*), plur. *tšite*; Pima *tiwo-t*; Pap. *tšāo-ršē* "man, male"; S. P. *tāŋwa-* "man" (< **tʰʷʷa-*); Tüb. *datwa-l* (misheard for *tʰʷʷa-l* ?). Uto-Aztekan **teui* or **tšewa*; Shoshonean **tʰʷʷa-* assimilated from **tʰʷʷa-* ?
 Huich. *touhou* (i. e. *tuhu*) "braise"; Ser. (H.) *tun-t* "coal"; Fern. *dāu-t*; Luis. *du-la*; Tüb. *duldul*. S. P. *tš-qʰa-* "to be black" may be derived, with suffixed adjectival *-qʰa-*, from this stem; "black" < "coal-colored"
 Huich. *tagni, tahouí* (i. e. *tawí*) "poitrine"; Cora *tabi*; Cahu. *-taw, -tawh* (i. e. *-taW*) "breast"
 Cora *téne* "in Stücke schlagen"; S. P. *tʰnʷa-* "to punch"
 Cora *tika* "Nacht sein"; Pima *tšoka-ŋi* "night"; S. P. *tuŋwa-* "to be night"; Wob. *toxa-wan* "night"; Tüb. *duga-t*; Luis. *duku-mi-t*
 Pap. *tšākhū xū* "meat" (< **tukʰu* ?); S. P. *tʰʷʷma-* "meat"
 Pap. *tahʔ* "foot," *taʔtū-wnah* "to put the foot in something"; S. P. *ta-* "with the foot"
 Pap. *tšūʔhrāi* "to ask a question" (< **tuʔi* < **thi* ?); S. P. *tšiv-* "to ask"
 Pap. *tšūh* "to taste"; S. P. *tʰʷʷga-* = *tšqʰa-* "to eat"
 Pap. *tšūi* "to say"; S. P. *tšnʷa-* "to tell"

In these, owing to lack of Nahuatl evidence, we cannot at present tell in which cases we are dealing with Uto-Aztekan *l-* or *tl-*.

After vowels, Uto-Aztekan *t* and *tl* appear in Southern Paiute as geminated *t*, spirantized *r*, or nasalized *nt*. Examples of N. *-t-* corresponding to all three of these forms are:

- N. *-ton-ti* "suffixe marquant la petitesse": S. P. *-tua-* "child, son"; as diminutive suffix *-t'ua-*, *-rua-*, *-ntua-* "small, young of." Uto-Aztekan **tons-*.
 N. *-ti-* "particule servant à unir les verbes avec les verbes irréguliers," *-ti-* adjectival suffix: S. P. *-t'i*, *-r'i*, *-nti-* suffix of present participle. It is quite doubtful, however, if these elements are really cognate.
 N. *-ti* "to become": S. P. *-t'ui-*, *-r'ui-*, *-nt'ui-* "to become, turn into"
 N. *-tech* "dans, sur, à, de, près": S. P. *-tuγwa-*, *-ruγwa-*, *-ntuγwa-* "to" (probably compounded of two postpositive elements **-tu* and **-γa-*)

Similar in form to these, but corresponding, it would seem, to N. *-tl-*, is:

- N. *-lloc* "with, near to"; Huich. *-louha* (i. e. *-taha*) "au bas" (cf. adverbs *ha-toua-na*, *ha-ton* "dessous," *the-louha* "en bas, sous"); S. P. *-t'ug'wa-*, *-rug'wa-*, *-ntug'wa-* "under"

Whether Uto-Aztekan *-t-* or *-tl-* is to be assumed is uncertain in: Pap. *-ršū* "to make, to make for": S. P. *-t'u-*, *-ru-*, *-ntu-* "to make"

Examples of S. P. geminated *-t-* corresponding to N. *-t-*, *-tl-* are:

- N. *-tia* causative suffix; Cora *-te* causative: S. P. *-t'ui-*, *-t'ii-* causative
 N. *-lla* "qui sert à marquer abondance, quantité" (e. g. *te-lla* "lieu pierreux"); Cora *-la* (e. g. *sā-la* "sandiger Ort"); S. P. *-t'ia-* "place of"

Examples of S. P. spirantized *-r-* corresponding to N. *-t-*, *-tl-* are:

- N. *cat-qui* "to be (in a place)," *catē* (present plural): S. P. *qari-* "to sit, dwell"; Hopi *galō* "to sit"
 N. *coto-na* "couper, mettre en morceaux quelque chose, cueillir des fruits": S. P. *ts-gur'u-* "to tamp (tube) by pushing (stick) back and forth"
 N. *metla-tl* "metate"; Huich. *mata*; Pap. *mah'luhr* "grinding stone, metate": S. P. *mara-*; Luis. *mala-* (*-t-* < *-tl-*)
 N. *pellā-ni* "se verser, se répandre (en parlant d'un liquide)"; S. P. *pāra-xa-* "rain patters"
 N. *quell* (poetic form of *quetas*) "to arise from": S. P. *qwiri-* "to get up"

Before and after *i* Shoshonean *-t-* (whether from Uto-Aztekan *-t-* or *-tl-*) becomes S. P. *-tš-*, *-ts-*. Thus, after *i*, present participial *-ti-* appears as *-tši-*, *-ntši-*; *-tuγwa-* "to" as *-tšuγwa-*, *-ntšuγwa-*; *-tu-* "to make" as *-tšu-*, *-ntšu-*. Further examples are:

- N. *ize-tl* "nail"; Cah. *zulu*; Pap. *kurāi* (< **culi*): S. P. *itšū-* "nail, claw" (< **sitū-*); Tüb. *zulu-* (< **zulu-*)
 N. *cuitla-tl* "excrement"; Cora *tšuita* "Exkremeente von Menschen und Tieren"; Pap. *pāhr* "manure" (< **kwita-*); S. P. *qwitta-* "to defecate"

N. *-tl*, *-tli* noun ending; S. P. *-tli* noun ending; Cahu. *-ti*, *-i*, *-i* (after *i*, e. g. *hi-i* "house," *yūnawī-i* "buzzard," *qawī-i* "rock;" this *-i* goes back to *-tli*, as shown by comparison with Luisiño); Luisi. *-tli* (after *i*), *-la* (both from **-ta* < **-tla*, form parallel to **-tli*); Tüb. *-i*
 Pap. *kūtlāh* "semen," *kūtlī-muah* "to emit seed" (< **kūti-*); S. P. *qil'ti* "saliva" (< **kiri-*)

It is not quite clear whether S. P. *tš* has developed from *tš* > *t* before original *i* or *i* in:

N. *atla-tl* "spear-thrower"; Hopi *anta* "bow"; S. P. *'allr-*; Kawaiisu *etū*; Bank. *dli-t*

N. *tl* and S. P. *tš* may possibly also correspond in:

N. *tlə* "que? quelle chose?" *a-tle* "rien" (literally "not-what"); S. P. *-tšu-* in *qa-tšu-* "not" (extended form of negative *qa-*); Ute *qa-tši-* (= Uto-Aztekan **ka-tle-*); Mono (N. F.) *ga-du-*

N. *uillallē-tl* "espèce d'oiseau très-allongé, volant peu mais courant extrêmement vite"; S. P. *wut'sa-* "roadrunner"

Nahuatl *t*, originally followed by now elided *i*, has become *tš* (*ch*) in:

N. *oquich-tli* "homme, mari mâle"; Cahu. *qeat*, *kiat* "boy"; Fern. *koš* "young man"

N. *quech-tli* "neck" (< Uto-Aztekan **keti-*); A. C. *-qelyi* "neck"; S. P. *qura-*. N. *quech-* may, however, go back to Uto-Aztekan **ketle-* (assimilated from **kotše-* ?), cf. Pap. *kūššūwoh* "neck" (< Uto-Aztekan **ketle-*) and Tepecano *kūšud* "neck"¹ (< Uto-Aztekan **kotlo-* assimilated from **kotše-*), which forms are in turn perhaps to be compared with Cahu. *qušpi* "throat" (see under Uto-Aztekan *k*: Cora *kīpi*)

Uto-Aztekan *tš*, *ts*

While S. P. *tš* not infrequently, as we have seen, goes back to Shoshonean *t*, whether in turn developed from Uto-Aztekan *t* or *tl*, and N. *tš* (*ch*) also in certain cases is developed from *t*, there remains another series of examples in which N. *ch*, *ts* correspond to S. P. (Shoshonean) *tš*, *ts*. These justify us in assuming an original Uto-Aztekan *tš* (*ts*). N. *ch* and *ts* both occur freely, and I can give no rule that would clearly indicate that they are variants of one prototype (compare, however, *mi-ts* "thee" with *te-ch* "us"). It may be that we should assume two distinct affricative sibilants, *tš* and

¹ Californian dialect of Ute-Chemehuevi group.

² On Dr. Mason's authority.

ts, for Uto-Aztekan, though I should be inclined at present to doubt whether this would be correct. In Southern Paiute *tš* and *ts* vary primarily according to mechanical phonetic rules, *ts* always standing instead of *tš* before *i*. Similarly, in Papago *š* represents original *tš* before *a*, *o*, and *u*, while it is replaced by *s* before *i* and *ü* (examples of Pap. *š* corresponding to N. *ts*, *ch* are: N. *chocoa* "to cry": Pap. *sohšah*; N. *metulli* "moon": Pap. *mahša't*).¹

Examples of Nahuatl *ch* corresponding to Shoshonean *ts* are:

- N. *chichi* "dog" (assimilated from **kutši*); Tar. *kotši*; Cora *hĩtsi* "das Haustier"; Git. *gutsi* "dog"; Möh. *gutli*; Ser. (H.) *kwutši*
 N. *pichauh-tica* "être engourdi, transi, mort de froid," *pichau-lisli* = *pichaquilisli* "bêtrissure, engourdissement": S. P. *tʰi-pit'sa-* "to crush by trampling" (*ts-* "by trampling")

Examples of Nahuatl *tš* (Pap. *š*) corresponding to Shoshonean *tš*, *ts* are:

- N. *-tsa* frequentative transitive suffix with verbs expressing sounds and various activities (e. g. *cocomo-tsa* "hazer estruendo con los pies" from *comō-ni* "hazer ruido alguna cosa pesada que cae"; *popolo-tsa* "hablar a otro en lengua barbara" from *polō-ni* "hablar barbaramente"); S. P. *-tsa-* frequentative transitive suffix (e. g. *ts-kʷavi-tsa-* "to cut several things," *tšʷ-qoi-tšu-* "to take off several articles of clothing")
 N. *tzon-tli* "hair"; Cah. *tšoni*; Mono (In.) *tsobip* "hair"; Tüb. *tsam'o-*; S. P. *tš-* (Ute *tšu-*) "with the head," *tšʷ-si-* "head" (perhaps dissimilated from **tsot-si-*)
 N. *-tsin* (vocative *-tze*; plural *-tsitsin*) suffix indicating reverence, respect, endearment, originally doubtless diminutive, as in *uitsi-tsi-lin* "oiseau-mouche" (from *uitsi-lin*; see below); Cora *-tsi(n)* diminutive suffix (as in *hĩtsi*, *hĩtsin* "older brother"; *hũtsi* "younger brother"); S. P. *-tsi-* diminutive suffix (not to be confused with noun-ending *-tsi-*; N. *-tsi*); Gabr. *-tsi* (as in *mutu-tsi* "flea")
 N. *uitsilin* "petit oiseau qui bourdonne," *uitsil-aziall* "bird-heron," *uitsi-tsi-lin* "oiseau-mouche"; S. P. *uitsi-ts* "bird"; Ser. (H.) *witši-t*
 Pap. *ahš* "elbow," *Sikšū-wuah* "to hit with the elbow" (< Uto-Aztekan **tsitše-*); S. P. *man-tšiv-φʰ*, *man-tšʷ'a* "bone from elbow to wrist" (*man-* "hand")

Nahuatl *tš*, *ts* corresponds to Shoshonean *š*, *s* in:

- N. *toch-tli*, *tochin* "lapin": Luis. *dosi-xi-t* "rabbit"; A. C. *dzi-xa-t*; S. J. C. *döl-t*; Gabr. *tošo-xo-t*; Fern. *toho-x-t* (*-h-* < *s*); Git. *dühō-gu-t* (*-h-* < *s*)
 N. *ach-tli* "frère ainé"; Cora *has* "alterer Bruder"; Cah. *pas* "elder brother"

¹ Dolores, *Papago Verb Stems*, p. 242.

² See Carochi, pp. 476-478.

- N. *metzi* "to fall"; Tepecano *giĩ*, preterit *giĩ* (*giĩ* < **wiĩsi*) "to fall into the water";¹ S. P. *wĩĩ* "to fall" (< **wiĩsi*)
 Tepecano *lia-* (< Uto-Aztekan **lia-*) in *tá-lia* "morning," *a-šá-l* "to dawn,"
Itá-r "east"; S. P. *-lia-* in *ta-lia* "to dawn" (for *ta-* see N. *lla-* under Uto-Aztekan *li*)

Possibly also in:

- N. *quech-tli* "neck"; Cahu. *qus-pi* "throat" (see N. *quech-tli* under Uto-Aztekan *i*)

Uto-Aztekan *k*

Uto-Aztekan *k* regularly appears as Nahuatl *k* (written *c* or *qu*) and as Shoshonean *k*. In Southern Paiute this *k* is always more velar (*q*) than mid-palatal before all vowels but *i*, in which case it appears as *k*; after *i* it is regularly palatalized to *kʲ*. Examples of initial Uto-Aztekan *k* are:

- N. *quech-tli* "neck"; S. P. *qura-* "neck" (but see N. *quech-tli* under Uto-Aztekan *i*)
 N. *que-* verbal prefix referring to "teeth" (e. g. *que-tsoma* "mordre," cf. *tsoma* "coudre, couvrir une chose de paille"); S. P. *qi-* instrumental prefix "with the teeth." Related to this is perhaps
 Pap. *kāt* "to bite, sting"; Cora *kĩ* "fressen (von fester Nahrung)"; S. P. *qĩĩ-* "to bite"
 N. *cā*, *cāt-qui* "to be in a place"; Cora *kā* "sein, sich befinden, sitzen" (sing.); S. P. *qart-* "to dwell, sit" (sing.); Hopi *gald* "to sit"
 N. *cal-ti* "house"; Tar. *kali-*; S. P. *qan-i-* "house"
 N. *-cumo* "not"; Cora *kā* "nicht, nein"; S. P. *qa-, qatšu-* "not"
 N. *can-tli* "cheek"; Pap. *kām*; Tüb. *gaga-* "beard"
 N. *cochi* "to sleep"; Cora *kutsu* "schlafen, einschlafen," *kutsi-te* "einen einschlafen"; Pap. *kol* "to sleep (sing.), die (plur.)"; Tepecano *koĩ*, preterit *koĩ*; S. P. *qʷʷi-* "to go to sleep (plur.)"
 N. *icxi-il* "foot" (with prothetic *i-*, cf. *no-cxi* "my foot"; < **kxi-*, *kxi-* ?); Tepecano *kāi* "foot" (< **kahi* < **kasi*); Mono (In.) *-gāgāi* "foot" (reduplicated); Hopi *gōxgō*
 N. *col-ti* "aieul, aieule"; S. P. *qun'u* "great-grandfather"; Uto *qān'u* "paternal grandfather"
 Cora *kin* "der Gatte"; Pap. *kuN* "husband"; S. P. *gum'a-* "husband, male"
 Cora *kipi* "Hals" (< **kupi*; Diquet gives *koupi* "cou"); Huich. *kouipi*; Cahu. *quspi* "throat." See also Pap. *kahšūrah* and Tepecano *kucul* under Uto-Aztekan *i* (N. *quech-tli*)

¹ Quoted on Dr Mason's authority.

Huich. *ki* "house"; Cora *lii* "Hütte" (< **ki*; Uto-Aztekan *ki*- regularly gives Cora *lii*-, while Cora *ki*- goes back to Uto-Aztekan *kə*-); Pima *kí*; Hopi *kí-hə* "house"; Cahu. *kí-ʃ*

After vowels, Uto-Aztekan *k* appears in Southern Paiute as geminated *q'*, spirantized *ɣ*, or nasalized *ŋq*. Examples of N. *-k-* corresponding to all three of these forms are:

- N. *-gui* (present imperative), *-guiuh* (future indicative), *-co* (present and perfect indicative) "to come to do so and so": S. P. *-k'i-*, *-ɣi-*, *-ŋki-* "to come to do so and so"
- N. *-que-ll(i)* (older form), < "having"; Cora *-ke* (e. g. *pəri-ke* "ein Kind haben"); Pap. *-kah* "to have or claim": S. P. *-q'ai-*, *-ɣai-*, *-ŋqai-* "to have"
- N. *-c* adjectival suffix (e. g. *izla-c* "white" from *izla-ll* "salt"); S. P. *-q'a-*, *-ɣa-*, *-ŋqa-* adjectival suffix, Cahu. *-xə-* (spirantized form of suffix: *seta-xa-ʃ* "salty")
- N. *-ca* "avec, par, à l'aide de, au moyen" (this suffix often makes gerunds or adverbs out of verb stems: *iciah-ca* "quickly" from *iciah* "to go quickly, hurry," e. g. *iciahca* *a-iauh* "while-hurrying I-go"): S. P. *-q'ai-*, *-ɣai-*, *-ŋqai-* "as, when" (verbal suffix making subordinate clause whose subject is identical with that of main clause; followed by possessive pronominal suffixes)
- N. *-ca*, *-c* "in, from": S. P. *-q'ə-*, *-ɣə-*, *-ŋqə-* "as, when" (verbal suffix making subordinate clause whose subject is different from that of main clause; followed by possessive pronominal suffixes)
- N. *-quia* suffix used in apodosis of conditional sentence: S. P. *-q'ə-*, *-ɣə-*, *-ŋqə-* irrealis

Examples of geminated *-q'* in Southern Paiute are:

- N. *paca* "laver une chose"; Top. *baku-ane*: S. P. *na-qay'i* "to bathe" (intransitive)
- N. *noqula* "verser," *noqui-ni* "couler, se répandre (en parlant d'un liquide)": S. P. *na'qwi-ni* = *nug'wi-* "stream" (*-qw* < *-q* because of preceding *n*)
- N. *miqwi* "to die"; Huich. *mouki* "mort"; Cora *muitt* "tot" (< **muiki*); Pima *muha* "to die," *moki* "dead"; Pap. *muh* "to die" (< **muka*, cf. Pima *muha*); Hopi *moki* "dead"; Cahu. *muki-ʃ* "dead," *meka* "to kill"; S. P. *tla-qwuk'i* "to die off" (< **mik'i*)
- N. *-que* plural suffix in perfect and future, also for certain nouns (e. g. *neuetiquē* "old men," regularly of possessive nouns in *-ə*, *-uā*), *-can* plural suffix in imperative and present optative: S. P. *-q'a-* verbal suffix indicating plurality of subject
- N. *-ə*, *qui* "him, her, it": S. P. *-ə-q'a-* "it (visible)," *-ə...q'wa-* (invisible)" (these pronominal suffixes are compounded of *-q'a-* "it," which does not appear as such, and demonstrative stems *a-* "that visible" and *u-* "that invisible")

- N. *-c, -qui* (older form) preterit suffix, *-qui* past participle (e. g. *palan-qui* "corrompu") *-ca* pluperfect suffix (preterit suffix of certain irregular verbs, e. g. *cat-* "to be somewhere"); Huich. *-kai* preterit suffix (e. g. *moumouk'i-kai*, "il était mort"); S. P. *-q'a-i-n'a* makes perfective verbal nouns, *-q'a-ni-* makes perfective participles

Cora *ika-ni-* "in der Tiefe"; S. P. *i'q'ama-* = *tuq'a-* "to be deep"

Pap. *ta'xū* "hole"; S. P. *ᵒ'-pāq'* "hole"

Pap. *noh* "to bend" (< **naḥa-*); S. P. *x'qwe'i-* "to bend" = *uq'z-*

Pap. *hūk* "to taste" (< **hūka-*); S. P. *i'q'a-* = *tiq'a-* "to eat"

Other examples than S. P. of Shoshonean postvocalic *k* are:

Huich. *houca* (i. v. *hūba*) "jambes"; Cora *houca* (quoted from Diguët; Preuss gives *ika* "der Fuss, das Bein, der Knochen"); Cah. *huoki*; Hopi *hahya* "leg"; Mono (N. F.) *-huk*

N. *miec* "much"; Luis. *muyuk* "much." This *-k* is suffixed, as shown by Cora *mui*; Pima *moi* "many"

N. *ēca-il* "vent, air"; Cora *āka(ri)* "Wind"; Huich. *heheca* "air" (reduplicated); Tüb. *ūka-wa-i* "wind"; Mono (N. F.) *āig-wa-p*; Gabr. *ahika-q*

Examples of S. P. spirantized *γ* are:

N. *yecoa* "avoir des rapports charnels avec quelqu'un"; S. P. *yγu-* "to copulate"

N. *yaca-il* "nez, pointe"; Cah. *yeka* "nose"; Hopi *yaka* "nose"; S. P. *yayā-* "end"

N. *tuqwa* "attiser le feu"; S. P. *tuγwa-* "to put out the fire" (*tu-* due to *u* preceding *γ*)

N. *tequi* "couper," *ni-tequi* "égrenier en frappant"; S. P. *tiγa-a'ni-* "to butcher (meat)," *tiγa-* "to gather seeds by beating with seed-beater"

N. *-ca* frequentative intransitive suffix of verbs expressing sounds and other activities (e. g. *cañā-ni* "hacer ruido cosas como nueces, el cacao quando le cuentan"; *cacala-ca* "se usa quando estas cosas son muchas"; *pallā-ni* "volar"; *papalla-ca* "reboletear el ave, temblar el corazon"); S. P. *-γa-*, *-xa-* frequentative intransitive suffix, particularly of verbs expressing sounds (e. g. *qī-k'i-a'ia-* "to sound like one tear of a rag"; *qī-xa-a'ia-* "to sound like a rag tearing;" **puq'wi-* = *uḡ'uq'wi-* "to bounce"; *oosq'wa-γa-* "to bounce up and down like a rubber ball")

Huich. *queatzou* "poisson" (i. v. *keca-lsa*); S. P. *pā-γix-* "fish" (lit. "water-fish"); Cahu. *kγn-i* "fish"

N. *poc-iti* "smoke, vapor, fog, mist"; S. P. *paγi-a'a-* "fog"; Cahu. *paxi-ḡ* "fog"; Fern. *paki-i* "cloud"

N. *oca-il* "pinus tenuifolia"; Cora *hukē* "Kieler"; S. P. *oγō-mḡ^u* "fir"

¹ See Carochi. pp. 476-478.

- N. *maca* "to give"; Cah. *maka*; Pap. *mak* (< **maka*); S. P. *maɣa* "to give"; Fern. *maxa*; Cahu. *maxa*; Git. *a-mak*
- N. *zoqui-tl* "house, fange"; S. P. *soyo* "moist ground"
- N. *coa-tl* "serpent"; Huich. *kou* (i. e. *ku*); S. P. *-yoa* in *to-yōo-φ* "rattle-snake"
- N. *aqut* "qui?" *acē* "quelqu'un"; Cahu. *haxi* "who?" Fern. *haki* "who?" Hopi *hak'i* "who"; S. P. *aɣa* "where? how? what?"
- N. *acell* "roseau"; Cora *haká* "das Schilfrohr"; S. P. *paɣa* "reed"
- Cora *itkz* "Nacht sein"; Pima *tšaka-ngi* "night"; S. P. *tuɣwa* "to be dark, night" (-*w* due to *n* preceding *ɣ*); Tüb. *duga-l*
- Pap. *wk* "to go in" (< **paka*); S. P. *paɣa(i)* "to walk"
- N. *-cpac* "sur, au-dessus, en haut"; S. P. *-v'dɣi* "over" (< **p'ak'i*)

Several of these examples show that Shoshonean *-k-* is often spirantized to *-x-* in Luiseño-Cahuilla and Gabrielino-Fernandino. Further such examples are:

- N. *tlāca-tl* "person"; Hopi *tdqa* "man"; Git. *daga-t* "person"; Fern. *daxa-t*; Luis. *-tax*; A. C. *-tax'a*
- N. *čaca-tl* "paille, herbe, jonc"; Ser. (H.) *haka-t* "willow"; Cahu. *saxa-t*
- N. *aca-na* "mettre à sec, tirer une chose de l'eau," (refl.) "se mettre à sec, en parlant d'un navire"; A. C. *haxa-l* "sand"; Luis. *ex'la* "earth"; Gabr. *ōxa-r* "land"; Fern. *ōxa-r* "land"

An example of S. P. nasalized *ŋq* corresponding to N. *k* is:

- N. *nacas-tli* "ear"; Huich. *naka*; Cah. *naka*; Pap. *nakhv*; Hopi *nak'-v* "ear"; Mono (N. F.) *-nakx*; Luis. *-naq*; Cahu. *-naq'a*; S. P. *naŋqɔ-ɾa-φ* "ear," *naŋqa-q'vi* "to hear." We saw above, however, that S. P. *-ŋq-* may here go back to reduplicated **nanaka*; cf. Tep. *nanaca* (according to Diquet), Pima *nanh* (quoted from Kroeber: Russell gives *nahaka*), Fern. *-nanak*. We are doubtless dealing with Shoshonean *-ŋk-* also in Shik. *-naŋi* "ear" (misheard for *-naŋgi* ?); Tüb. *naŋha* (< **naŋxa* < **naŋka*; cf. Tüb. *aŋkani-l* "person" < **aŋxani* < **aŋkani* < **a-nakani*; A. C. *naɣani-l* "man" < **nakani*.)

N. *k* seems to correspond to S. P. *kw* in:

- N. *quell* (poetic form) "to arise," *quetsa* (ordinary form); S. P. *qwiɾi* "to get up"

GEOLOGICAL SURVEY OF CANADA

OTTAWA, ONTARIO

(Part II to be Concluded)

A STRATIFICATION OF CULTURES IN EASTERN NEBRASKA

By FRED H. STERNS

A MARKED difference in the character of archeology as treated by the scientists of Europe and those of America has often been noted. The former studied relations of time and the latter relations of space. One considered cultural sequences and the other culture areas. To the European archeologist, peoples of one physical type and one kind of culture were succeeded by another people with different physical and cultural characteristics, and these in their turn were replaced by still other tribes or races. In America, on the other hand, the tendency has been to see all cultures as more or less contemporaneous except so far as the distinction has been made between the historic and the prehistoric. Some American archeologists, however, have believed for a long time that there would be revealed sequences of types on this continent which would correspond in some degree with those in Europe. The proof of such sequences must be grounded on stratigraphic evidence, and stratified sites have been very rare. Hence such a site has a high scarcity value and warrants special study even though it be otherwise of minor importance. Such considerations are the excuse for the present paper on a stratified site in the Missouri valley.

The Walker Gilmore site was named from the boy who gave the information which led to its discovery. His father is a prominent physician in Cass county, Nebraska, and takes considerable interest in local archeology. The boy, following his father's footsteps, found pottery in a gully near the Missouri river. While I was making archeological researches in this county for the Peabody Museum of Harvard University, he informed me of his find and I began investigations in that vicinity at once. Both father and son rendered valued assistance during these researches, and I wish to take this occasion to thank them publicly.

The gully in which the pottery was discovered is situated on the N.E. $\frac{1}{4}$ of the N.E. $\frac{1}{4}$, Section 28, Township 11, Range 14, in eastern Cass county, Nebraska, on the farm of Mark White, whose father was the first settler on the place. It is about six miles south-east of Murray, eight miles south of Plattsmouth, and a mile and a half south of the former river town of Rock Bluff. In this vicinity considerable archeological work has been done in the last two seasons. A University of Nebraska party, under the direction of Mr Robert F. Gilder of Omaha, discovered about sixty skulls within the Plattsmouth city limits. Dr G. H. Gilmore of Murray excavated one earth-lodge site near Rock Bluff and collected surface material from several other places in the county. Our party worked in the vicinity for about five weeks last year and a similar time this year. Four miles south of the farm of Mark White we excavated two of the semi-subterranean rectangular earth-lodge sites such as I described in a recent number of this journal.¹ These sites furnished a great abundance of potsherds, and many flint and bone implements. Several more of these sites are known to exist within two miles of the White farm.

The gully in which the finds were made forms the upper portion of the course of an intermittent stream. The lower portion of this stream's course is through an alluvial terrace of the Missouri river. This terrace is now about a quarter of a mile wide and sufficiently raised above the present level of the river to be out of reach of even the highest water. It is separated from the flat through which the gully runs by an old river bank about eight feet high. This flat forms an east-and-west gap between two high river bluffs to the north and to the south of it. Its greatest width from slope to slope is about a quarter of a mile.

The stream formerly had a winding southeasterly course across the alluvial terrace; but the owners of the property diverted the creek a few years ago by digging a drainage ditch almost due eastward. The great shortening of its course thus produced has caused it to cut the gully which it now occupies. This gully averages about 30 feet in width and 20 feet in depth, and has almost vertical walls.

¹ *American Anthropologist*, XVI, 135-7.



1. LOOKING EAST TOWARD THE WALKER GILMORE SITE. THE LIGHT-COLORED FIELD WHERE THE FARM IMPLEMENT STANDS IS THE PLACE WHERE THE RECTANGULAR HOUSE SITE POTTERY WAS FOUND. THE TREES NEAR IT ARE ON THE BANKS OF THE GULLY IN WHICH THE ASH-BEDS ARE FOUND.



2. A POCKET OF DUMPED ASHES OCCURS IN THE CENTER OF THE DARK BAND OF CREEK MUCK. TO THE LEFT IS A LAYER OF CREEK GRAVEL CONTAINING SOME CHARCOAL.

In places its sides and bed are composed of a yellow loess-like clay similar to that which forms the neighboring river bluffs, while in other places it cuts through deposits of blue "gumbo" clay, such as is common in the creek beds of the region, or through creek gravels, or through secondary loess such as could occur only as wash from the hills. The distribution of these various materials in the gully and for some distance in its banks (as determined by boring with a long auger) makes it clear that the present stream is cutting across the course of an older stream whose channel was wider than that of the present creek. The banks of the older stream valley had a much gentler slope than those of the present gully, and its course was not the same as that of the present stream. Where the latter cuts the old channel, the gully walls consist of "gumbo" clay, gravel, or secondary loess. Where it does not cut the old valley, the walls are the original yellow clay.

These deposits of the old stream and the material which has washed from the hills and buried them contain traces of human occupancy at various levels. In the first place, on the flats around the gully there are many fragments of pottery and a few flint implements. This pottery is of a brownish or grayish color with no surface luster. It is commonly of the form of a pot of medium size. About ten percent of the rim fragments show signs of the presence of lugs. A marked characteristic of this pottery is the almost constant presence of a sharp angle where the body of the pot meets the vertical or reflex rim. About half this pottery is without decoration, while the decoration of the remainder consists mainly of thumb impressions on the rim, varied now and then by the impressions of some sharp implement. This is the typical pottery of the rectangular earth lodges. None of these lodges was actually found on this flat; indeed one could not expect to find them, as the field has been plowed since 1857 and all traces of them would have been destroyed in that length of time. It is important, however, to know in a general way the position these lodges originally occupied. Were they on the flats which cover the bed of the old stream where the pottery fragments are now found, or was they on the hills and has the pottery been washed to its present position on the flats?

The following considerations make me feel certain that the lodges stood where the pottery is now found rather than that the latter has been washed from the hills. Portions of the hilltop have only recently been cleared, and when I was there they were newly plowed. All lodge sites which had ever existed there should still be discernible; and if any pottery was there to be found, the conditions for its discovery were the most favorable. But we could neither locate an earth lodge nor find the smallest potsherd. On the slope of the hill, at two different heights, strips of ground had been plowed and were in excellent condition for surface work, and yet no trace of aboriginal occupancy occurred in either place. Where the slope of the hill meets the flat and the velocity of the surface drainage waters would be checked is the natural place for wash of all kinds to be caught; but no pottery could be found there. Even the flat itself is devoid of pottery to a considerable distance from the hill slope. Such pottery as there is on the flat is bunched in two or three places with no regard to drainage lines. If the potsherds were washed from the hills, nearly as much would be found in the gully as on the flats nearby, whereas there is actually very little of this type of pottery in the gully. If it washed from the hills there should be much of it on the alluvial terrace, which is now receiving wash; but, instead, it is absent there. Only one conclusion seems possible in regard to the former location of these rectangular earth-lodge sites, and that is that they stood where the pottery now is, and since they rest upon the deposits over the old stream channel, their age is less than the filling of that channel.

Four feet below the surface of the gully there are occasional traces of charcoal in the secondary loess. This would seem to indicate that either the flats themselves or the hills above them had some human occupant at the time this portion of the deposit was forming. But as no artifacts were found at this level and as charcoal is a very unsafe basis from which to draw any conclusion in regard to human occupancy, the presence of man at that stage cannot as yet be proved. And if man lived there, nothing can be said of his culture.

Six feet below this, or ten feet below the surface, there occur



1. A BED OF ASHES WITH ANOTHER BED OF CHARCOAL ABOVE IT. THE TWO FORMING THE REMAINS OF A FIREPLACE.



2. BY THE MAN'S KNEES IS THE LOWEST LEVEL OF FIREPLACES. THE SPOTS OF ASHES ABOUT THE LEVEL OF HIS WAIST SHOW THE SECOND LAYER. TRACES OF CHARCOAL WERE FOUND ABOUT THE MIDDLE OF THE HANGING ROCK. THE RECTANGULAR HOUSE TYPE PREVIOUSLY DESCRIBED NEAR THE HINGED ROCK.

numerous ash-beds, and in a few places there are still other ash-beds two feet below the first group. These two layers are separated by a blue creek muck which probably did not take a great deal of time to accumulate. An important fact arguing against any great difference in time between the upper and the lower ash-beds is that the pottery and the flint and bone implements found in these two sets of fireplaces show absolutely no difference in type.

They differ, considerably, however, from the material found on the surface. The pottery is mainly of a blackish color and lacks entirely the sharp angle found at the neck of the surface pottery. It is usually decorated by finger-marks on the rim, but some pieces are cord-marked (I have no specimen of cord-marked pottery among the 1300 rims collected in the rectangular earth lodges). None of the fragments shows evidence that the vessels had lugs. Among the animal bones, those of the bison were the most common, while they are rare in the rectangular house sites. Charred corn is quite common in the earth lodges, but none of it was found in the fireplaces. Instead there were large numbers of gourd or squash seeds which have never been found in the other sites.

These lower sites have been traced for an eighth of a mile in a straight line along the creek. Borings show that the traces of human occupancy extend in places at least fifty feet back from the present walls of the gully. This argues either for a considerable number of persons in the settlement or for an extended occupancy. In many places along the creek but one of the layers of fireplaces occurs, and in these cases it is impossible to tell which layer is absent. In addition to the fireplaces, or ash-beds, there occur a few ash-dumps and an occasional pit. The artifacts which were found were nearly all broken fragments. No trace was found of deliberate storage of material.

Each place along the gully where the beds containing the fireplaces were found was given a number. These numbers ran from I to IX, and counting the lettered exposures between numbers, there were seventeen in all.

A typical section from top to bottom follows. This was taken on the southern end of exposure VII.

	FEET	INCHES
(1) Black organic soil.....		11
(2) Yellow clay much jointed. At a depth of four feet it contains traces of charcoal. Secondary loess.	6	9
(3) Light-colored clay with numerous dark bands....	1	2
(4) Dark-colored clay with numerous light bands....		11
(5) Light-colored clay with dark bands.....	1	
(6) Dark layer containing rocks, charcoal, ashes, and artifacts.....		5
(7) Light-colored clay with dark bands.....	1	
(8) Ashes.....		1
(9) Burned clay.....		2
(10) Dark, unbanded clay.....		

The question remains as to the age of these deposits. There are boxelder trees growing on the edge of the gully, immediately above ash-beds, which are eight feet or more in circumference. Other trees of still larger size grow along the gully but not immediately above the beds under discussion. The most important consideration in gauging the age of the deposits is that the material on the surface is entirely prehistoric. Not only in these particular sites, but in all the hundred or more of the rectangular house sites which have been examined, traces of contact with white people are altogether absent. The following is the series of events which has taken place. First, an ancient people made their homes in an old creek bed. They temporarily abandoned the site and later returned to reoccupy it. Then there followed the slow filling-in of the valley, a process which took at least two or three centuries. Then another people with another culture occupied the site. And finally either they changed some elements of their culture (such as the rectangular semi-subterranean lodge) before the coming of the whites or else the historic tribes form a third group of people to occupy the same region.

There is nothing in the cultural changes nor in the stratigraphic conditions to indicate geological antiquity. A thousand years is ample to account for all the phenomena, and the lowest beds may not be even so old as that. However, we must be careful to avoid the other danger of making our estimate too low. Wash from the hills would be very slow compared with the deposits of river flood-

plains. Sites buried in the latter might not be very old. Such sites have been found within two miles of the White farm. They consist of fireplaces at a depth of two to three feet in the river alluvium. They contain a type of pottery which is different from either that of the Walker Gilmore site or that of the rectangular lodge sites.

A detailed study of the different cultures is now being prepared and will be published later.

PEABODY MUSEUM, HARVARD UNIVERSITY
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THE USE OF GLUE MOLDS IN REPRODUCING ABORIGINAL MONUMENTS AT QUIRIGUA, GUATEMALA

By NEIL M. JUDD

IN January, 1910, the School of American Archaeology commenced a series of investigations at the ruins near Quirigua, Guatemala. These investigations have been continued every year, with one exception, since that date, and during the operations of the winter of 1913-14, the most recent of the series, the author was a chance associate, having in charge that phase of the work which these notes consider.

The expedition of 1914 entered the field with two distinct motives: (1) a continuation of former excavations¹ on the structures surrounding the Temple Court, and (2) the reproduction in plaster of as many of the stone stelæ, for which Quirigua is so justly famous, as time and local conditions would permit. We shall concern ourselves, in the following pages, solely with the casting of the monuments.

Readers familiar with the history of Quirigua will recall that the ruins remained unknown to the scientific world until John L. Stephens published an account of his travels through Central America in 1839 and 1840; also that very little additional information was obtained until an English traveler, Mr A. P. Maudslay, made known the results of his observations at the old city during 1881-1883 and 1894. In addition to the usual notes, measurements, and photographs, Mr Maudslay obtained, on his last two visits, a number of paper squeezes and plaster piece-molds² of the great monuments in the Ceremonial Court or Plaza. These molds were taken to England and plaster casts made from them.

¹ See *Bulletin of the Archaeological Institute of America*, vol. II, pp. 117-134 (1911), and vol. III, pp. 163-171 (1912); also *National Geographic Magazine*, vol. XXIV, pp. 339-361.

² A "paper squeeze" is the resultant negative impression when several superimposed layers of well-soaked paper are pounded into the superficial irregularities of an object and allowed to dry in place. A plaster "piece-mold" is a collection of individually-shaped plaster blocks that unite to form a complete mold.

Similar molds of the sculptured stones at this and other prehistoric Central American sites were obtained by subsequent expeditions, among which those of the Peabody Museum at Cambridge are most noteworthy.

None of the paper squeezes obtained by these early expeditions, however, produced casts that are entirely satisfactory. Existing reproductions give a general impression of the original, to be sure, and are therefore highly desirable for museum exhibition, but their value for the study of the hieroglyphics has been lessened by the unavoidable inaccuracy and indistinctness with which they represent the carved inscriptions on the monuments. Such casts, the author believes, ought to serve both as museum examples of primitive American sculpture and as exact facsimiles for laboratory study of the ancient Mayan system of hieroglyphics.

The preservation of exact copies of Mayan monuments, and especially of their carvings, is quite necessary, for the action of the elements is slowly but surely erasing this evidence of primitive man's cultural development in the jungles of Guatemala. When



FIG. 29.—Constructing the plaster forms around one of the stelae.

Maudslay made his first observations, these stones were almost hidden in the dense forest and were overgrown with a thick mat of vines and moss in which even large trees had taken root. He removed this growth in order to secure better photographs, but after



FIG. 30.—Each form was made with liquid plaster, over a layer of clay mud.

his visit a new covering had formed, and the cleaning was necessarily repeated when the School of American Archaeology began its investigations several years ago. When our party reached Quirigua last January, we found that a slight growth of lichens had reappeared on all the stelæ, but it readily yielded to a scrubbing brush.

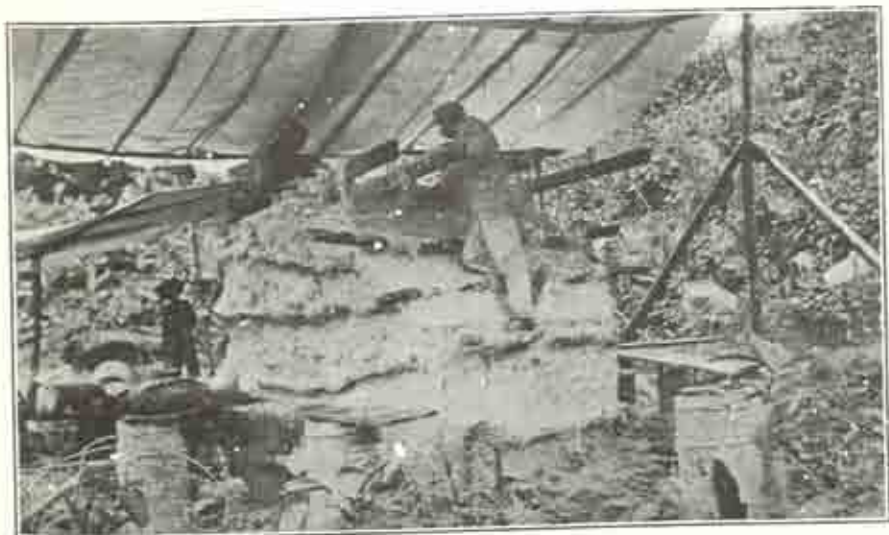
These Quirigua monuments are of two types: tall stones with human figures carved on both faces and columns of hieroglyphics on the narrower sides, and low, animal-shaped blocks bearing similar inscriptions on their backs and sides. Each monument has been

carved from a solid block of stone, of a texture that multiplies the difficulties of successful reproduction. The rock may be described as scoriaceous sandstone, for it consists mostly of volcanic scoria, with varying proportions of sand and coarse gravel. Earthquakes



1. THE "GREAT TURTLE"

Maudslayi's plaster piece-mold of this monument required more than 600 pieces and about three months for completion; with glue molds, a finished cast in eleven parts was produced in fifteen days



2. COMPLETING THE PLASTER FORMS OVER THE "GREAT TURTLE"

and growing vegetation have broken and split these heavy masses, as well as the remaining walls of the temples; swaying branches and dripping water have cut and grooved their surfaces and liberated many exposed pebbles, thereby adding small pittings to the already rough, granular faces. Such a superficial texture greatly increases the difficulties of making satisfactory paper molds by resisting every effort to force pulp or similar lifeless materials into the pores of the stone's surface, and by tenaciously gripping those substances, once they have been driven into place. In reproducing the irregular texture of the Quirigua monuments, glue proved an ideal agent, since the material of the molds was applied in a liquid condition, and, when hardened, its natural elasticity permitted great distortion in removal. It was easily manipulated when properly prepared, yet gave considerable difficulty before its tropical limitations were sufficiently determined.

Glue, or gelatin, is an animal substance that deteriorates rapidly on exposure to heat and moisture. Commercially, gelatin is obtained in thin, dry flakes that require soaking and melting in preparation for use. Although well known and much utilized in decorative architectural construction in the cooler portions of the country, glue had never before been employed in the American tropics. Those experts whom we had consulted seriously doubted its practicability for such a task as ours—they were a unit in advising adherence to the old methods, despite admitted imperfections.

During our first weeks in Guatemala, while awaiting the arrival of supplies, we performed such minor experiments as available materials would permit. It became evident at this time that glue molds must be prepared with more care in the tropics than in the workshops of our New England states. For instance, a mere dampening of the dry flakes gave firmer, heavier molds that yielded more satisfactory casts than those made from glue which had received the customary soaking. Our first pourings were too thin and resulted in soft, rather sticky molds incapable of producing clear-cut reproductions. We learned also that melted glue, left in pails or tubs, would neither cool nor solidify, but deteriorated within a comparatively short time. After having served their purpose, our glue molds were usually cut into small pieces and remelted. When all

these fragments were not required for the evening pouring, they were dried and retained for future use, but if carelessly spread and a free circulation of air prevented, the pieces invariably sweated and soured, rendering them unfit for new molds. With all its



FIG. 31.—The edges of each form were carefully trimmed before an adjoining form was begun.

uncertainties, however, glue proved an ideal medium for the hasty reproduction of such enormous, irregular carvings as those at Quirigua.

Our method of mold-making was very simple. We began by building a light plaster foundation around the base of the monument, to prevent the escape of the melted glue and to support the weight of the plaster forms which were to surround the monument and serve as retaining walls for the glue molds. Above this foundation, a definite section of the stone was covered with a layer of common clay mud, approximately one inch thick. In

building the forms, such large quantities of this mud were used that one native was kept at work continually, mixing with his bare feet, while one or two companions kneaded it into sizable balls. These masses were then pounded or thrown onto the stone

with force sufficient to make them adhere, uniform thickness of the layer and its conformation with the outline of the stone being preserved during the operation.

Over this clay were built the forms or supports above referred to. While being constructed, each form was braced with two or more small saplings, laid at right angles upon a number of bamboo strips. Each form was completed and its edges carefully trimmed before the adjoining form was begun. Four of these forms, one for each side of the monument, composed a section. On completion, the several parts were bound together with temporary ties of plaster-soaked fiber and the working platforms raised for another series. Continuing in this manner, the whole monument was covered—a layer of clay, of a thickness corresponding to that of the desired mold, lying against the stone, and over this clay the carefully-matched plaster forms. When the topmost form had been finished, the real process of mold-making began.

Commencing at the top, one entire horizontal section was lowered each day and the subjacent layer of clay thrown aside. The exposed surface of the stone was then thoroughly scrubbed to remove what dirt and lichenous growth still clung to the monument. The inside surfaces of the four forms were scraped free from all irregularities and painted with a coat of thick clay-water which filled the pores of the plaster and aided materially in separating molds and forms. After the stone had dried, it was oiled with a composition of stearine, kerosine, and vaseline, and the forms raised to their original position, bound with fiber, and all joints covered with plaster. In their "original position" these forms were separated from the monument by an interstice equal to the thickness of the layer of clay over which they had been built. Into this space the melted glue was later poured. The resultant glue molds, therefore, were equal in thickness to the layer of clay they replaced; their backs were supported by the plaster forms, and their faces reproduced, in intaglio, the lines and carvings of the monument.

During these preparations, galvanized iron tubs, containing glue, were over the fires and their contents melting for the daily pouring. To avoid burning the material, that tub which held the glue was placed upon three or four small stones in a larger receptacle

and separated from it by a quantity of boiling water. The outer vessel, in turn, rested upon iron rods or pointed stones that raised it above the fire-pit. When the glue had thoroughly melted and attained uniform consistency, it was ready for the forms.



FIG. 32.—Pouring one of the upper molds on the "Great Turtle."

Pouring the glue was a simple process, and required only a number of pails and men to pass them. Our day's work was so divided that this operation was performed just before sundown, leaving the cool hours of the night for the hardening of the molds. Small holes for the escape of air bubbles were drilled through those forms that inclined from the perpendicular, but they were always reclosed as the melted glue, rising in the mold-space, began to flow from them. Further to prevent the formation of bubbles in the glue after it had been poured into the forms, improvised funnels were fre-

quently employed, the pressure of the liquid remaining in the funnel after the forms had been filled forcing out the imprisoned air and also counteracting the effect of shrinkage along the upper edges of the molds.



1. PLASTER CAST FROM UPPER EASTERN SIDE OF THE "GREAT TURTLE"



2. THE BACK OF EACH CAST WAS REENFORCED WITH SAPLINGS AND ROPES OF PLASTER-SOAKED FIBER

The plaster forms had been built one against the other, therefore their joints were as tight and fitted as nicely as two reunited fragments of a broken dish. In order that the plaster casts might unite perfectly, the glue molds from which they were taken, conformed, necessarily, to the dimensions of their forms. The shrinkage of the solidifying glue left a narrow, unrecorded margin along the upper edge of each section of molds, an inaccuracy that was easily overcome by adding a low rim of plaster to the top of each series of forms. When filled with glue, these enlarged forms produced molds that were slightly wider than those desired, but the excess was easily



FIG. 33.—Retouching a section of the cast of a tall monument.

removed with a knife, leaving the glue molds flush with the original edges of their forms and assuring perfect joints when the sections should be finally united.

Each morning at daylight the glue molds poured the previous evening were lowered from the monument and prepared for casting. Great care was taken to protect these molds from even the early-morning sun, since only a few moments' exposure served to soften and melt the impression. The molds, supported by their respective plaster forms, were first dusted with French chalk, to remove any adhering grease, then thoroughly brushed with a saturated alum

solution. This liquid required, on an average, about one hour for complete evaporation, but it always left a thin coating of alum that hardened the surface of the glue molds and aided materially in protecting them from the heat generated by the setting of the plaster composing the casts. The mold surfaces were lightly oiled with stearine and kerosine before applying the plaster.

The casts were made by covering the oiled surface of each glue mold with liquid plaster, the thickness of which varied in direct proportion to the size and irregularity of the mold. Wooden braces and hemp fiber, imbedded in the plaster, increased the toughness of the casts and lessened the possibility of their warping and breaking.

Each horizontal section of the stelæ, or upright monuments, consisted of four casts which were usually united before being separated from the glue molds. Since the plaster forms were made in close conformation with the outline of the monument, their corner angles were known to be exact. By matching these corners and uniting the four parts of the newly-made plaster cast while they still rested against the glue molds and their supporting plaster forms, the angles of the cast could be made as perfect as those of the stone whose inscriptions it reproduced. Any other method would have required numerous measurements and much care in using them. Our way merely necessitated uniform setting of the plaster composing the detached parts of the cast and a reasonable amount of speed in joining them, for, even with an alum-hardened surface, the heat of the setting plaster soon melted the glue molds.

The climate was, of course, the greatest handicap under which the expedition labored. We reached Quirigua at the beginning of the dry season, a ninety-day period during which the rains are more irregular and of shorter duration than usual. Available 1914 records for this interval, February, March, and April, show an average daily temperature, as observed on the shaded veranda at the nearest United Fruit Company farmhouse, of 66° at 6 A.M.; 88° at noon; and 76° at 6 P.M. In the small, open space where our work of reproduction was pursued, the heat was obviously higher and more unbearable. Under the intense rays of the sun, not only the nature of our medium but also our personal comfort required a temporary

shelter over the monument being cast. To afford this necessary protection, canvas tarpaulins were drawn over poles that reached above the monument, drop curtains being utilized when driving rain-storms or the afternoon sun threatened the exposed portions of the stone.

Inability to secure cool water for casting increased the difficulties of that important branch of the work, made the setting of the plaster both irregular and uncertain, and required more haste in handling the materials than would otherwise have been necessary. A second vexing problem was encountered in the drying shed where minute worms developed a habit of exploring the interior of our plaster casts. Their prodigious appetites seemed insatiable, and the partial destruction of our season's work was avoided only by frequently exposing each cast to the direct rays of the burning sun.

For shipment, the casts were enclosed in wooden crates and protected with dried banana leaves. The fact that they survived the shock of repeated loadings and unloadings and reached their

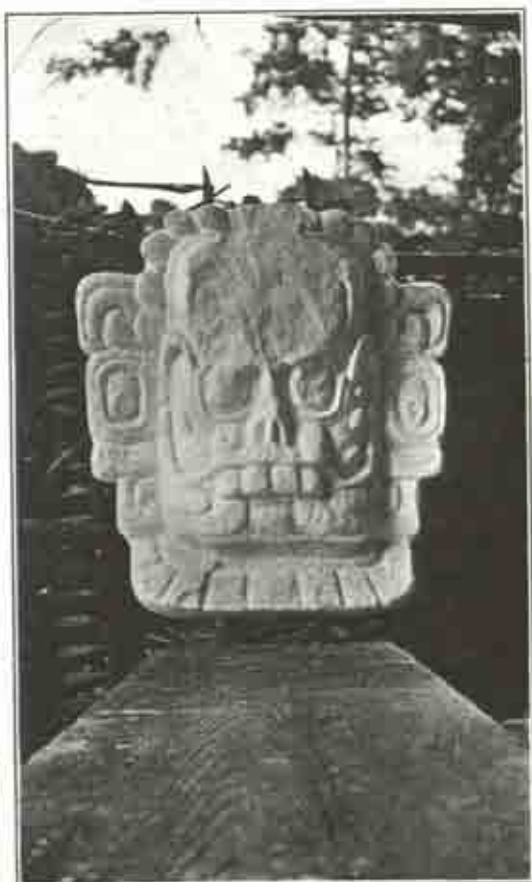


FIG. 34.—Plaster cast of a "Death's Head" from one of the stelae.

destination with very little breakage was due to generous and careful reinforcement rather than abundant packing.

The recent expedition entered the field with no previous experience and but very little knowledge of the use of glue molds. It employed a medium that had been considered impracticable in the torrid zone, but which, at comparatively small cost, has given results far surpassing those secured by any other process. In four months casts were made of six colossal monuments, and each cast, on close examination, will be found to be an exact counterpart of its original, reproducing not only every carved line and figure of the ancient sculpture but the very texture of the stone in which the carving was done. These reproductions are to be installed at San Diego, California, during the Panama-California Exposition, and later will be removed to the halls of the School of American Archaeology at Santa Fe, New Mexico.

UNITED STATES NATIONAL MUSEUM
WASHINGTON, D. C.

INTERGLACIAL MAN FROM EHRINGSDORF NEAR WEIMAR

By GEORGE GRANT MACCURDY

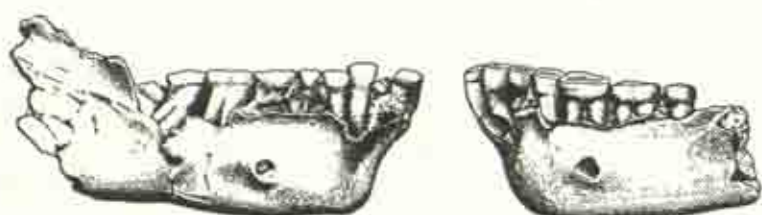
THE attention of prehistoric archeologists has long been turned toward the region of Weimar, Germany, because of important discoveries made at Taubach and Ehringsdorf, both in the Ilm valley. Known since 1871, the station of Taubach (back of the village of that name) was systematically explored between 1876 and 1880. The deposits at Taubach and Ehringsdorf are alike. Their basis is a layer of sand and gravel dating from the third or Riss glacial epoch (Obermaier). Above this is lower travertine with remains of the mammoth and woolly rhinoceros near the bottom, and those of *Elephas antiquus* and *Rhinoceros merckii*, both witnesses of a warm climate, near the top. Next above at Ehringsdorf comes the so-called "Pariser" (corruption from Poröser) deposit, a kind of loess. Higher still is a deposit of upper travertine with remains of the stag and woolly rhinoceros; curiously enough the *Rhinoceros merckii* also occurs at this level.

The human remains in question, consisting of a nearly complete human lower jaw, form the subject of a paper just published by Professor G. Schwalbe¹ of Strassburg. Professor Hans Virchow was to have given a demonstration of the specimen before the German Congress of Anthropology at Hildesheim last August, but the Congress was not held on account of the war. The discovery was first brought to my attention through a letter from Dr L. Pfeiffer of Weimar under date of July 20, 1914. Like much of the archeological material previously found at Taubach and Ehringsdorf, the lower jaw is now the property of the Museum at Weimar. Because of its double association with that city, Schwalbe proposes to call it the Weimar lower jaw.

¹ Über einen bei Ehringsdorf in der Nähe von Weimar gefundenen Unterkiefer des *Homo primigenius*. *Anat. Anzeiger*, Band 47, 337-345, 1914.

The lower jaw was found on May 8, 1914, at a depth of 11.9 m. below the surface in the lower travertine, 2.9 m. below the so-called Pariser loess. It is from the Kämpfe quarry at Ehringsdorf and was brought to light by means of a blast. Under the circumstances it was fortunate indeed that the lower jaw suffered no worse. All the teeth are intact and in situ save the two right incisors (in their place is a small mass of travertine containing a univalve shell). Both halves of the body are practically complete. The right ascending ramus is in part present; although not enough remains to save the mandibular angle, the coronoid and condyloid processes, and the mandibular or sigmoid notch. The left ascending ramus is completely gone.

A number of remarkable features are combined in the Weimar lower jaw. The absence of a chin is doubly emphasized because of the pronounced alveolar prognathism (figs. 35, 36), a condition



FIGS. 35, 36.—Right and left profiles of the Weimar lower jaw. After Schwalbe. (36)

not found in the lower jaws of Krapina and La Chapelle-aux-Saints, nor even in that of *Homo heidelbergensis*. Closely related to the alveolar prognathism is the sloping nature of the inner surface of the jaw in the region of the symphysis, the region called by Schwalbe planum alveolare. In all other lower jaws of the Neandertal type a median line in this field is much more nearly vertical. Below this planum alveolare is a spinous area, but no distinct spines for the attachment of the genioglossal and geniohyoid muscles. Neither is there the customary ridge on the inner surface of each corpus for the attachment of the mylohyoid muscles. The absence of this mylohyoid ridge is even more marked than in the well-known mandibles of the Neandertal type.

The foramen mentale (see figs. 35, 36) is unusually large. It

is directly beneath the first molar (similar to the situation in *Homo primigenius*); while in recent man this foramen is situated farther forward beneath the second premolar. In the Heidelberg lower jaw it is also large, but is situated farther forward than in the specimen from Weimar.

Schwalbe lays special stress on the narrowness of the arch of the Weimar jaw. The breadth between the inner faces of the third molars is 48 mm.; the distance from posterior surface of the third molar to the anterior margin of the median incisor is 69 mm. The index derived from these two measures in the Chimpanzee is 54.6. In the Weimar jaw this index is 69.5; while it is much larger in other known fossil human lower jaws: Heidelberg 75.7, Krapina 80, and La Chapelle 100. Schwalbe admits, however, that the low index of the Weimar jaw might be due in part at least to post-mortem deformation.

The teeth are much worn (fig. 37). Since the premolars are less worn than the canines, one is led to conclude that the points of the canines stood above the level of the premolars. There

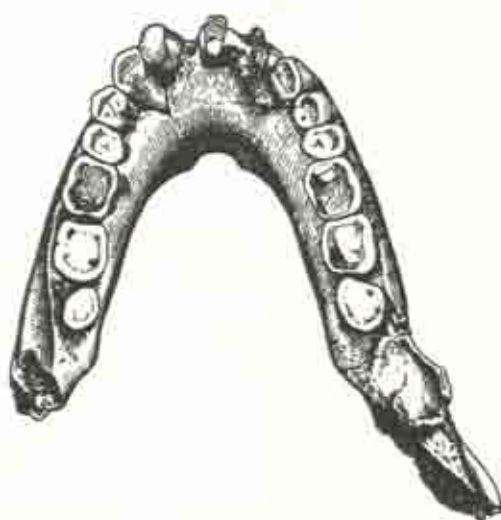


FIG. 37.—The Weimar lower jaw. After Schwalbe. ($\frac{1}{2}$)

is no diastema between the canines and the first premolars. A notable feature is the relative smallness of the third molars. This unexpected condition proves that the tendency of the third molars to disappear is of much more ancient origin than other known jaws of the Neandertal and earlier types have led us to suppose.

Without hesitation Schwalbe places the Weimar lower jaw in the Neandertal group, for which group he proposed some years ago the

name *Homo primigenius*. In the preliminary paper he does not describe the cultural remains found at the same level. He does, however, mention some of the numerous accompanying fauna: *Rhinoceros merckii*, stag, horse, ox, and cave bear. There was also an abundance of charcoal and flint implements, the latter for the greater part apparently retouched points and scrapers.

Two human teeth (one of a child and one of an adult) had already been found in the lower travertine of Taubach. During the summer of 1908 Dr Pfeiffer found human skull fragments in the same deposits at Ehringsdorf.

Both Obermaier and Schmidt consider the lower travertine of Ehringsdorf (the deposit in which the lower jaw was recently found) and Taubach to be older than Mousterian. Although it contains no typical coups de poing, on account of the character of the fauna as well as of the industry, Obermaier would call the deposit of Chellean age. For Schmidt, who has recently published examples of the industry, it is Acheulian.

In any case, all are evidently agreed that the deposit belongs to the Riss-Würm interglacial epoch. In that case, according to one school it might be Chellean, Acheulian, or early Mousterian; according to the school of Penck, it would have to be later Mousterian, since he places early Mousterian during the Riss glacial epoch and the Chellean-Acheulian during the second or Mindel-Riss interglacial epoch.

Whichever view is correct, on account of its anatomical characters as well as the position of the deposit and the nature of the associated cultural and faunal remains, the anthropologist may justly claim for the Weimar lower jaw an antiquity surpassed perhaps only by the skull of Piltdown and the Mauer (*Homo heidelbergensis*) lower jaw.

YALE UNIVERSITY

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CERTAIN FURTHER EXPERIMENTS IN SYNÆSTHESIA¹

By CHARLES PEABODY

IN January, 1914, a questionnaire in the following form was sent to all the members of the American Anthropological Association and of the American Folk-Lore Society:

It has occurred to me that the members of the American Anthropological Association and of the American Folk-Lore Society could possibly help me in the matter of a questionnaire on certain aspects of child study.

Would it be possible for you to furnish me with answers to some or all of the following questions addressed to children of your family or acquaintance?

1. When thought of in a series do the numbers from 1 to 50 form a figure of any definite shape or do they present to the mind a straight line? If a figure, can you set it down; if a straight line, how does it appear? (Please set down the fifty numbers on the paper as they appear to you.)

2. Do the hours of the day, the days of the week, and the months of the year, when thought of consecutively, suggest a straight line, a curve, a circle, or other figure? Will you arrange on the paper the hours, days, and months as they appear to you?

3. Do the letters of the alphabet arrange themselves in your mind in any figure, and if so can you set it down?

Name, age, and notes on the disposition of the child.

The undersigned would be very glad to receive any information as to the ideas of children up to fifteen years, on these subjects and on any others related to them.

Later, an identical questionnaire, with only such changes as made it suitable to those of riper years, was sent to each instructor of Phillips Academy, Andover, Massachusetts, with the kind permission of the principal.

Of the former set, 600 or 700 in number, about 130 were returned with answers; these included about 40 from one member of the

¹ In preparing this preliminary report, it is a pleasure to record my sincere acknowledgments for aid and suggestions to Professor Mary Whiton Calkins, Professor of Psychology in Wellesley College; to Dr Louis N. Wilson, Librarian of Clark University; to Dr Benjamin Rand, Librarian in Emerson Hall, Harvard University; to Dr Alfred E. Stearns, Principal of Phillips Academy, Andover, and to Dr Ernest C. McDougale of Clark University.

American Anthropological Association in Houghton, Michigan, who collected the answers from the school children he was enabled to approach. Deducting these, we have a residue of 80 or more, rising ten percent of the inquiries; this should be considered a good result from a questionnaire issued broadcast geographically and without authority to compel answers.

The general indifference to questionnaires on the part of that class of people supposedly most interested in the subject, may here be noted, as it has heretofore by the author and by one of the most important writers on the subject as well.¹

The response from Phillips Academy has been more remunerative, but many of the answers arrived too late for inclusion. With good fortune it is hoped to obtain a fair report from nearly all the students (more than 500), and that the most interesting experiment especially urged by Professor Calkins, of trying the "persistency of forms" after the lapse of some months, may be carried out.

Mr A. E. Bostwick, Librarian, of St Louis, and others, as well as the author's own researches, bring out a considerable literature on this subject. In the lack of more complete information the interest seems to lag somewhat at present. A few of the more important articles on the subject are appended;² they are more likely to deal with what the French well term "synopsie" than with the very broad "synaesthesia," including color-audition, etc.

Prior to the time of preparation, 160 answers that were of use were received, and there follow a number of summaries of these answers that in great measure are self-explanatory. They are also arranged in such a way as to afford easy comparison with the published summaries of Galton, Phillips, Miss Calkins, and Manouvrier.

¹ Cf. Flournoy, Th., *Les Phénomènes de Synopsie*, Geneva, 1893, p. 12.

² Galton, F., in *Jour. Anthr. Inst. G. B. and Ireland*, 1880-81, pp. 85 ff. Galton, F., Inquiry into Human Faculty, London, 1883, pp. 114 ff. Whiting, Margaret C., in *Pedag. Sem. Clark Univ.*, 2, 1892-93, pp. 107 ff. Flournoy, Th., *Phénomènes de Synopsie*, Geneva, 1893. Patrick, G. T. W., in *Pop. Sci. Month.*, 1892-93, pp. 504 ff. Calkins, M. W., in *Amer. Jour. Psychology*, 1892-93, pp. 439 ff.; *ibid.*, 1895-96, pp. 90 ff. Phillips, D. E., in *Amer. Jour. Psychol.*, 1896-97, pp. 506 ff. Hornbrook, Adelia R., in *Educ. Rev.*, v, pp. 467 ff. Manouvrier, L., in *Bull. et Mém. Soc. d'Anthr. de Paris*, 1908, pp. 384 ff. Pierce, A. H., in *Psychol. Bull.* (reviews, etc.), volumes for 1911, pp. 56 and 157; for 1912, p. 179, and for 1913, p. 118. McDougale, Ernest C., in *Pedag. Sem. Clark Univ.*, 1914.

For convenience, directions have been omitted and the points of the compass used instead as conventionalized on the map.

In the instances, not a few, marked "indefinite," the obvious interpretation is along the line of least resistance, a straight line or a circle, as the case may be.

The bugaboo of receiving false or "faked" answers from the numerous youths who do not take these things seriously has more or less vanished, since study of others' researches has shown how similar are the wildest extremes of a supposititious imagination, and since a little reflection will show that an absolute fake is well nigh impossible. The "faking" mind will again run along the line of least resistance, and any fantastic figure is likely to be the result of a more or less unconscious preëxisting mental picture.

Under "Varia" are reported most of the very interesting figures;

SUMMARY I

	NUMBERS	HOURS	DAYS	MONTHS	ALPHABET
Straight line to north.....	8	3	1	3	0
Straight line to northeast.....	4	1	0	2	1
Straight line to east.....	70	16	51	39	81
Straight line to southeast.....	0	0	3	0	1
Straight line to south.....	19	11	18	18	9
Straight line to southwest.....	0	0	0	0	0
Straight line to west.....	0	0	3	0	0
Straight line to northwest.....	0	0	0	0	0
Straight line indefinite.....	16	5	20	6	14
Broken line to north.....	3	0	0	1	0
Broken line to northeast.....	9	0	1	0	0
Broken line to east.....	3	0	6	2	3
Broken line to southeast.....	1	0	2	2	3
Broken line to south.....	0	0	0	0	0
Broken line to southwest.....	1	0	0	0	0
Broken line to west.....	0	0	0	0	0
Broken line to northwest.....	3	0	0	0	0
Broken line indefinite.....	0	0	0	0	1
Circle, north-east-south-west.....	0	59	5	16	0
Circle, north-west-south-east.....	0	2	4	9	0
Circle, indefinite.....	0	18	7	14	1
Varia.....	19	22	18	20	20
No figure.....	3	8	7	5	12
No answer or wrong answer.....	1	15	14	14	10
Total.....	160	160	160	160	160

as a whole, however, in the summaries, no answer that can be included under any other head is put under *Varia*.

Percentages have been worked out for convenience in comparison with others' work.

In order to determine what is the true proportion of real "forms" and the varying character of these "forms," a few additional tables are presented, showing the proportion of straight and broken lines, circles, etc.

SUMMARY II

	NUMBERS		HOURS		DAYS		MONTHS		ALPHABET	
		%		%		%		%		%
Straight line.....	117	.731	36	.225	96	.600	68	.425	108	.675
Broken line.....	20	.125	0		9	.056	5	.031	9	.056
Curve.....	3	.031	0							
Circle.....			79	.494	16	.100	39	.244	1	.006
<i>Varia</i>	6	.038	22	.137	18	.113	29	.181	30	.125
No answer or wrong answer.....	1	.006	15	.094	14	.087	14	.088	10	.063
No figure.....	3	.019	8	.050	7	.044	5	.031	12	.075
Residue.....	8	.050								
Total.....	160	1.000	160	1.000	160	1.000	160	1.000	160	1.000

SUMMARY III

	NUMBERS		HOURS		DAYS		MONTHS		ALPHABET	
		%		%		%		%		%
Straight line, east and south, and indefinite.....	195	.656	32	.200	89	.556	63	.394	105	.656
Circles, north-east, south-west, and indefinite.....			77	.481						
No answer, wrong answer, or no figure.....	4	.025	23	.144	21	.131	19	.119	22	.138
Remainder.....	51	.319	28	.175	50	.313	78	.487	33	.206
	160	1.000	160	1.000	160	1.000	160	1.000	160	1.000

SUMMARY IV

Unusual figures.....	33	.144	31	.194	24	.150	33	.206	22	.138
Remainder.....	137	.856	129	.806	136	.850	127	.794	138	.862
	160	1.000	160	1.000	160	1.000	160	1.000	160	1.000

COMMENT

The influence of feelings for direction may be instantly seen. Whatever the truth about the causes of visualization, whether with Flournoy we invoke the three types of association or with Phillips refer the phenomena to space concepts, there is not the slightest doubt that the "associations" with arithmetics, spelling-books, and later reading are to be eliminated at the outset.

The proportion of straight lines "east and south" in the whole number is due largely to these associations and memories.¹ If we read as the Chinese, or wrote as the earlier Greeks, "Boustrophedon," the proportion would not be so large. Add to this the unconscious feeling for gravitation, and it seems surprising that there are any linear visualizations other than the horizontal right and vertical down.

That reading is perhaps as potent a factor as the memory of juvenile text-books is seen in the large proportion of the "east" in the sum total of the "east and south" lines for the number and alphabet columns.²

A search in the Harvard and Departmental Educational libraries in Cambridge shows that for the last seventy-five years there has been no rule in printing the numbers and the letters on the page where the children supposedly first see them. They run sometimes horizontally and sometimes vertically, and with the letters sometimes in groups coming under both heads.

A few of the extraordinary geometrical forms associated rarely by the subject with numbers or letters may hark back to the counting by repeated figures or shapes somewhat in vogue at present. This process would surely help a child who is inclined to visualize.

Naturally, in the case of the hours, days, and months, the proportion of straight lines is smaller.

Why the days arrange themselves so much more readily in lines than the months (a percentage of .600 compared with .425) is not clear. Like the expressions "All the year round" and "The revolv-

¹ One hundred and five in 117, 32 in 36, 89 in 96, 63 in 68, 105 in 108, respectively. (The "indefinite" lines are included in the same class as the "east and south," since, if the subjects who simply wrote "straight line" had other directions in mind, they surely would have mentioned that fact.)

² Seventy in 89, and 81 in 90, respectively.

ing year," the month concepts probably have an astronomical basis lacking in the case of the weeks, which are but a part of the less obvious lunar month.

For the hours it goes without saying that the clock-face is responsible for the "circles, N., E., S., W." (48% of the whole). That 52% of the subjects resisted or escaped such an obvious stimulus to imagination is remarkable.¹

It is probable that the "no figures" should be added to the straight-line columns, but these are not many and would change the proportion but little. This should apply to the hours as well as to the other four titles.

In Galton's series of number forms the clock-face was nearly negligible. This is strange, unless it is because the figures on the clock are so often Roman, and do not affect the visualization of the Arabic.

In one of Miss Calkins' summaries,² where the same titles for questions were taken, the proportion of results is different. Of 67 answers we here have, for number-forms—

Straight lines	17
Broken lines	31
Curves	12
Not recorded	<u>7</u>
	67

Some of the discrepancy may be accounted for if, during her investigation (involving many more than the 67 subjects), only extraordinary straight lines were accorded a place in the list of true "forms."

Summary III begins an attempt to get at the relative frequency of visualizations in the more restricted sense. Ruling out all straight lines "east" and "west," and of course all "no figures" and erratic or absent answers, the remainder may fairly be treated as visualizations.³ There is one obvious exception: the normal circle should be excluded in the case of the hours.

¹ The circles marked "indefinite" have here been included with those marked "N., E., S., W." for the reasons given in the recent note.

² *Amer. Jour. Psychol.*, 1892-93, p. 449, summary XIII.

³ The "indefinite" are here treated as before.

After all this is done, we have in percentages:

NUMBERS	HOURS	DAYS	MONTHS	ALPHABET
.319	.175	.313	.487	.206

SUMMARY V

Proportion of Forms by Titles

	FORMS	PERCENTAGE	RANK
Numbers.....	51	.213	2
Hours.....	28	.117	5
Days.....	50	.208	3
Months.....	78	.325	1
Alphabet.....	33	.137	4
Total.....	240	1.000	

Compare this with a similar table from Miss Calkins:¹

	FORMS	PERCENTAGE	RANK
Numbers.....	67	.279	2
Hours.....	5	.021	5
Days.....	30	.208	3
Months.....	73	.304	1
Alphabet.....	45	.188	4
Total.....	240	1.000	

Compare also with a less complete result by Phillips:

	FORMS	PERCENTAGE	RANK
Numbers.....	147	.351	2
Week.....	34	.082	5
Month.....	114	.512	1
Alphabet.....	23	.055	4
Total.....	418	1.000	

In all three tables the order is the same—months, numbers, days, and alphabet, with the hours (omitted by Phillips) coming in fifth in Miss Calkins' and the writer's results.

In spite of the different gathering ground of Miss Calkins' questionnaire and the present one, the proportion of day-of-the-week forms is exactly the same.

¹ Op. cit., p. 440, summary II.

The total number of forms considered (240) in the two tables is the same, but this is a pure coincidence.

A more rigid classification of the replies received is seen in the next table.

In studying the returns, notes or copies of the more extraordinary visualizations were set down. A few of these may be included under the more ordinary titles heretofore given.

SUMMARY VI

Proportion of the More Striking Visualizations

	NUMBERS		HOURS		DAYS		MONTHS		ALPHABET	
		%		%		%		%		%
Visualizations.....	23	.144	31	.194	24	.150	33	.206	22	.138
Remainder.....	137	.856	129	.806	130	.850	127	.794	138	.862
Total.....	160	1.000	160	1.000	160	1.000	160	1.000	160	1.000

This table gives the relative order of months, hours, days, numbers, and alphabet. The first holds its place, while the hours come up and the numbers go down and the days remain the middle term.

When it comes to the problem of determining what proportion of individuals visualize, results are difficult to obtain.

It is hard to frame a questionnaire in such a way as to elicit all one knows without suggesting answers; it is hard to overcome an absurd but natural shyness in those who visualize and to persuade those who do not that there is anything in it.

With all the good will in the world, neither child nor adult can describe at the first all he knows, nor does he know all there is to say about himself until he has examined himself very thoroughly.

In many cases of tridimensional forms, children do not know how to express themselves, and an interesting form will be reported as "just a straight line." An approximation to the proportion of those having forms may be made, however.

Of all the answers, 160 in the aggregate, 74 (or 46%) contained a form of some sort and 23 (or 14%) had number forms.

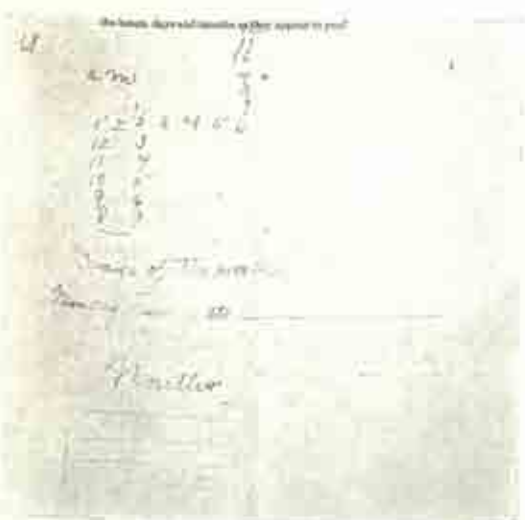
As it is hoped that the Andover answers are as yet far from all in, a fairer proportion may be found by omitting the 39 Andover answers. Of the 128 that are left, 54 (or 42%) have forms.



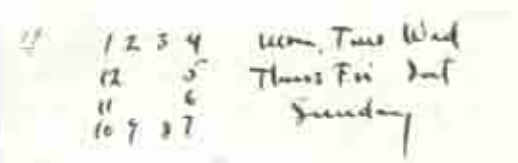
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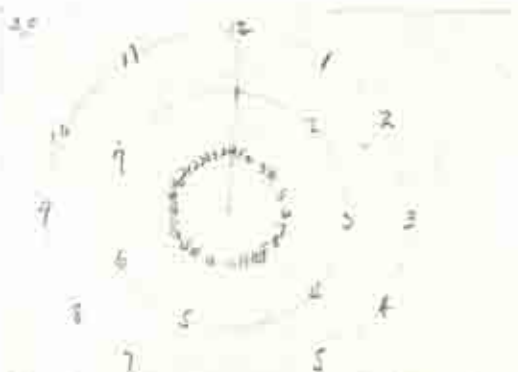
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18

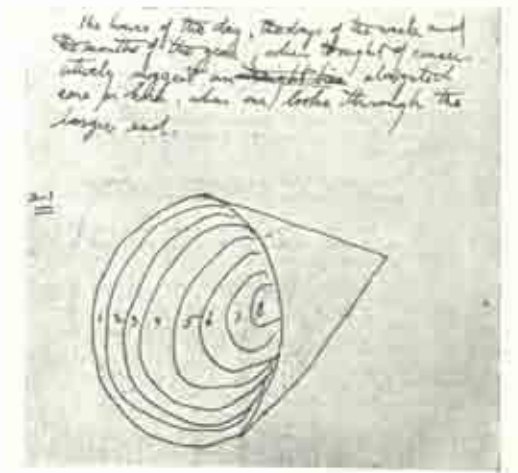


19



20

The inner circle represents the hours of the day the next outer circle represents the days of the week the outer circle represents the months of the year. Every 24 hours a revolution of the smaller circle, the next circle moving one space representing a day. Then when the smaller circle revolves four times, more or less according to the month of the year, the larger outer circle moves one space.



21

Of course, to obtain the 128 answers and the 54 forms, about 700 circulars were sent out. If it is assumed that all who did not answer were not endowed with any forms at all, the proportion is 54 in 700, or about 8%. But this is not the case. Indifference, carelessness, and lack of opportunity let slip many instances where forms could have been recorded.

The 42% is entirely too high, as would be any ratio derived from positive answers; the 8% is too low. The mean of these is 25%, and this may represent a general average of the number of those who possess some definite visualization in space of at least two dimensions under the five titles indicated.

Results obtained by other investigators vary considerably; they are not, however, based always on the same number of types of visualizations. Galton's ratio, in his paper on number forms, is much less than 25%. Flournoy gives about 11% for "visual schemes"; Phillips gives 7% for number forms. Miss Calkins gives several ratios, of which the mean is about 28% for forms; and Phillips again thinks that "all have some idea of the extension of number."

To sum up, 25% is probably too high, but not very much so for the proportion of those who possess forms of some type. There are many others that could be inquired into, and some of them have already been studied—years, centuries, colors of the spectrum, parts of speech, etc.

More interesting is the fact that many who have no forms under one title may possess several under others. The following table will bring this out.

SUMMARY VII

Subjects with all possible (five) forms.....	2	or	10 forms
Subjects with 4 forms.....	4	or	16 forms
Subjects with 3 forms.....	19	or	30 forms
Subjects with 2 forms.....	19	or	38 forms
Subjects with 1 form only.....	39	or	39 forms
Subjects with 0 form.....	86		
Total.....	166 with 133 forms		

From the subjects with but a single form to those with all, there is almost an exact geometrical progression with a ratio of one-half. This is rather striking, and not at all what one would expect. The rate of diminution should, it would seem, be more rapid.

Besides the general observation we have seen, a few particular instances may be noted.

In the answers on numbers, emphatic numerals which may or may not have some logical connection with the subject or a related object are not infrequent; the same is true of the alphabet, and in lesser degree of the other titles where the chronological position of the observer is of considerable moment.

Tridimensional concepts, perspective, "away from the individual," "straight out and then down," or "to a vanishing point," are not common, but are found under all five headings. They are probably much more numerous, as observed above, than is set down in the imperfect expressions of the subjects.

One correspondent reports numbers as representing historical scenes. This is unusual, whereas personality and, still more, color ideas are far from uncommon. It seems impossible, from what the writer reads and feels, that there should be many without some color scheme for the objects of the sister senses.

In the series under hours, of the answers in the form of circles N., E., S., W., 56 (or 95%) begin at the north, or top, as do the hours on the clock.

The ordinary visualization of the days of the week in a straight line to the east and south presents some variety in the opening day.

SUMMARY VIII

Week beginning on Sunday.....	17, or 25%
Week beginning on Monday.....	44, or 64%
Week beginning on Saturday.....	1, or 1%
Week undetermined.....	7, or 10%
Total.....	69, or 100%

Of the more normal series of the months (i. e., straight lines E. and S., and circles N., E., S., W., and N., W., S., E.) the figures run:

SUMMARY IX

Months beginning with January.....	67, or 82%
Months beginning with September.....	1, or 1%
Months beginning undetermined.....	14, or 17%
Total.....	82, or 100% ¹

It may be of interest to state that the only clear visualization of the writer is that of the months which begin with January at the

¹ In Summaries VIII and IX the indefinite is not included.



bottom of a circle running s., e., n., w., or contrary to the hands of a watch.

The practical question as to whether use can be made in pedagogy, or in calculation, memorizing, or recitation, of the forms, seems in a fair way of being settled in the affirmative.

Miss Calkins reports a slight preponderance of "not useful" answers, but, as has been pointed out, that is not equivalent to "detrimental." Mlle Diamandi uses her scheme as a kind of frame for her weird and abnormal calculations (see Manouvrier's article), and visualization is of immediate use to one clergyman who was good enough to answer the present questionnaire: "I think, calculate, think of history, dates therein, etc., practically wholly in mentally visualized words and figures—remembering passages in books, the Bible, sermons from typewritten manuscripts, etc., by mentally seeing the words and then simply reading them off."

The faculty of visualization seems quite normal. To be sure, one of the two subjects who sent in five figures is marked by her teacher as "peculiar," but beyond this the present series permits few generalizations. Whether a dull stupid subject would be likely to abound with results may be doubted. The faculty is one of intelligent healthy nature.

APPENDIX

Figures 1-5 and 6-10 are given not because of any inherent interest but to give the complete picture of the forms under all five titles as seen by the subjects.

Figure 11 (given by the writer's third daughter) is remarkable for the peculiar angles at the breaks, for the breaks themselves which do not follow any decimal or duodecimal rule, and for the separate, floating line of figures 41 to 49.

Figure 12 has decimal breaks, but is a good example of the rare northwesterly direction.

Figure 13 acts like a boomerang cavorting in scallops; very rare.

Figure 14 is altogether extraordinary; it looks as if suggested by an astronomical plan of stellar orbits, with the ego as the sun.

Figure 15, with the rare northwesterly resultant, has no rule for the breaks whatever; the writer's young friend who showed him this scheme is responsible thereby for the whole investigation.

Coming to the hours, figure 16 presents a vertical ellipse which, however, contrary to custom, is not closed.

Figure 17 is not illogical; the slow ascent to noon and the rapid descent to midnight may represent a working day.

Figure 18 is quite illogical and presents the phenomenon of crossing lines.

Figures 19 gives the hours in a square, certainly not suggested by the ordinary clock.

Figure 20, with the hours, days, and months revolving in concentric circles, is self-conscious but convincing.

Figure 21, "a cone looked at from the larger end," is unique.

Figure 22 seems also of astronomical provenance; the division into day and night equally is not uncommon.

Days: Figure 23, heptagon arranged contrariwise to the hands of a watch is certainly ingenious. Likewise figure 24, seven squares arranged like a Chinese puzzle.

Figure 25 smacks a little of the kindergarten, but is probably quite authentic and original; it is unique in this series.

Figure 26, one of the few closed curved day-forms, also runs contrary to the hands of a watch.

Figure 27, with the days principally on one side of a circle, is described as "constantly turning."

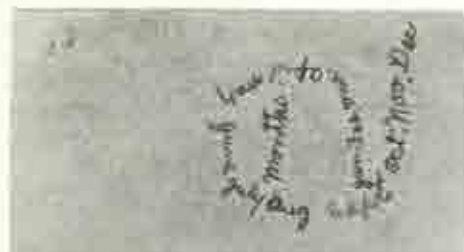
Figure 28, with the days mostly on the left of a circle, has a large lacuna between Sunday and Monday; this may be due, as is the great number of weeks beginning on Monday, to the school work which begins on that day and between which and the joy of Sunday there is a great gulf.

Months: Figure 29, a small spiral, projects December into space toward the northeast.

Figure 30. The months appear as steps mounting strangely to the northwest, with a figure on the top, at December. "Months represented as people coming down stairs." Something like this is given by Flournoy (fig. 73, p. 173), but the steps ascend normally to the northeast.

In figure 31 the point of view, probably the ego, is shown asymmetrically within an extraordinary polygon. Interesting.

Figure 32 is similar, in a way, to 30. The months which oppose the hands of a watch are of varying lengths.



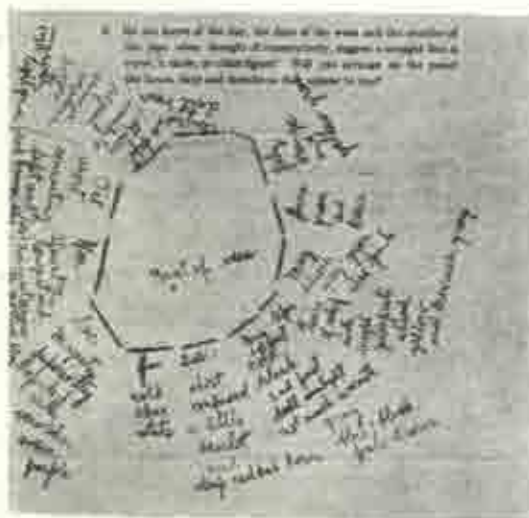
29



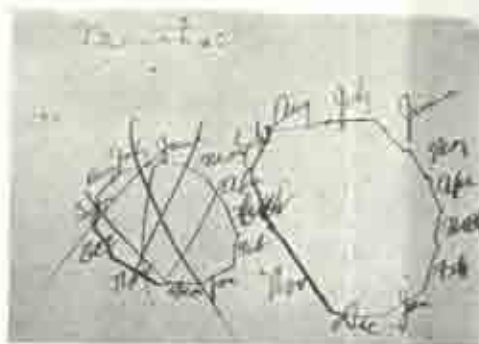
30



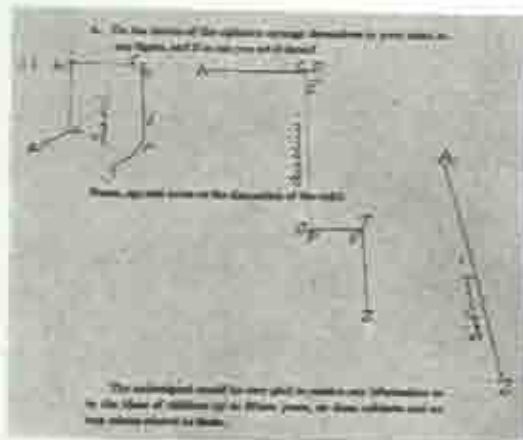
35



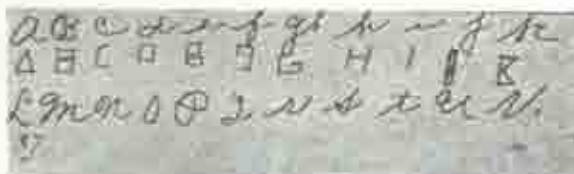
31



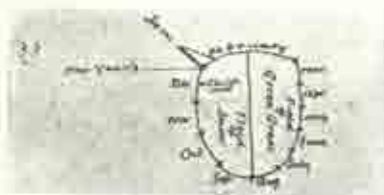
32



36



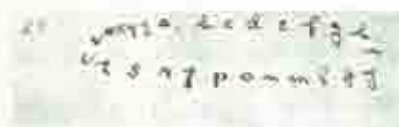
37



33



34



38

Figure 33, shield-shaped, with January stuck on at the northwest and its color values, is quite different from the others.

Figure 34, partly a parabola, resembles figure 13 in its scalloped edges.

Alphabet forms are not so striking as the others. Figure 35 shows the letters in lines that turn at unusual obtuse and acute angles.

Figure 36 seems to have no reason for its existence; it may be described as a freak.

Figure 37 looks like a child's semi-joke like play-words which have an assonance with the real.

Figure 38 is a rare form, more or less elliptical with the spacing of the individual letters very irregular.

In general, these examples will show the character and the variety of the true "forms"; many are and will be published, but there will be few duplicates.

PEABODY MUSEUM, HARVARD UNIVERSITY
CAMBRIDGE, MASSACHUSETTS

BOOK REVIEWS

Essays and Studies Presented to William Ridgeway . . . , Disney Professor of Archaeology and Brereton Reader in Classics in the University of Cambridge, Fellow of Gonville and Caius College, on his Sixtieth Birthday, 6 August 1913. Edited by E. C. Quiggin, M. A., PH.D., Fellow of Gonville and Caius College. Cambridge: University Press, 1913. Pp. xxv, 656.

Among the pleasant customs which come to us out of the German land is that of commemorating the professor's "feast day," when the loving pupils and admiring friends of some venerated teacher gather with him around a generous table on his natal anniversary, to listen, between courses, to toasts and poetic eulogies in honor of the occasion, and at the close to lay at the feet of the master, each one a chip from his own special research workshop as a contribution to a memorial volume to be published later. Among the most recent and interesting of these is the volume now under consideration.

Professor William Ridgeway was born in Kings county, Ireland, in 1853; educated there and at Trinity College, Dublin, and later at Cambridge; became Professor of Greek in Queen's College, Cork, in 1883, and Professor of Archaeology at Cambridge in 1892, which position he still occupies; besides having filled for various periods the office of University lecturer on Natural Religion, Art, and Irish Archaeology, and served as President of the Royal Anthropological Institute, and of the Anthropological section of the British Association, as well as of four different Cambridge University societies. His numerous published works are of corresponding variety.

The volume comprises fifty papers by as many authors, whose names might serve as the honor roll for anthropology and classical research in Great Britain and Ireland. A fine portrait of Professor Ridgeway faces the title-page, and a very full index at the close facilitates reference. An initial poem by Professor Godley of Oxford, a compatriot of Ridgeway's, is a delicious bit of satire on the vanity of passing theories and equal to our own Autocrat at his best. We forbear to mutilate it by quoting a fragment, as it must be read entire to get the full flavor. Professor Harrower of Aberdeen follows with a eulogy in Greek verse.

I

Confess, ye studious! who with eager zest
 Read, mark, and learn, and sometimes e'en digest,—
 Confess, ye learned, who your hours devote
 To scorning Mommsen and neglecting Grote,—
 Whate'er the bliss, *origines* to trace,
 To guess at Time, and speculate on Place,
 Our rude forefathers, with their narrower view,
 Were less distracted by the Past than you.
 In happy ignorance their days were spent:
 They had no inkling what Pelasgians meant:
 For them, Greek History spread its simple store.
 They knew their Hellas, and they knew no more,—
 The blue Aegean in that age of peace
 Held nought for them but Histories of Greece:
 The mythic hero and the fabled sage
 Were still Athenians of a different age,—
 Minos was Pericles in embryo,
 And Rhadamanthus judged in *δίκη*.
 E'en when Max Müller, celebrated man!
 Conceived the Past upon a different plan,
 Divulged the fact,—and pleased the world therewith,—
 That Agamemnon was a Solar Myth,
 And first presented to our mental view
 The glorious certainty that nought was true,—
 E'en then each legend howso'er designed
 Was still a figment of the Grecian mind:
 No part of dim antiquity but it
 Was made, or fancied, by Hellenic wit.

II

Where ancient scholars all unskilled to seek
 Knew but the country of the classic Greek,
 That world of Hellas now we see at last
 A transient phase, a moment in the past:
 We view the Grecian in his proper place,
 Heir to the legends of some alien race:
 With eyes to see, with genius to impart,
 Childlike in wonder, half divine in art,
 Clothing with random fancies of his own
 The mighty relics of an age unknown:
 Though but for him the world had ne'er been taught
 How Minos ruled and great Achilles fought,

Yet this great Fact transparently appears—
 That (save the trifling accident of years)
 We to Antiquity are nearer far
 Than Hellas was,—at least, Professors are;—
 For as to Crete, whate'er's revealed or hid,
 Berlin knows more than Athens ever did.

III

Far from the Greek our modern scholars roam:
 They trace the shy Pelasgian to his home:
 With names of fear the startled world resounds,
 Pre-Hittite pots and post-Minoan mounds:
 As Homer's heroes in a mist concealed
 Deal blow on blow, while darkness veils the field,
 So battle still 'mid prehistoric mists
 Ethnologists and Archaeologists,
 Where shifting vapours show their endless quest
 Glimpses of empires, and conceal the rest.
 What mighty deeds are perpetrated there!
 Programs and Theses hurtle through the air:
 Exploded creeds and doctrines newly slain
 Rise from the slaughter and contend again:
 Unhoped-for data realms unknown create,
 And History's course is altered while you wait:
 None wins, none loses in that endless fight,
 Where none is wrong, since none can e'er be right.

Perchance some digger in a site forgot
 Constructs new nations from a Delian pot,—
 Not long he triumphs, ere the vast design
 Is dashed to dust by one emended line!
 What though the student whom such themes attract
 Pines for an ounce of undiluted Fact?
 Why ask for more? he sees with pleased surprise
 Potential vistas hid from earlier eyes,
 And knows as much,—be this his comfort still,
 Of Fact unquestioned—as his grandsons will.

IV

'Tis well to find what all acknowledge true:
 Yet, *that* once stated, what remains to do?
 Grant Truth historic by the world received,
 Like Euclid proved, like Holy Writ believed,—

Could sages drop their acrimonious pens
 To sport like children on each others' dens,
 No more each rival's theories destroy,
 Accept *one* doctrine for the tale of Troy,—
 What then remains, when everyone agrees,
 For learned men in Universities?
 Dull were the world, intolerably flat:
 Yet, Heaven be thanked! there's no great fear of that.
 Small fear of that! While wild researchers strive
 How $2 + 2$ may best amount to 5,
 Yet are there those who broadly can survey
 The mightiest movements of a distant day;
 Who trace those nations to their earliest home
 That fought at Ilion and that founded Rome:
 Who, while a lance (or head) remains to break,
 Seek the large issue, and the nobler stake;
 Of tedious pedants though the world be full,
 While RIDGEWAY lives, Research can ne'er be dull!

The scientific papers are classified under the subdivisions of "Classics and Ancient Archaeology," "Medieval Literature and History," and "Anthropology and Comparative Religion," each paper being a concise but new and valuable contribution to the subject under discussion. Among those of wider interest under the first categories may be noted—Conway, *The Structure of the Sixth Book of the Æneid*, an interpretation of the Vergilian concept of the under-world; Gow, *Elpis and Pandora in Hesiod*, reversing the commonly received theory; Harrison, *Sophocles' Ichneutæ*, in which certain Greek vase designs are interpreted as representations of ancient subterranean dwellings; Moulton, *Notes on Iranian Ethnography*, embodying some new ideas of Aryan migration; Macalister, *The Colophon in the Lindisfarne Gospels*, in which he demonstrates the Irish origin of the work and assigns both it and the celebrated *Book of Kells* to the ninth century; Mawer, *The Scandinavian Kingdom of Northumbria*, based on a study of place names; Chadwick, *Some German River-names*, the latest contribution to the disputed question of Celtic versus Teutonic occupancy in ancient Germany; Bergin and Quiggin, two annotated Gaelic Irish historical poems of the fourteenth and thirteenth centuries, respectively.

In the category of anthropology and comparative religion the following papers are of special interest in connection with the problems of prehistoric man in the British islands and the origin and inspiring impulse of the megalithic structures of western Europe, namely, Dawkins,

The Settlement of Britain in the Prehistoric Age; Duckworth, The Problem of the Galley Hill Skeleton, in which he argues against its antiquity; Rivers, The Contact of Peoples; and Smith, The Evolution of the Rock-cut Tomb and the Dolmen, in which the author takes the ground that dolmens and chambered burial mounds wherever found throughout the eastern continent, from the great mound of New Grange even to far Japan, are directly or indirectly traceable to early Egyptian influence. Other notable contributions are Thurston, The Number Seven in Southern India; Joyce, The Weeping God, with some illustrations drawn from primitive America; Frazer, The Serpent and the Tree of Life; Wright, The Mandible of Man from the Morphological and Anthropological Points of View; Myers, The Beginnings of Music.

Professor Tyrrell of Trinity College, Dublin, closes the list with *Versus Eupolidei*, a selection from the Biglow Papers done into Greek.

JAMES MOONEY

Populations Primitives de la Mongolie Orientale. R. Torii et Kimiko Torii. (Journal of the College of Science, Imperial University of Tokyo, March 29, 1914, Vol. xxxvi, art. 4, pp. 1-100, map, 12 plates, 75 figures.)

The authors, M. and Madame Torii, have made several trips to eastern Mongolia and sojourned there for about two and a half years, studying the life, customs and manners, and physical characteristics of the inhabitants of that region from an anthropological point of view. At the same time they engaged in exploration of the numerous archeological remains of the aborigines known by the name of Tong-Hou, now extinct, or at least transformed; to a description of these people the monograph is chiefly devoted.

In a preliminary chapter the authors quote at length the traditions and legends of the Chinese historians and the present inhabitants of Mongolia, as well as the opinions of modern scholars, from Abel Rémusat, the first scientific explorer of that region, to E. Chavannes and J. Deniker, about the aboriginal Tong-Hou. Their own conclusion is that if the Tong-Hou "were not the forefathers of the present inhabitants, they were certainly their great-uncles, that both were of the same race and origin, with the same physical and moral characteristics."

After a survey of the geographical distribution of the many ruins (fortifications, blockhouses) and stations of the ancient Tong-Hou, the archeological finds made in these are described in detail. They consist of stone and bone implements, pottery, iron scoria, bronzes, jewelry, and glass beads. None of these remains go back of the Neolithic stage of

culture, as in fact the whole Far East (China, Japan, Mongolia, Manchuria, and Korea) has so far not yielded any remains of the Paleolithic period. Among the stone implements there are a large number of polished and chipped flint axes; semicircular or lunate-shaped knives with two holes near the dull edge, identical in shape with those found in this country, as well as with the so-called "women's knives" of the Eskimo; "razors," i. e., oblong, slender, sharp flakes and scrapers; perforated round hammers; spear and arrow heads, and perforated stone beads. Of bone and horn artifacts only a few fragments were obtained. On the other hand, the products of the potter yielded a large harvest. The illustrations of examples of pottery decoration fill eight plates, aside from numerous figures in the text. The process of manufacture is described as that of the "Mexicans," that is, by first forming the bottom of the vessel and then building the walls by successive clay coils until the desired height was attained, when the vessel was polished by means of pebbles or with the hand. The authors give also numerous illustrations of the shapes of the vessels and of their handles. With regard to the latter, it may be worth while to mention that the handles of the pottery found on the confines of Laopa-Mouren suggest the form of a bovine horn. A similar specimen can be seen in the National Museum collection of antiquities from Troy. The figures on the decorated pottery are geometrical, consisting of dots, lines, and circles, pressed into the still soft clay either with a point, a mold (*petites raquettes en bois*), or cords and netting. The few bronzes described and illustrated represent the usual specimens, such as spear- and arrow-heads, buckles, etc.

The monograph exhibits considerable familiarity with the European and American literature related to the subject; but the authors preserve their independent judgment based on their investigations and observations. Altogether the paper is a careful, conscientious, and valuable contribution to the anthropology and ethnology of the complex of races and peoples occupying those vast stretches which pass by the name of the "Far East" and which are of steadily growing importance to Americana.

I. M. CASANOWICZ

Lehrbuch der Anthropologie in systematischer Darstellung, mit besonderer Berücksichtigung der anthropologischen Methoden. Für studierende Ärzte und Forschungsreisende. Von RUDOLF MARTIN. Jena: Gustav Fischer, 1914. 8°, pp. xvi, 1181; 460 text figures, 3 plates, 2 charts.

In a science which, like Physical Anthropology, depends on accurate measurements and systematized observations, progress may be aided very

materially by handbooks which give definitions of terms, regulation of methods, and a summary of the history and of the contemporary knowledge of the branches with which they deal. But such guides should be accurate, comprehensive, impersonal, and impartial; they should also be written in a clear, erudite style, not be entirely dry and still contain nothing superfluous, be amply and yet not excessively nor crudely illustrated, and be provided with a bibliography as well as an index. Also the book should not be unwieldy, that it may be carried conveniently by the field-worker. How far does the work at hand fulfill these requirements?

It is a work on which one of the most competent of anthropologists, with a number of able assistants, have spent many years, though much of the delay in publication was due to the author's ill health. It is also a work which endeavors to deal satisfactorily with an extensive, ramified field and literature, a field in which modern regulation of methods is very recent and still imperfect.

A review of the volume shows that Dr Martin has to a great extent overcome the difficulties in his way and produced a book of much value. For twenty-nine years anthropologists were aided and guided in a large measure by the handbook of Topinard, a monumental work for its time;¹ they will now gravitate toward Martin's *Lehrbuch*, which in many respects might be said to be Topinard brought to date; yet the new cannot and will not wholly supersede the older work, with its charm of text and illustration, and wealth of data.

Students of anthropology will be greatly indebted to Dr Martin for furnishing them with the handbook that bears his name. Nevertheless, the work, even though approached with the kindest feeling, is not felt to be completely satisfactory. It does not wholly meet the expectations, which were probably beyond what could be realized at this advanced and in many respects unsettled stage of our knowledge.

In the first place the book, as was Topinard's, is too bulky, and might have been divided with advantage into two volumes, one dealing with the living man and the other with the skeleton. This would have facilitated the carrying of the needed part on expeditions, leaving the other, of little service in the field, for use in the laboratory.

The illustrations, while excellent in the main, in the photographic reproductions are not always satisfactory as to clearness; and the presence of photographic reproductions of male figures in "the altogether" will probably be found objectionable by some students.

¹ Topinard, P., *Éléments d'anthropologie générale*, Paris, 1885, pp. xv, 1157; 229 figs., 5 plates.

In the section devoted to anthropometry of the living, the methods of holding the instruments, as shown in the illustrations, are in some cases awkward and not always precise. In the figures on page 169, showing measurements of the ear, the shaft of the instrument is not applied parallel and transverse, respectively, to the long axis of the ear; the use of the compass in measuring the nose, as shown in figure 47, does not merely indicate a wrong position of the nasion, but the method shown would prevent one from obtaining the measurements in many cases where the septum is descending; the position of the nasion in figure 37 (face view) is higher by three mm. than it is in figure 38 (side view) of the same dimensions; the eye-color tablet on page 193, in black and white only, is of no use except as a possible advertisement; and one looks in vain for illustrations of some of the excellent instruments of French manufacture.

As to the intrinsic value of the text, only a careful perusal of the work can show all the lights and shadows; the lights, however, are evidently and fortunately greatly in excess. It is readily noticeable, nevertheless, that the book is predominantly a German textbook, as it probably was intended to be; that personalities have not been successfully eliminated; that credit is not always given explicitly or where it properly belongs; and that American anthropology has received rather scant attention—a lack which, however, in recent years, is only too common in European publications. The general part of the work, which includes many important subjects, such as historical data, classification of the primates and man, human chronology, etc.; and part B, which deals with more general anthropological matters, are not elaborate enough for the professional anthropologist. In the sections devoted to mathematical analysis and graphic representation one misses an explanatory and critical treatment of these important matters. And in the remainder of the book the working anthropologist will often miss something that would engage his attention and stimulate thought and inquiry.

Notwithstanding the above criticisms, all of which are made in the fairest spirit, Dr Martin's handbook deserves to be recognized as the best modern work of this nature, and it will surely be used extensively. It is hoped that it may reach a second edition and perhaps further editions, thus affording opportunity for improvement; but whatever alterations may be made, it would seem bound to remain somewhat cathedraic and lacking in warmth. The work probably represents the limit of what can be properly accomplished in this line by a single author. The

future handbooks of anthropology must, it seems, be published in a greater number of parts and by the coöperation of a number of competent and thoroughly experienced specialists.

A. HRDLÍČKA

Die Insel Nias bei Sumatra. Vol. II. Anthropologische Untersuchungen ueber die Niaser. Von DR J. P. KLEIWEG DE ZWAAN. The Hague: Martinus Nyhoff, 1914. Large 8°, 282 pp., map, 118 illustrations, 8 curves, 26 tables.

Dr Kleiweg de Zwaan, whose work, in Dutch, on the somatology of the Menangkabau Malays I reviewed nearly six years ago in the *American Anthropologist* (N. S., vol. XI, 1909, pp. 289-291), has published recently, in German, a new and valuable contribution to the physical anthropology and ethnology of Nias, an island off the west coast of Sumatra. These data were also collected in the field by Dr de Zwaan himself, with that painstaking care and thoroughness of which his former work on the Malays bears proof.

This volume, dealing with the somatology of the natives of Nias, is the second of the three volumes of which the complete work consists. The first, which appeared in 1913, treats exhaustively of the medicine and medical lore of these islanders; in the forthcoming third and last volume the craniology of the Nias people is dealt with.

It is obvious that a work like this, with its tens of thousands of anthropometric figures, curves, etc., does not lend itself to a brief review. I can only quote very briefly from some of its principal contents and further recommend the study of this bulky volume to all who are interested in the somatology of the Indonesians. It is worth while.

De Zwaan has divided this volume into eighteen chapters, a bibliography, and an index. The sketch map (scale 1: 300,000) of Nias bears the names of the numerous native villages which the traveler visited during his researches.

Before giving the results of his own observations, the author tells us the legends relating to the origin of the Nias islanders and the opinions of different travelers and writers regarding the ethnogeny and physical characteristics of these people. They call themselves Niha, or Ono Niha, i. e., "men" or "children of men."

De Zwaan measured 1298 male islanders, chiefly after the method of Prof. Rudolf Martin. Of every man de Zwaan took more than forty direct measurements, and he also made minute observations on the descriptive characteristics, not to speak of his many notes relating to the physiology and psychology of these islanders. Nearly 13,000 finger-

prints were taken, besides a number of footprints (pp. 71-87; 146-155). The material thus collected represents an enormous mass of positive knowledge, unequalled in the somatology of the Indian archipelago. The only defect, and a serious one, too, is that no women were measured. Probably acting under the suggestion of some timorous and overcircumspect Dutch Government official, for fear of creating trouble, Dr de Zwaan carefully avoided touching any woman. This lack of positive anthropometric material is somewhat compensated by a brief summary of the principal descriptive characteristics of the Nias women (pp. 117-122).

The color of the skin of the male Ono Niha, determined by von Luschan's *scala*, is generally of a clear yellowish brown, often with a slight reddish mixture, especially on the breast. The evanescent blue spots in the skin of the sacral region were found among some young children. The Nias folklore concerning these spots is related (pp. 66-67). The caruncula of the Nias men is partly or almost wholly covered (*epicanthus, Mongolenfalte*) in 791 cases (pp. 105-106). This is further proof, if such were needed, that Kohlbrugge's assertion, according to which the caruncula among all Indonesians is always uncovered, is baseless.¹ Most of the men with a more or less developed *Mongolenfalte* had at the same time oblique eyes.

Real black hair was not found by de Zwaan. A little more than 60 percent of the male natives had black-brown, 32.44 percent brown-black hair. The remainder had ever lighter or grayish hair. The profile of the nose was perfectly straight in 64.89 percent, concave in 12.11, and more or less convex in 16.20 percent. Only 9.40 percent had no prognathism whatever. De Zwaan recognizes two different types among the Nias population—a coarse, thick-set type, and a fine, slim type. The former constitutes the majority. A third, apparently intermediate type, is probably nothing but a juvenile, passing variation of one of the two principal types (p. 116). As de Zwaan visited the interior of Nias, as well as the coast regions, he was able to distinguish some differences in the bodily characteristics of the Ono Niha. Those of southern Nias, for example, are less small, stronger, and healthier than those of the northern part of the island. Certain anthropometrical differences between these two groups were also found. The average height of stature of all the Nias men is 154.73 centimeters. The tallest man measured 171 cm.;

¹ Cf. Dr A. W. Nieuwenhuis, *Anthropometrische Untersuchungen bei den Dajak* bearbeitet von Dr J. H. F. Kohlbrugge, p. 6 (*Mitt. Niederl. Reichsmuseum fuer Völkerkunde, Serie II, No. 5, Haarlem, 1903*).

the smallest 135. The average length of the head is 18.10 cm.; the average breadth 14.61; the average cephalic index 80.72: slightly brachycephalic. According to R. Martin's classification 10.5 percent of the Nias population is dolichocephalic; 44.5 mesocephalic; 32.35 brachycephalic, and 12.66 percent hyperbrachycephalic. Dolichocephaly is more frequent among the southern natives. The nose index is distributed as follows: leptorrhinean 13 percent, mesorrhinean 70.13, and chamærrhinean 16.87 percent. The average physiognomical facial index is 76.20, the average morphological facial index 81.74. Given in percentages, 6.95 are chamæprosopic, 88.56 mesoprosopic, and 4.49 leptoprosopic.

During his last journey de Zwaan took not fewer than 131 masks in plaster of living subjects. Of these, 67 are of different natives of the Indian archipelago, and 64 of Nias men. These latter are all reproduced in excellent illustrations, and form a valuable addition to the anthropometrical and other data in which this second volume of *Die Insel Nias bei Sumatra* abounds.

H. TEN KATE

Mexican Archaeology. An Introduction to the Archaeology of the Mexican and Mayan Civilisations of Pre-Spanish America. By THOMAS A. JOYCE, M. A. London: Philip Lee Walker, 1914. Pp. xvi, 384. (Price 12s. 6d. net.)

Much is to be said in favor of this work. It comprises seven chapters on the ancient Mexicans, and six on the Mayas, with a final chapter summarizing the whole. It shows considerable sense of balance, and familiarity with the literature, even with that part of it produced in America. For a non-American this latter ought to be recognized as something of an achievement. The illustrations in the volume are excellent, taken in part from W. H. Holmes, A. P. Maudslay, and Teobert Maler, but in much larger part from original specimens in the British Museum. The latter are interesting in the extreme, besides being reproduced in first-rate style. It is a pleasure to meet again in a book of this kind the old drawings by Holmes, which are the most illuminating and genuinely satisfying of anything in the field. Mr Joyce's book also includes a fair number of the old-fashioned cuts from Seler, about which the less said the better. On the whole the illustrations are admirable to an unusual degree. Besides the illustrations, the volume contains some addenda in the form of lists of day and month names, a map showing all the important archeological sites in Mexico and Central America, and a dating chart. The whole book is a conscientious effort to present the available facts concerning American antiquity, after due consideration of all the sources.

The dating chart just mentioned will probably be, in the long run, the principal point of attack for critics. This happens in the case of most books which attempt a reconstruction of chronology. Our author has hedged himself about as far as he could with provisos and qualifying statements and sign-boards of various kinds, all to the general effect that his scheme is provisional. The long and the short of it, however, is that he runs history in Middle America back to the year 3643 B. C. Most Americanists would agree that there was a civilization in and around the Central American region at that time. The attempt to make a history concerning the events of this period will probably awaken in many breasts either amusement or a fine scorn. I should say that the principal virtue of this chart, if it has any, is that it presents quite clearly the relation between the Mexican and the Mayan culture. In other words, it presents graphically the information, which is now pretty well substantiated, that there was in a general way a civilization of the Mexican plateau, and another civilization of the more tropical lands to the south, and that the southern civilization was in a general way the older and parent one. The attempt to build chronological history on these facts will, with all the provisos in the world, probably appear to most people as mere mental gymnastics.

Probably the weakest point in this tabulation is the emphasis thrown by the author on the native migration legends of this part of the world. Throughout the book he takes such legendary material almost at its face value. Thus his opening chapter deals with such legendary material, namely the "history" of the Aztecs during their migrations before the founding of Mexico or Tenochtitlan. The author shows inability to grasp the distinction between such migration myths and history properly speaking. Similar migration legends are characteristic of the Pueblo Indians of today. Their story usually starts in the underworld, and the fact that its closing scenes are localized in their present villages does not alter the mythological character of the whole. The portions which deal with the underworld are quite as specific and circumstantial as the parts dealing with later events. Such material as Joyce includes in his first chapter is not Archeology at best, and is not in any sense of the word History until it has been checked by the study of archeological remains. Who has done this for the migrations of the Aztecs? Mr Joyce's emphasis on this kind of thing throws his volume out of focus.

As a matter of fact the whole book should be called Mexican History rather than Mexican Archaeology. The bulk of his material, as in his corresponding book on South America, is drawn from distinctly literary sources.

Another feature of the book is Mr Joyce's utterly unregenerate way of referring to the existence of "kings" in Mexico. No fact has been better established than that this notion of monarchy having existed in Mexico is a late and mistaken one. An examination of the early sources, as quoted, for example, by Bandelier, makes it certain that the Spaniards who destroyed the Aztec civilization themselves reported nothing of the kind. Why should Joyce repeat and re-emphasize this time-worn heresy? It is hard not to be impatient with him when he speaks of the Aztec social order as an organized empire with cities built of stone, and rich in gold and gems (page 1); or pictures Montezuma having a personal service on a scale which surpasses even the Arabian nights (page 27). The Spaniards found at Tenochtitlan essentially what Fray Marcos found at Zuñi—a pueblo, democratic to extinction, its principal executive a war chief, surrounded by the inmates of a communal dwelling. The regal state and the more than Oriental splendor vanish into thin air on close examination of the early Spanish accounts. This belief in thrones and principalities finds expression through the whole volume.

The book has certain inadequacies from the literary point of view. In common with several British authors of the present day, Mr Joyce seems not to know a sentence when he sees one. "Nor is this all. A corresponding series of thirteen lords of the day accompanied the day." This makes good sense. In Joyce's book the two independent sentences are run together (page 64). Such defects of style are fairly frequent. In some portions of the work there is a lack of clearness that seems to be due to something more fundamental than mere awkwardness. For example, his chapter on Mexican theology, which is evidently intended to make a rather complicated matter clear, is positively confusing. I think most readers will agree with Mr Joyce in the idea that this portion of the work is over-condensed. Similarly his chapter on the Mexican calendar is not illumining. In other words Mr Joyce's work is in some respects a "rehash" without being an improvement.

Like every author on the Aztecs, Mr Joyce treats of the famous stone monument which goes by the name of the "Aztec Calendar." Also like the other authors, in diagramming and discussing the symbols, he ignores the fact that there are five dots around the central day-sign, not four. A numeral dot, or what seems to be one, is to be found directly under the "sun face," is regularly so represented, but is not, so far as I know, mentioned by any author. Mr Joyce also conforms strictly to type in the matter of the colossal statue with the serpent garments which is the other feature of first interest in the same National Museum of Mexico.

He speaks of the statue, like other authors, as a feminine figure, oblivious of the apparent fact that one side represents a female, the other a male.

I think the general facts about Mr Joyce's book may be summed up and epitomized in the statement that it is the kind of book which has a good index, but no bibliography. In other words, it is carefully prepared, but not altogether adequate. The work by Dr Walter Lehmann ("Methods and Results in Mexican Research," 1907) to which our author refers us for a bibliography, is absolutely and finally inadequate for the purpose. I believe it is quite impossible to find in it reference to the work of such an authority as Teobert Maler, or to any of the results given to science by Harvard University, or to the really fundamental work of Bandelier. This seems to me to be one of the characteristics of Joyce's book throughout; that it is heavy without being exhaustive.

T. T. WATERMAN

The Making of the Roman People. THOMAS LLOYD. London and New York: Longmans, Green & Co., 1914. Pp. vii, 136. (Price \$1.50 net.)

It is Mr Lloyd's contention that the Romans, or the patricians among them, were descended from the Gallic invaders who, as tradition has it, sacked Rome about the beginning of the fourth century B. C., and, as Mr Lloyd avers, conquered and settled Latium. In support of his conclusions, the author, after a long introduction, devotes half his book to an endeavor to prove that this hypothesis is not in contradiction with known facts, and the other half to a statement of the philological connection between Gaelic and Latin.

The briefest examination of the negative argument makes it clear that the author has not begun to meet the difficulties which his theory raises—principally, it seems, because he does not know them. As to the second part, it would have been necessary to show clearly that it is the Goidelic, as distinguished from the Brythonic and Gaulish branches of the Celtic stock, which bears marks of close relationship with Latin. This, however, Mr Lloyd scarcely even attempts to do. The result is that his tabulations prove only what has been well known for generations, viz., that the Celtic and Italic linguistic families are near akin. And even on this point, the material is better and more fully presented in any manual of Celtic or of comparative philology than it is here.

That anyone should propound a theory of racial origins, which appears notably unconvincing to most readers, is not strange. But it is strange that the author has not taken the trouble to acquire easily accessible information on Roman history, comparative philology, and the development

of Latin,—on most matters, in short, which might tend to prove or disprove his thesis, and it excites legitimate surprise that so ill-considered a book should bear the imprint of a reputable publisher.

To quote a single instance: We read (p. 93) that the *patria potestas* of the Romans was universal among all Aryan-speaking peoples. As a matter of fact, it was an institution which the Romans shared with the Celts alone—a circumstance of which the author might have made a great deal.

On page VI of the preface the following statement is made: "Nevertheless I do not venture to hope that the evidence brought forward will be found convincing by many who have attained a certain age." One is almost tempted to say that Mr Lloyd's diffidence is justified.

MAX RADIN

Die Diluviale Vorzeit Deutschlands. I. Archäologischer Teil, von R. R. SCHMIDT; II. Geologischer Teil, von ERNST KOKEN, Die Geologie und Tierwelt der Paläolithischen Kulturstätten Deutschlands; III. Anthropologischer Teil, von A. SCHLIZ, Die Diluvialen Menschenreste Deutschlands. Stuttgart: E. Schweizerbartsche Verlagsbuchhandlung, 1912. Quarto, pp. xiii, 283; 45 plates, 129 text figures.

Beginning with a review of the eolithic problem in which his conclusions are approximately the same as those of Obermaier (see *Current Anthropological Literature*, II, p. 138), Dr Schmidt passes to a study of the paleolithic period in Germany, region by region, a method justified particularly by the fact that the stations fall easily into four groups that are more or less isolated geographically: Swabian-South German, Southwest German, Rhine-Westphalian, and North German. The various stations of each group are described in detail, beginning with the Swabian-South German region where paleolithic stations are the most numerous and stratigraphically most perfect. Of the nineteen stations in this group the reviewer selects Sirgenstein cave as representative; Primitive man lived here intermittently through the Mousterian (two levels), Aurignacian (three levels), Solutréan, and Magdalenian (two levels) epochs. Remains of the bronze and iron ages are also found capping the paleolithic deposits. Nothing earlier than archaic Mousterian has been reported from this part of Germany.

In the Southwest German group, an older industry, the Acheulian, is noted from three stations in valley deposits: Sablon, Achenheim, and Ruederbach. In the Rhine-Westphalian region are likewise a number of loess stations. From a study of these and of Achenheim, Schmidt con-

firms Commont's discoveries in the valley of the Somme, that the industry of the ancient loess is confined to the Acheulian epoch, while the recent loess contains all later paleolithic cultures: Mousterian, Aurignacian, Solutréan, and Magdalenian.

The North German region is remarkable for the complete absence of the later paleolithic epochs: Aurignacian, Solutréan, and Magdalenian. A single station represents the transition from paleolithic to neolithic times. The best known station of this group is Taubach, which is classed as late Acheulian.

Schmidt's studies have done much to fix and clarify the sequence of faunas and culture epochs. The place of the Mousterian culture is at the base of the recent loess; of the two distinct Mousterian levels one is early (primitive) and the other late (La Quina type). Separating the Mousterian from the Aurignacian is a horizon characterized by *Myodes obensis*, a species of lemming. The division of the Aurignacian culture into three phases (early, middle, and late) is exemplified by the cave deposits at Sirgenstein. Stratigraphically and faunistically the Magdalenian is likewise divisible into three sub-epochs. Of these the first belongs to the horizon of the Greenland lemming (*Myodes torquatus*); it is also marked by the persistence of the mammoth, woolly rhinoceros, and cave bear, none of which, however, appears in the succeeding phase. With the middle and upper Magdalenian occurs *Lagomys pusillus*. In the upper Magdalenian the Arctic micro-fauna is superseded by a more or less distinct woodland fauna; the reindeer is left as the only reminder of the earlier Arctic conditions.

Supplementing the part dealing with German finds are instructive chapters on the development of paleolithic culture (and especially of paleolithic art) in western Europe, whence it spread eastward into and beyond Germany.

In Part II, the late Professor Koken writes most instructively concerning the geology and paleontology of the paleolithic stations in Germany (including also a few in Switzerland). He names seven successive faunal stages: (1) Early Quaternary fauna, of a Pliocene type (not yet found in Germany); (2) Early Quaternary fauna with *Elephas antiquus* and remains of certain Pliocene forms (Mosbach, Mauer, Süsszenborn); (3) Antiquus fauna, with Pliocene forms (Frankenbach, Steinheim a. Murr, Mauer in part); (4) An early fauna of the mammoth, without *Elephas antiquus* and *Rhinoceros mercki* (Canstadt); (5) Later Antiquus fauna with *Rhinoceros mercki*; likewise mammoth, rarely *Rhinoceros tichorhinus* (Taubach); (6) Later fauna of the mammoth,

Elephas antiquus and *Rhinoceros mercki* rare (Rixdorf, Phoebe), first appearance of Arctic rodents, base of the recent loess, lowest level of cave and rock-shelter deposits; (7) *Equus* fauna, mammoth and woolly rhinoceros still abundant, reindeer widely distributed, middle portion of recent loess and of cave deposits; (8) Late glacial fauna, horse and reindeer predominating, second appearance of Arctic rodents among which the Greenland lemming is the most abundant, upper part of recent loess and of cave deposits; (9) Post-glacial fauna, reindeer gone from central Europe, stag predominant, horse still plentiful, transition to woodland fauna.

The fourth fauna belongs either to the Riss glacial or to some minor advance of the ice; the fifth to the Riss-Würm interglacial; and the sixth to the Würm or last glacial epoch. The industrial remains from Wildkirchli caves in Switzerland, Professor Koken would place either near the close of the Riss-Würm interglacial or during the Laufen retreat (a warm phase of the Würm glacial).

In Part III by Dr Schliz there is a correlation of fossil human remains from Germany with those of the rest of Europe. The lower jaw of Mauer heads the list in point of age (Piltdown had not yet been reported). The principal Aurignacian races are represented by Brünn, Cro-Magnon, and Grimaldi, with Combe-Capelle as a cross between Brünn and Cro-Magnon.

In the final chapter Dr Schmidt makes use of the results of his explorations in an effort to solve the problem of a chronology for pre-neolithic times. He feels justified in coördinating the Magdalenian culture and its associated Arctic fauna (Greenland lemming) with the Buhl stage. He is likewise convinced that there was a continuity of Arcto-alpine fauna from the Mousterian to the early Magdalenian. In his scheme the Solutréan epoch would coincide with the Achen retreat, the Aurignacian would extend back to the second maximum stage of the Würm glacial epoch, leaving the Mousterian to cover the Laufen retreat, the first maximum advance, and a small part of the Riss-Würm interglacial. This makes a double provision for a Mousterian with relatively warm fauna. Both the Acheulian and Chellean are placed in the Riss-Würm interglacial epoch, and the lower jaw of Heidelberg in the Mindel-Riss interglacial. Schmidt therefore agrees substantially with Obermaier in the correlation of cultural epochs with the various phases of the Ice Age, admitting however that it is still too early to speak with finality concerning the first part of the lower paleolithic period. There is certainly much to be said in favor of putting the primitive Chellean or pre-

Chellean in the Mindel-Riss interglacial epoch as Penck, Commont, and certain others have done.

The work of Dr Schmidt and his two co-authors is admirably illustrated and supplemented by a wealth of references to the literature.

GEORGE GRANT MACCURDY

Ethnozoology of the Tewa Indians. By JUNIUS HENDERSON and JOHN PEABODY HARRINGTON. Bulletin 56, Bureau of American Ethnology. Washington: Government Printing Office, 1913. 76 pp.

In this paper the authors present a careful study of the zoological knowledge of the Tewa branch of the Pueblo Indians of New Mexico. The material is arranged in the form of a check-list of the fauna of the region, based on their own observations and on the records of other competent naturalists. In all cases where identification is certain the Tewa name of each species is given, together with what information could be gleaned as to its habits and range, as well as the native uses and the beliefs connected with it.

The zoological field-work was carried on principally in the Rito de los Frijoles; identifications and ethnological information were acquired at the Pueblo of San Juan. The choice of ground was, in both cases, singularly fortunate. The "Rito," although only a few miles from Santa Fé, one of the oldest Spanish settlements in the United States, lies in a region as nearly unaffected by civilization as can be found in New Mexico. With the exception of a few of the larger mammals, such as the mountain-sheep and the bear, now rare or nearly extinct, the fauna is probably exactly as it has been for centuries, while the physical aspect of the country has not been altered by farming nor by the denudation caused by herds of cattle and sheep. Furthermore the Rito was once occupied by a considerable prehistoric population who were probably racially and certainly culturally the ancestors of the Tewa.

The Indians of San Juan, like the other Pueblos, have also been much less affected by European contact than would appear at first sight. Having been sedentary agriculturists since long before the conquest, their general manner of life and their ways of thinking were very little disturbed by it, and today, in spite of their veneer of European civilization, they are really much closer to their primitive condition than are the great majority of the North American Indians.

The Rio Grande, with its numerous ancient ruins, its wealth of early historical data, and, above all, its present well-preserved native culture, is an ideal field for anthropological research. The value of each piece of

work done on it is cumulative and the present study adequately complements the numerous other investigations which are being carried on in the region by the School of American Archaeology, the Bureau of American Ethnology, and the American Museum of Natural History. It is not only a good piece of work, it is, what is unfortunately much rarer, a good piece of work in the right place. The information contained in it can and will be used at once by a number of students.

In the text many interesting points are brought out. It is shown that while the average Indian is more thoroughly conversant with his faunal environment than is the average white man, his knowledge falls far short of that omniscience with which he is usually credited. He knows, for instance, the jackrabbit from the cottontail, but does not distinguish between the several species of each which occur in the region. His classification of animals is based on differences rather than on relationships. This last is only one of many statements which point the way toward interesting lines of investigation. Another relates to the superstition, also current among whites, that the porcupine, when angry, can "shoot" his quills. Are there other such common beliefs?

What we need in the present state of our investigations in the Southwest is data rather than conclusions, and of the former we are supplied by "Tewa Ethnozoology" in generous measure. The partnership of trained ethnologist and trained zoologist is a singularly happy one, and it is to be hoped that they may continue their investigations, not only among the Pueblos but also among some one of the nomadic tribes of the region, the Navaho, Apache, or Ute. As the authors suggest, such tribes are more dependent on their animal environment than are the agricultural Pueblos, and their knowledge might differ both in quantity and in kind.

A. V. KIDDER

Die althüringischen Funde von Weimar (5-7 Jahrhundert nach Chr.). Von A. GÖTZE. Berlin: Verlegt bei Ernst Wasmuth A.-G., 1912. Quarto, 72 pp., 18 heliotype plates, 1 colored plate, etc.

In this work of historico-archeological character, Dr Götze makes splendid use of the antiquities in the City Museum at Weimar, that had been found at various times since 1886 in an ancient cemetery within the limits of the present city of Weimar, as well as of specimens from other parts of Weimar and its immediate environs. About half the specimens from this old cemetery are in the Royal Museum of Ethnology, Berlin; these will form the basis for another work.

The grave^s were particularly rich in arms, ornaments, and articles

of household use. The mode of burial was the one dominant during the period in question. In a single instance the coffin was partially preserved and showed that use was made of a tree trunk. The disposal of the grave objects with reference to the skeleton was often such as to throw light on the manner in which these objects were used.

Curiously enough the conquest of Thuringen by the Franks in 531 left no record of itself in this old cemetery which was in use about 100 years before and 100 years after the conquest.

Of special interest are certain inscriptions. On a silver spoon in *Niello* is the word *Basenae*, the name of a Thuringian queen of the fifth century who later became the wife of the Frankish King, Childerich I, and mother of Chlodwich I. Dr Götze was able to decipher a number of runic inscriptions on ornaments, as well as to confirm archeologically historical traditions concerning the relations between the Thuringian royal family and the Ostrogothic King Theodorich. He concludes that Weimar was in all probability the seat of Queen Amalaberga, a niece of Theodorich the Great, and therefore also the residence of the last Thuringian King Hermanfried.

GEORGE GRANT MACCURDY

Kinship and Social Organisation. By W. H. R. RIVERS. London: Constable and Co., Ltd., 1914. (Studies in Economic and Political Science, No. 36.) Pp. vii, 96. (2s. 6d.)

This little book, containing three lectures recently delivered at the London School of Economics and Political Science, should make a special appeal to American students. Dr Rivers here seeks to lift the so-called classificatory system of relationship, discovered by Lewis H. Morgan, out of the discredit into which it has fallen at the hands of critics, of whom Professor A. L. Kroeber of the University of California is mentioned as the most radical and uncompromising. The work, in consequence, bears a polemic stamp and sets forth in strong contrast the fundamental differences as respects *method*, which today divide anthropologists into warring schools.

In a thoughtful article published five years ago in the *Journal of the Royal Anthropological Institute* (vol. XXXIX), Professor Kroeber took the ground that the distinction between classificatory and descriptive systems, as ordinarily stated, is entirely fallacious, since every language—high as well as low—"groups together under single designations many distinct degrees and kinds of relationship" (p. 77). The total number of different relationships which can be distinguished is very large, running up into the hundreds; to enumerate and classify those of different

languages is an idle task; "let us endeavor rather," declared Professor Kroeber, "to discover the principles or categories of thought underlying all terms of relationship." He himself recognized eight categories; one, the difference between persons of the same and of separate generations, another, the difference between lineal and collateral relationship, a third, the difference of age within one generation; and so on. Some languages, such as English, give expression to four categories only; all the Indian languages, on the other hand, express from six to eight categories. According to Professor Kroeber the only scientific way of distinguishing the languages of Europeans from those of less civilized peoples, as respects the method of denoting relationship, is by means of these categories. The conclusion was drawn that terms of relationship, being the results of psychological processes only, afford no evidence as to social organization and marriage. They reflect, not sociology, but psychology. "Whenever it is desired to regard terms of relationship as due to sociological causes and as indicative of social conditions, the burden of proof must be entirely with the propounder of such views" (p. 83). This burden Dr Rivers now assumes.

In shaping his psychological interpretation of terms of relationship Professor Kroeber confined himself to the American evidence. Dr Rivers, in turn, relies chiefly upon the data gathered by him in Melanesia and Polynesia for support of the theory that the origin of the terminology of relationship must be sought in social conditions. Some reference is made, indeed, to South India and North America, but only in the way of additional illustration. By thus limiting his study to matters on which he is a first-hand authority, the author has been able to present his arguments in the clearest and most convincing form.

What, then, in the opinion of the reviewer, has Dr Rivers proved?

First, that in Melanesia and Polynesia definite evidence exists for the association of classificatory terms of relationship with special social functions. Here the presence or absence of these terms seems to be, in fact, largely dependent on whether there are or are not such definite social functions (pp. 14 ff.).

Second, that in Melanesia and Polynesia many details of classificatory systems have been directly determined by social factors, and cannot be explained by psychological similarity. Particular instances are: 1, cross-cousin marriage in Fiji, the New Hebrides, and Guadalcanar, where the systems of relationship are just such, and only such, as would follow from this form of marriage (pp. 22 ff.); 2, the peculiarities of the Banks islands systems of relationship, which are found to be the outcome of a social

regulation requiring the marriage of persons who belong to different generations (pp. 28 ff.); and, 3, the exceptional features observed in the island of Pentecost, where, also, these can be accounted for as the result of particular social regulations (pp. 31 ff.).

Third, that in Melanesia and Polynesia certain features of the nomenclature of relationship enable us to establish the existence of forms of marriage in the past, for which no direct evidence is now obtainable. The particular instances cited by Dr Rivers occur in Fiji (pp. 39 ff.), possibly in Torres straits (p. 44), the Solomons (pp. 45 ff.), and the Trobriand islands (pp. 55 ff.).

Fourth, that in Melanesia and Polynesia certain varieties of the classificatory system are to be referred to the different degrees in which the regulation of marriage by clan-exogamy has been replaced by kinship or genealogical relationship (pp. 60 ff.).

For our purpose it is unnecessary to follow Dr Rivers further. Passing reference may be made to his argument that the main features of the classificatory system, not only in Oceania, but also in Australia, India, Africa, and America, are correlated with a social structure having an exogamous group, the "clan," as its essential unit. He suggests, also, that this system, when found, may point back to an earlier state of organized sexual communism (not "promiscuity"). His book concludes with some interesting remarks concerning the proper place of psychological explanation in sociology.

It is incumbent on those who believe in the importance of the psychological similarity of social phenomena to show in what the supposed similarity consists and how it has come about—in other words, how it has been determined. It has been my chief object in these lectures to show that, in so far as such similarities exist in the case of relationship, they have been determined by social conditions. Only by attention to this aim throughout the whole field of social phenomena can we hope to rid sociology of the reproach, so often heard, that it is not a science; only thus can we refute those who go still further and claim that it can never be a science (p. 94).

HUTTON WEBSTER

Südsee-Urwald Kannibalen. Reise-Eindrücke aus den Neuen Hebriden. Von FELIX SPEISER. Mit 192 Abbildungen und 2 Karten. Leipzig: R. Voigt-Länders Verlag, 1913. Pp. v, 307.

This is a charmingly written account of Dr Speiser's travels in the New Hebrides, Santa Cruz, and Banks islands, which in spite of its popular guise embodies noteworthy contributions to our knowledge of Melanesia.

Of considerable interest, especially in view of recent work in New Guinea, is the author's discovery of a pygmy race in western Espiritu Santo (p. 131 et seq.). To be sure, his find was never in an unadulterated form: in no locality did more than 70 percent of the population represent the pygmy type, and externally they do not differ markedly from neighboring peoples except in point of stature, which averages 152 cm. for the men and 144 cm. for the women. In skin color, however, the pygmies are lighter than the Melanesians, and there is a relatively slight development of the beard. Culturally, Dr Speiser's pygmies display a number of distinctive traits. They cultivate the soil and even practise irrigation, depending, however, rather on taro than on yams. There is no deformation of the body, except for the occasional perforation of the ear-lobe. The arrows, unlike those of the Melanesians, are feathered—a feature very rare in Oceania. In the social life the lack of the sharp separation of the sexes that is so prominent in the home of the *suge* is noteworthy.

Of the last-mentioned institution Dr Speiser gives an excellent account (p. 65 et seq.), corroborating and supplementing Codrington's description and the data recently published by Miss Sebbelov (*American Anthropologist*, 1913, pp. 273-280). The dual nature of the *suge*, its social and religious side, is clearly brought out. It is defined briefly as a union of all men who have sacrificed pigs; membership in it is the sole means of securing social distinction and other-worldly happiness. While the fundamental character of the *suge* remains constant throughout its area of distribution, the number of grades varies from island to island. Thus Codrington ascribes but four ranks to the club in Leper's island (Aoba), but no fewer than a dozen to the organization of Pentecost, where indeed one of the twelve is subdivided into three steps. Miss Sebbelov describes six castes for East Malekula, three of them subdivided into ten or more grades. Dr Speiser finds fourteen castes in Ambrym, twenty in Venua Lava, and (in contradiction to Codrington) ten in Aoba. I am under the impression that the castes themselves are devoid of content; that is, we have not, as among some of the Plains Indians, organizations with distinctive features that are arranged in a series, and each of which might just as well, and often does, exist independently of the others. In the *suge* the basic notion seems to be that social advancement is a matter of sacrificed tusk-pigs, and the difference in the number of sacrifices is objectively represented by distinct fireplaces in the men's club-house, without any one caste being characterized by a form of activity independent of its rank. From this point of view, the indefinite development of grades

in different localities seems not only intelligible but perfectly natural. Other local differences are pointed out by Dr Speiser. In Aoba, for example, men and women are not so sharply separated as elsewhere, and the men's house becomes a bachelors' sleeping-hall, not closed to the women during the day (p. 237). In Tanna the men's club is lacking completely, and the place of the aristocracy represented by the higher castes is taken by hereditary chiefs,—this being one of a number of Polynesian features noted by the author (p. 275). Again, Ambrym has an unusual development of the *suge*, the divided club-house common to all the castes being superseded by distinct houses for the upper castes, each distinguished by the character of its enclosure; the lower castes have wooden fences, while the higher ones are screened with coral slabs of varying height. In addition to the *suge* the natives of this island had a number of obsolescent secret organizations (p. 186). The caste of a person is also represented in Ambrym by the number of heads carved on his upright tomtoms, or in South Malekula by the number of heads on his posts (p. 187, pl. 60).

Material culture naturally receives considerable attention. Dr Speiser notes briefly the occurrence of the loom in Santa Cruz and its absence elsewhere (p. 294). Oddly enough, he does not, like Codrington (*The Melanesians*, pp. 20, 316), refer to the existence of similar looms in the Caroline islands, the Philippines, and Borneo, but writes, in a fit of Graebneritis: "Es findet sich hier das Instrument in seiner einfachsten Form, in der es bis nach Amerika gewandert ist" (p. 294). This, however, is perhaps the author's sole defection from a sane application of the historical method throughout the book. Speiser's remarks on pottery (pp. 148-149, pl. 40) are very suggestive. The industry is practised exclusively in two villages of the Cape Cumberland peninsula, in northwestern Espiritu Santo. Strangely enough, the methods employed differ fundamentally in these localities: in Wus the potter models her vessel with the sole aid of a small flat bamboo splint, while in Pespia she builds it up of coils resting on a short bamboo cylinder held between her thighs. In the chapter on Malekula, the description of head-deformation and of the construction of skull-masks, as well as of ancestral effigies (pp. 206-208, pls. 59, 61), is of the highest interest.

Sociology, of course, could not be adequately treated in a popular work. It is to be hoped that in the fuller treatise certain apparent contradictions with the statements of other writers will be explained, or at least specifically dealt with. For example, Codrington has stated (op. cit., p. 24) that in neither the Banks islands nor the New Hebrides

do the moieties bear any name or have any distinctive badge. But, according to Speiser's informants, whose data were amplified by a missionary, the exogamous moieties of southern Pentecost bear names and believe in their descent from the turtle and the taro respectively (p. 215). Another matter of still greater importance should be brought to the author's attention. According to Dr Rivers (*Kinship and Social Organisation*, pp. 34-37), marriage with a brother's granddaughter was the normal thing in Pentecost, while Dr Speiser informs us that a system grafted on the exogamous dual organization prohibits marriage between members of different generations (p. 215).

Many exceedingly suggestive historical connections are pointed out between the several islands of the New Hebrides and with other groups visited. Thus, the author refers to the distribution of tree-fern statues in Ambrym and the Banks islands, and their relative paucity in Malekula (p. 187). It is interesting to note that many Ambrymese ceremonies were adopted from southern Malekula only in quite recent times and that the process of diffusion resembles that ascertained in a number of cases in North America. There are Ambrymese men who spend months in Malekula in order to be initiated into the arcana of some of these alien cults; ceremonial songs and dances are regarded as a form of property; and the privilege to use them must be purchased at a high price (p. 186).

The maps at the end of the volume are rather inadequate, but the illustrations are numerous and excellent. Ethnologists will look forward expectantly to the monograph that is to follow Dr Speiser's preliminary report.

ROBERT H. LOWIE

The Code of Handsome Lake, the Seneca Prophet. By ARTHUR C. PARKER.
(New York State Education Department, Bulletin 530, Albany, 1913.)

In this paper Mr Parker has given us a translation of one of the most remarkable documents of modern Indian religious propaganda. Handsome Lake, the Seneca prophet, was born in 1735 in western New York. He was an invalid, and, in addition, a sot during most of his life, but, in consequence of a trance, during which he believed that he had received supernatural revelation, he reformed and began to promulgate a new faith based on his vision, prophesying and preaching morality, temperance, and cessation of such of the old-time customs as seemed to him to savor of necromancy.

The Code has been preserved by being handed down by word of mouth for four generations, and has doubtless become somewhat modified in the process. However, some fifty years ago, the priests then living

held a convention at which, after a discussion, the form was standardized and written out by an educated member. The present priest at Cattaraugus, N. Y., Edward Cornplanter, who himself was responsible for the loss of this document, recently commenced to rewrite the Code from memory, and was persuaded by Mr Parker not only to carry the work to completion, but to allow a translation of it to be published.

The Code is a truly remarkable admixture of the old religion and philosophy of the Iroquois with the teachings of the Christian missionaries. Under the constant pressure of representatives of various European religious sects, since the time of the Jesuits, the "pagan" Iroquois naturally have absorbed, willy nilly, a certain amount of our ethics and biblical teachings, which here are very apparent.

The Code commences with an historical introduction relating the prevalence of drunkenness and concomitant vices among the Iroquois. It continues, describing Handsome Lake in his illness, calling upon the old gods, singing, and vacillating between temperance and inebriety. It chronicles his apparent death, and his vision, in which he meets four beings who undertake to instruct him, after which he revives and takes up his duties as prophet and priest.

The actual Code, known as the great Message, consists of no fewer than one hundred and thirty sections, of which the earlier ones recount the besetting sins of the Iroquois and warn the people to repent and cease committing them. These include drunkenness, witchcraft, charm-making, abortion, divorce, jealousy, vanity, harlotry, and other vices. It also attacks all ceremonies connected with the totem animals, possibly because of their connection, real or supposed, with witchcraft, although the prophet's reason for assailing them is not obvious. On the other hand, the Code upholds certain other old ceremonies and festivals which are directed rather to the worship of the gods above, particularly the burning of the white dog. It also endorses the ancient custom of giving tobacco sacrifices. Some miracles performed by the prophet are chronicled, and then a prophecy as to the approaching end of the world, and the manner of its destruction.

Now comes in many respects the most remarkable portion of the Code, the description of the journey of the prophet to the Hereafter, and his experiences. Like Dante, he met various damned souls undergoing torments appropriate to their crimes. On the way he meets various personifications of evil and sees allegorical tableaux. He also sees George Washington occupying a place of honor near Elysium. The Iroquois have always been grateful to the memory of Washington for

championing their cause and permitting them to retain their homes at the close of the Revolution, although several of the tribes had been hostile. After the description of the prophet's journey through hell we follow him in like manner through heaven, visiting the good souls, after which, with a short historical account of the death of Handsome Lake at Onondaga, the Code proper closes.

One point which Mr Parker does not mention is this: Almost since our first contact with the Indians of North America there has been a constant succession of Messianic or revealed religious outcroppings sporadically among all the tribes south of the Canadian line. That of Tenskwatawa and Handsome Lake in the East, and the Dream Dance, Ghost Dance, and Peyote, in the west, being perhaps the best known. In almost every one of these the half-digested teachings of the missionary have been apparent. The white man's theory of morality and justice, if rarely seen in practice, was highly appreciated by the Indian, and the idea of a revealed religion was nothing new to him.

Nevertheless, of all these cults, the two to make the most lasting, if not the most profound, impression, were the Peyote (misnamed "Mescal") and the Code of Handsome Lake. Both aim at the suppression of drunkenness particularly, both seem to uphold some ancient practices and to condemn others. The Peyote religion differs from the Code of Handsome Lake strongly in many ways, particularly in that it offers, in the peyote "button," a substitute for liquor, which, it is said, successfully kills the desire for alcohol. The Peyote teachings have been far more prosperous and popular than the Code of Handsome Lake, having spread like wild-fire over many of the tribes of the West, and are now working eastward and northward, while that of Handsome Lake has always been confined to the Iroquois. Peyote is, however, still a comparatively young religion.

Between the teachings of Handsome Lake and his renowned contemporary, Tenskwatawa, the Shawnee Prophet, the twin brother and coadjutor of Tecumseh, there is some resemblance. Says Drake in his *Life of Tecumseh*:

He declared that he had been taken up to the spirit world and had been permitted to lift the veil of the past and future—had seen the misery of evil doers and learned the happiness that awaited those who followed the precepts of the Indian god. He then began an earnest exhortation, denouncing the witchcraft practices and medicine juggleries of the tribe, and solemnly warning his hearers that none who had part in such things would ever taste future happiness. The fire-water of the whites was poison and accursed; and those who

continued its use would be tormented after death with all the pains of fire, while flames would continually issue from their mouths. . . . The young man must cherish and respect the aged and infirm, all property must be in common, according to the ancient law of their ancestors. Indian women must cease to intermarry with white men; the two races were distinct and must remain so. The white man's dress, with his flint and steel, must be discarded for the old-time buckskin and the firestick. More than this, every tool and every custom derived from the whites must be put away, and the Indians must return to the methods the Master of Life had taught them. When they should do all this, he promised that they would again be taken into the divine favor, and find the happiness which their fathers had known before the coming of the whites. Finally in proof of his divine mission, he announced that he had received power to cure all diseases and to arrest the hand of death in sickness or on the battle field.

If the similarities of the two schools are obvious, no less so are the divergencies. The code of Tenskwatawa is warlike; he breathes hatred and war against the whites, and return to the old customs. He does not hesitate to promise immunity to the warrior who goes to war against the paleface, resembling the Ghost Dance teachings in some of their phases.

Although conceived in the same atmosphere of hatred, distrust, and despair engendered by aggressions of the whites during the close of the eighteenth and the opening of the nineteenth centuries, and uttered by a scion of one of America's most martial tribes, the Code of Handsome Lake is conceived in a spirit of peace. He advocates rather than deprecates the adoption of what is good in a European way, since he sees that by that method alone is salvation possible for his people. He strives to lead his youths away from war; he refers to utterances by the revealers of his faith against strife. The Code is preëminently one of submission to the inevitable, and it is remarkable that it was endorsed by some of those same white officials of high authority who ordered the troops to advance against Tecumseh and Tenskwatawa.

It seems improbable that Handsome Lake was not influenced by the Shawnee Prophet. The latter was already in the field when Handsome Lake commenced his work, and as it is known that Seneca youths had broken away from the tribe to join the followers of Tecumseh, it would be strange if some of the Shawnee doctrines had not reached the ears of Handsome Lake.

At all events, Handsome Lake was a man of no inconsiderable ability and character, and, as Mr Parker shows, his teachings have contributed more than any other factor to the relatively high moral standard of the Iroquois and the solidarity of their pagan party as it is today.

The second part of Mr Parker's work is concerned with "Field Notes on the Rites and Ceremonies of the Ganio'dai'io' Religion."

From the title one is led to assume that the ceremonies recorded are a part of the doctrine and teachings of Handsome Lake, but as a matter of fact they seem rather to be those already existing ceremonies which he approved and to which he gave additional impetus. They include remarks upon the New Year's, White Dog, Ne Ganeoweo, Corn Planting, Maple Thanksgiving, and the Legend of the Coming of Death, with funeral addresses.

Mr Parker also includes sketches of the secret societies, several of which Handsome Lake tabooed but which have persisted secretly until the present day, and a few Iroquois myths. The rituals of several of the ceremonies, etc., are given, together with some texts, not all of which are translated. The material is interesting and valuable, especially as we have so little information on the Iroquois.

No one who has not attempted to gather material similar to the Code can realize the difficulty of the undertaking, for it is such lore as this that the Indian, and particularly the conservative Iroquois, guards as sacred. Only an intimate knowledge of the people, combined with tact and genuine sympathy for their viewpoint, can bring it out. It is not to be bought for money alone.

All in all the work is excellently and painstakingly done, but the reader may feel disappointed that Mr Parker has given us none of his own conclusions on the subjects which he has presented, since, from his intimate knowledge of the Iroquois, and particularly of the Seneca, he is well qualified to do so. The writer, however, through his personal acquaintance with Mr Parker, realizes the many difficulties which surrounded and hampered the publication of this paper, and hopes that at some not distant date the author will be able to give to the public not only more of his great mass of material but more of the results of his own study of the subject.

ALANSON SKINNER

The Peoples of India. By J. D. ANDERSON, Teacher of Bengali in the University of Cambridge, formerly of the Indian Civil Service. Cambridge University Press. (New York: G. P. Putnam's Sons.) 1913.

This little book, for the greater part a compilation of the works of Grierson, Risley, Crooke, et al., is the worthy attempt of a retired Indian Civil Service official to introduce the general public to the peoples of present-day India. As such it succeeds fairly well. The professional ethnologist, for whom it is not intended, naturally will turn to the original sources. The chief blemishes are the rather frequent dogmatic assertions for which there is all too little proof (see his remarks on the Atharva-veda,

p. 87, for example). A reference to the more recent discussions of exogamy and totemism would be acceptable on page 35.

TRUMAN MICHELSON

A Study of North Appalachian Indian Pottery. By CHRISTOPHER WREN. Plymouth, Pa., 1914.

Mr Christopher Wren has long been known to archeologists as the prime authority on the archeology of the Wyoming valley and adjacent Pennsylvania, through his papers, published mainly in the *Proceedings of the Wyoming Historical and Geological Society*; but this is the most pretentious effort yet received from his pen.

The volume opens with a brief review of the history of earthenware and pioneer potters, containing much that must prove suggestive to the student of American Indian pottery manufacture. From this point Mr Wren takes up the earthenware of the region, pointing out the interesting fact that most of the vessels now known were found in rock or cave shelters, although a few were obtained from graves. This is interesting because in the rock shelters of the lower Hudson in New York, as well as in New Jersey and Connecticut, no whole vessels have as yet been found, although fragments are abundant. The pottery was undoubtedly largely made in the general region; a number of pottery kilns are reported. These are so unusual here in the East that we may be permitted to quote Mr Wren in full on this point.

Near the extremity of Tioga Point, where the Chemung river forms a junction with the Susquehanna, close to the edge of the water, on the Susquehanna side, he¹ saw a number of years ago, a stratum of light colored clay of fine quality.

On the top of the bank were two circular platforms, about four feet in diameter, paved with stones and slightly depressed in the centre. These platforms showed marks of considerable use, he thought, as the places where the clays were mixed and tempered to fit them for use in pottery making. Built into the bank, adjacent to these platforms, were four steps laid up in stone, which gave evidence of having been much subject to the action of heat. These steps he took to be the shelves on which finished vessels were set up when undergoing the process of firing.

In the immediate vicinity was a great quantity of broken pottery, which was probably the fragments of pottery that had been broken in the burning.

Mr Wren takes up and treats the materials and form of the local vessels, giving a diagram on which is shown the application of the various terms used. This is an excellent and useful idea. Mr Wren's theory

¹ Mr Wren's informant, Mr M. P. Murray, of Athens, Pa.

that some of the shapes of some of the heavy flaring collars found on Iroquoian ware were derived from the profile of the bark canoe, seems very far-fetched to the writer, and his drawing to illustrate the point shows a canoe that could not be put to any practical use. *Per contra*, from its depth and shortness the shape of the canoe would seem rather to have been suggested by the profile of a pot collar.

Mr Wren's further remarks on the general characteristics of the vessels are good, but it is to be hoped that he will give us a more detailed study of form and decoration later. Mr Wren might well find suggestive information on this line in Volume III of the *Anthropological Papers of the American Museum of Natural History*, in which the pottery of the Algonkian Indians of coastal New York receives notice at some length.

The rest of the work is devoted to admirable illustrations and descriptions of the individual vessels. It is interesting to note that so many whole kettles have come from this one region. Three other fine vessels, of whose existence Mr Wren is perhaps not aware, are in the possession of the American Museum of Natural History, and were collected many years ago in Pennsylvania. Like those illustrated by Mr Wren, they are of the Iroquoian and Algonkian types. Mr Wren speaks of pointed bottoms as characteristic of the earthenware of the region, yet none shown is so pronouncedly pointed as those of coastal New York and New Jersey.

The clay pipes figured in the volume are in part decidedly Iroquoian, in part as markedly Algonkian. The latter may be attributed to the Lenapé (Delawares), perhaps, while some which conform with neither group may possibly be Shawnee. This brings us to what we are sorry to say may fairly be considered a serious lack in Mr Wren's present volume, but which we hope he will soon remedy in another paper on the subject. He has led us to the very brink of a most interesting bit of research, but has failed to go farther. That is, the linking of the archeological remains at hand with the culture of known historic peoples. The sites in the Wyoming valley are in many cases known to have been occupied in historic times by the Delawares, Shawnee, Nanticoke, Conoy, and various Iroquoian groups. It ought not to be difficult to correlate the pottery from the graves and rock-shelters with the fragments from the old camps.

To go still farther, results of even greater value to the student might be obtained by comparing these remains with those found in the ancient domains of the various emigrant Algonquians. For example, fine collections of Lenapé earthenware from the Delaware valley, the headquarters of the Lenapé tribes, are to be found in the American Museum

of Natural History, the Peabody Museum at Cambridge, and the Field Museum at Chicago.

No one interested in archeology can refrain from thanking Mr Wren for his present and past services, and it is to be hoped that his zeal will lead him to continue his researches and to publish the results for many years to come.

ALANSON SKINNER

The Weathering of Aboriginal Stone Artifacts. No. 1. A Consideration of the Paleoliths of Kansas. By N. H. WINCHELL. (Collections of the Minnesota Historical Society, vol. XVI, part 1.) St. Paul, Minn., 1913. 4", 19 pl., 20 fig.

The late Professor Winchell believed he had found a sequence of six cultures just south of the Kansas moraine in Kansas. His classification comprises early paleolithic, paleolithic, early neolithic (two stages), and neolithic (two stages). The term "paleolithic" is applied to the culture that antedated the Kansan Glacial epoch. "Early neolithic" covers the period between the Kansan and Wisconsin Glacial epochs, and "neolithic" applies to post-Wisconsin culture. This classification is based on the form and patination of the artifacts.

GEORGE GRANT MACCUDY

DISCUSSION AND CORRESPONDENCE

ALGONKIN LANGUAGES OF CALIFORNIA: A REPLY

IN a paper on "Wiyot and Yurok, Algonkin Languages of California," published in this journal (N. S., vol. 15, 1913, pp. 617-46), I ventured, on the basis of lexical, morphological, and phonological evidence, to demonstrate that Wiyot and Yurok were very divergent outlying members of the great Algonkin linguistic stock. No one is more keenly alive than myself to the probability that not a few of the lexical and morphological elements compared in this article may, on maturer knowledge, turn out to be untenable parallels, but it seemed and still seems to me that the general cumulative evidence presented is so strong and that many of the specific elements compared are so startlingly similar that no reasonable doubt could be entertained of the validity of the claim. However, Dr Michelson is evidently far from convinced, for in a note entitled "Two Alleged Algonquian Languages of California," also published in this journal (N. S., vol. 16, 1914, pp. 361-67), he adopts a severely critical attitude and tries to show, apparently to his entire satisfaction, that Wiyot and Yurok are not and can not (we might almost add must not) be Algonkin. Five main reasons are given for his dissent, followed by a list of seventeen specific respects in which Wiyot differs from Algonkin, and of eight in which Yurok so differs. Considerable space is then taken up with the attempt to prove that five or six morphological elements have been wrongly compared (leaving the reader to conclude, I presume, that all other comparisons of elements suffer from the same defect), after which some rather random data are given to show that accidental linguistic resemblances crop up in all sorts of places.

Dr Michelson triumphantly ends: "Enough has been said to show the utter folly of haphazard comparisons unless we have a thorough knowledge of the morphological structure of the languages concerned. It is for this reason that I have refrained from endeavoring to compile a list of fancied lexicographical resemblances between Wiyot and Yurok with other languages than Algonquian ones, and a list of such similarities between Algonquian and other languages than Wiyot and Yurok." It is difficult for one convicted of "utter folly" to gain a hearing in

self-defence, for he is to be trusted no further. And yet I shall try to rescue at least part of the painfully constructed edifice that Dr Michelson has sent tottering over my head and to show that the trouble with Wiyot and Yurok, like the premature report of Mark Twain's death, is "greatly exaggerated." As for Dr Michelson's self-denial exhibited in the passage quoted, it can but elicit our admiration, the more so as he has in this way escaped from what would no doubt have proved an onerous task. Still I somewhat regret that Dr Michelson did "refrain," for as goodly an array of say Fox-Chinese parallels of equal inherent plausibility and consistency as those I have given for Algonkin and Wiyot-Yurok would have done more to convince me, for one, of the absurdity of my thesis than anything else in his reply.

Among the five main "reasons" for his refusal to follow me in my argument I am concerned to find that Dr Michelson lists: "that fancied¹ lexicographical similarities have little or no weight in view of the above [four] points." It would seem, if I understand Dr Michelson rightly, that my case would have been stronger, if anything, if I had left out most of the approximately two hundred lexical correspondences that I give; at any rate, only four points could then have been scored against me. But what is one to do if the bulk of his evidence is summarily ruled out of court on considerations of a largely irrelevant character? A little later on we are told that "the apparently abundant lexicographical material does not impress" Dr Michelson. All I can say is that if one is not "impressed" by such truly remarkable parallels as Yurok *n-* "my," *q-* "thy," *o-* "his," *m-* "somebody's" (with body-part nouns); Algonkin *n-* "my," *k-* "thy," *o-* "his," *m-* "somebody's" (with body-part nouns);² by Wiyot *m-əpt* "tooth": Cree *m-ipit* "tooth"; Wiyot *māti* "wood": Cree *misti-k*, Cheyenne *māta*; Wiyot *mākw* "grizzly bear": Cree *maskwa* "bear"; Wiyot *mīw-* "to eat (slain animal)": Cheyenne *miw* "to eat (animate object)"; and many others, his individual psychology differs markedly from my own. There is no accounting for tastes,

¹ Would it not have been wiser to leave this word out? It savors of prejudgment, I cannot help thinking.

² These four pronominal prefixes must be valued as a unit, instead of being handled about, as is done by Dr Michelson, torn out of their setting. The evidential value of an orderly sequence $a + b + c + d$: $a_1 + b_1 + c_1 + d_1$ is of course vastly greater than of a : a_1 or b : b_1 singly. Of the logic of cumulative and associated evidence Dr Michelson seems to have hardly an inkling. It is worthy of note that on the most remarkable of these four possessive prefixes, *m-* "somebody's," Dr Michelson is discreetly silent. In general, the really convincing positive points raised in my paper are sedulously avoided in his reply.

but it seems to me that such callousness deserves to be called linguistic cynicism almost as much as scientific sobriety.

Another one of the five dissenting "reasons" given is: "that many of the supposed similarities in morphological elements must be considered as accidental, for they occur likewise in a number of other languages." The "for" of this statement seems to me to involve a dangerous dogma. Does Dr Michelson seriously maintain that the homology of features a, b, c, d, \dots of complex A to features $a_1, b_1, c_1, d_1, \dots$ of complex A_1 is rendered spurious by the fishing up of such further straggling homologies as of a to a_2 of complex A_2 , b to b_2 of complex A_2 , c to c_4 of complex A_4 , and so on? I can see neither logic nor mathematics in his thesis. One might apply it with disastrous results. Thus, the existence of three grammatical genders (masculine, feminine, and neuter) in both Latin and Greek is irrelevant to the question of their genetic relationship, "for" Chinookan also possesses this feature! Further, the presence of a case system in Latin and Greek is of no account in view of the fact that Finnish also possesses one! Or, to make use of a specific morphological element, it is hardly worth while comparing feminine noun-ending $-a$ of Latin with $-a$ of Greek when we remember that prefixed $a-$ occurs as characteristic of feminine nouns in Wishram! Evidently Dr Michelson overreaches himself here. Moreover, at the very best, Dr Michelson's "reason" merely refuses to meet one problem because another incidentally presents itself.

The greatest stress, however, seems to be laid by Dr Michelson on his first "reason": "that the published Wiyot and Yurok material indicates that both have many morphological traits which are thoroughly un-Algonquian." The seventeen articles debarring Wiyot from membership in the Algonkin family are given in support of this statement. Here the two most serious flaws in Dr Michelson's whole standpoint come out glaringly enough. In the first place, his remarks indicate a startling lack of perspective in linguistic comparison; in the second place, he makes an altogether illegitimate use of negative evidence, in a few cases, curiously enough, even turning a positive argument of mine into a negative argument to the contrary.

Taking up the first of these flaws, we must bear in mind that the greater the historic chasm separating languages of common origin, the more profound may be expected to be the divergences that present themselves. We do not expect Swedish and German to show as many and as striking similarities as a Saxon German dialect and a Swabian German dialect; nor German and Latin as many and as striking similarities as

German and Swedish; nor German and Bengali as many and as striking similarities as German and Latin. Turning to America, the parallax of linguistic history absolutely demands that Wiyot and Yurok, granted their relationship to Algonkin, present vastly greater differences from those languages that are generally classed as Algonkin than the extremes of these (say Cheyenne and Micmac) present among themselves. Indeed, from the viewpoint of Wiyot, all the Algonkin languages now recognized as such have not improbably to be considered as a single language exhibiting relatively trivial dialectic divergences, just as the differentiation of Slavic languages today is a quite secondary phenomenon when viewed from the angle of the relationship of say Celtic and Indo-Iranian to Slavic. It is thus obvious that if by Algonkin is meant what Dr Michelson means by it, Wiyot and Yurok *must* "have many traits which are thoroughly un-Algonquian." Russian cannot be more Germanic than it is Indo-germanic; the residue of Slavic minus Germanic, as it were, which is contained in Russian is, of course, as "thoroughly" non-Germanic as you like.

If, now, we turn to Dr Michelson's list of divergences, we are almost thunderstruck by the triviality of many of them; we are even inclined to feel hurt that Dr Michelson should for a moment have wanted Wiyot to be so Fox-like. Thus, we read: "A demonstrative element *ru-* is [in Wiyot] frequently prefixed to verbs, [while there is no such prefix in Algonkin]." One can only shrug his shoulders and ask a puzzled "Well?" Or: "A special particle is [in Wiyot] always attached to the first word of an interrogative sentence, [but not in Algonkin]." This point of difference need not unsettle us, when we remind ourselves that, e.g., while Latin has an enclitic interrogative particle *-ne*, its lineal descendant French has no such thing. Even more instructive as throwing light on Dr Michelson's sense of perspective is this item: "The stem-vowel of a verb is not changed [in Wiyot] to form a participial [as it is in Algonkin]." As a matter of fact, while internal vocalic change of the type referred to is found well developed in, e.g., Cree, Ojibwa, and Fox, it has not, so far as I know, been discovered in such undoubtedly Algonkin languages as Micmac, Natick, Blackfoot, or Cheyenne; in other words, the feature may turn out to be rather a special development of a group of Algonkin languages than characteristic of Algonkin as such. Would Dr Michelson expect Old Irish to resemble a Prakrit dialect A more than said dialect resembles Prakrit dialect B? It is not necessary to refute Dr Michelson's items one by one, my aim being rather to point out the general spirit of the criticism. They are either of the trivial nature already illustrated,

rest on incomplete analysis of the facts, or, at best, can not be justly held to outweigh in a problem of this kind the mass of positive morphologic evidence I have given. Curiously enough, some of the shots fired are merely blanks. In no. 2 we read: "Nouns are not classified as animate and inanimate, nor are singular and plural distinguished"; in no. 3: "The verbal pronouns do not distinguish animate and inanimate third persons"; in no. 4: "The subject and objective verbal pronouns of the third person do not distinguish between singular and plural"; in no. 10: "In demonstrative and interrogative pronouns, neither animate and inanimate nor singular and plural are distinguished"; in no. 12: "The possessive pronoun of the third person does not distinguish singular and plural." In these five distinct items I discover only two independent statements (one of them, as we shall see below, highly questionable)! When a man pops out the same argument under several disguises, we suspect that he is short of ammunition.

Dr Michelson himself seems to have had a lurking feeling that an abundant use of negative evidence might be dangerous, for he states: "It is perfectly true that many of the above objections are negative, that is, that thus far the phenomena listed have not been reported. It is possible that further investigation may reveal some of them, but it is not likely that a skilled investigator like Dr Kroeber would have overlooked the majority of them." We are all of course delighted to be able to second Dr Michelson's flattering estimate of an esteemed colleague, but when "so careful and able a scholar" as myself is confronted in the wash with the charge of "utter folly," we learn to temper our admiration with prudence. What Dr Kroeber himself states, in a letter recently received from him, in regard to his Yurok material is this: "I have made no serious attempt to analyze the [text] material, contenting myself for the present with pointing out certain features which came to the surface of themselves." In regard to the Wiyot data, Dr Kroeber remarks: "I do not consider the texts very good, nor did I find any satisfactory informant in the time at my disposal. The whole sketch is avowedly a slim preliminary treatment." Under these circumstances it is evident that whoever builds on the non-occurrence of features in Yurok and Wiyot does so at his own risk. As a matter of fact, any one that has had experience in working out in the field the morphology of a language about which absolutely nothing is known to start with realizes that it is perfectly possible to fail to seize many fundamental features for quite a long time. I could give some striking examples from my own experience, did I not fear to lengthen this reply inordinately.

Dr Michelson's use of negative evidence is double. He does not, in the first place, allow adequately for the fragmentary character of our Yurok and Wiyot data. In the second place, it is dangerous to build on negative evidence even if we know for certain that a specific feature is lacking. The history of language shows nothing more clearly than the ease with which grammatical features gradually lose in complexity, often to the point of entire disappearance. What has become of the elaborate Indogermanic case system in French, or of the old complex system of personal endings in English? I maintain that one really striking morphological parallel or half a dozen lexical resemblances buttressed by consistently working phonetic laws (and why does Dr Michelson not occupy himself in his criticism with the phonological material that I have assembled?) are worth a good many points of divergence (of the same "weight").

One negative argument employed by Dr Michelson is so amusing that I must beg leave to comment on it. I had pointed out that Yurok in its adjectives distinguishes between animate and inanimate and drew the obvious parallel with Algonkin, venturing to suggest that other examples of the classification probably would be found in Yurok. Instead of rightly evaluating a striking positive resemblance, Dr Michelson makes capital out of a doubtful negative and cheerfully lists as one of his eight Yurok un-Algonkin features: "Nouns are not classified as animate and inanimate." In other words, "white" is in Yurok associated with animate or inanimate not insofar as whiteness is predicated of an animate or inanimate object but by virtue of some transcendental difference between animate whiteness as such and inanimate whiteness as such. I am afraid that neither the Yurok Indians nor myself feel at home in this highly rarefied philosophic atmosphere.

The one valuable element, I now hasten to add, in Dr Michelson's criticism is his treatment of some of the verbal pronominal suffixes of Wiyot and Yurok that I had compared with Algonkin suffixes. I freely admit that he has made it very plausible that Yurok *-m* 'thou' is not to be compared with Ojibwa *-m(wa)* 'ye,' and that reasonable doubt has been cast on the validity of one or two others of my verbal pronominal parallels. Such corrections must, in the nature of things, be expected and thankfully accepted.

In this reply I have tried merely to point out the serious methodological weakness of Dr Michelson's criticism. No attempt is here made to discuss the evidence for my thesis. For that the reader is referred to the article itself. Let us hope that further Wiyot and Yurok data

will be made available before long, so that more light may be thrown on an interesting and important problem. In concluding I should like to suggest to Dr Michelson that he go through the evidence again in a somewhat more liberal spirit. Perhaps it would be borne in on him that the sum total of lexical and positive morphological resemblances is not so unimpressive after all.

E. SAPIR

Rejoinder

It does not seem to me that Dr Sapir has met my point, that it is possible or probable that in his Wiyot, Yurok, and Algonquian word-list, corresponding morphological elements are not being compared. If they are not, the list *per se* has little value.

As to the lack of perspective in linguistic comparison: In the case of Indo-European languages we have historic proof that certain members of the stock have diverged greatly from the original type. The question arises as to whether we have a right to generalize from this, and apply the principle to American Indian languages. I do not think so. As Professor Boas pointed out at the recent meeting of the American Anthropological Association, there are other possibilities to be considered.

If the published accounts of Wiyot and Yurok are merely fragmentary, *per se* there is no more reason to expect that the new evidence will reveal Algonquian traits rather than un-Algonquian ones. But the point I emphasize is that the *existing* evidence does not justify the genetic connection of Wiyot and Yurok with the Algonquian stock. (See page 56 of the *Report of the Secretary of the Smithsonian Institution*, 1914.)

Exactly as Dr Sapir thinks, I over-value the worth of negative evidence, so I think he underestimates it.

Regarding cumulative evidence, I might say that my statement, "Now it is perfectly conceivable that a divergent Algonquian language might possess a few of the un-Algonquian traits mentioned above, but it is incredible that any Algonquian language possesses all of them *en masse*," shows that I have "an inkling" of what it is. Dr Sapir has not answered the point raised in my original article. He lays special emphasis on the Yurok pronouns *n-* 'my', *k-* 'thy', *o-* 'his', *m-* 'somebody's'; and insists that they be treated as $a+b+c+d$, and not as a, b, c, d . Apparently he has not noticed that similar associations occur between Yurok and Wiyot on the one hand and some non-Algonquian languages on the other. For example, Chinook *n-* 'I' (verbal pronoun), Yurok *ne-* 'my'; Chinook *naika*, Yurok *nek* 'I' (independent pronoun); Chinook *m-*, Yurok *-m* 'thou' (verbal pronoun); Yurok and Molala *-k*

'I' (verbal), Yurok *ge-* 'thy', Molala *kʷi* 'thou' (independent pronoun); Karok *na* 'I' (independent), *ni-* 'I' (verbal), *im* 'thou' (independent), *mi-* 'thy', *u-* 'he', 'she' (verbal), Yurok *ne-* 'my', *-m* 'thou' (verbal), *o-* 'his, her'; Takelma *gi* 'I' (independent), *ma* 'thou' (independent), Salinan *ke* 'I' (independent), *mo* 'thou' (independent), Costanoan (Monterey) *ka* 'I', 'my', *me* 'thou', 'thy', Yurok *-k* 'I', *-m* 'thou' (both verbal); Shoshoni *nū-* 'my', *ūm-* 'thy', *u-* 'his', 'her', Yurok *ne-* 'my', *-m* 'thou' (verbal), *o-* 'his', 'her'. So that it does not appear to me that this association works wholly one way.¹

If Dr Sapir will look over my discussion again he will see that I have not been "discreetly silent" regarding Wiyot and Yurok *m-* 'somebody's'. I pointed out a casual resemblance to Hupa *m-*, admitting that the usage was not the same.

Dr Sapir admits that I have made "it very plausible that Yurok *-m* 'thou' is not to be compared with Ojibwa *-m(wa)* 'ye', and that reasonable doubt has been cast on the validity of one or two others of my [Dr Sapir's] verbal pronominal parallels." It certainly would be of scientific interest for him to have stated just which these are. For my own part I think I have not only refuted the *m* comparison, but four others as well; "cast reasonable doubt" on that of *wa* of Wiyot *kilwa* 'you' with Ojibwa *ki-wa* 'your'; and to have shown that the comparison of Wiyot *hu-* with Fox *u-* may not be so certain after all, as Wiyot *hu-* occurs in the first person plural as well as in the third person. I regret that Dr Sapir has not seen fit to combat my reasoning in any of these cases. I have not "sedulously avoided" challenging certain "really convincing positive points" in his paper unless he acknowledges the pronouns under discussion are not convincing.

I have examined Dr Sapir's word-list again, and am even farther from being convinced by it than when I first read it. Dr Sapir has noted that several Algonquian secondary stems seem to be cognate with Wiyot primary stems. He cites Ojibwa *nin gābaw* 'I stand' (from Baraga) to show that even Algonquian dialects may differ from one another in this respect. I can not confirm this: in all Ojibwa dialects of which I have any independent knowledge, *gābaw* can not occur initially. That Dr Sapir can not be held responsible for the error, I freely grant; but the proposition to equate primary with secondary stems does not seem to me to be legitimate.

It should be noted that the comparison of Wiyot *me-werit* 'flesh', 'fat' with Ojibwa *winin* 'fat', Natick *wēs*, *wēis* 'fat', Micmac *uxoo's*

¹ I take the opportunity to state that my comparison of Miwok *-tok*, Wiyot *-itak*, is a mistaken one.

'flesh', Cree *wiyās* 'flesh', can not stand. The ordinary phonetic laws bar the comparison of all the Algonquian words: the Ojibwa word can have nothing to do with the others; cf. also Kickapoo *wīnenwi* 'fat', *wiyābi* 'flesh'. Similarly Fox *uwīw(i)* 'to marry' and Ojibwa *widge* 'to be married' cannot be associated (see *Jour. Washington Acad. Sciences*, IV, p. 404). For a similar error see the comparisons under Wiyot *wet* 'satisfied'. There are some Wiyot-Yurok comparisons, such as Wiyot *hekū* 'snow' with Cheyenne *hīstās* 'snow', Yurok *rokw* 'wind' with Ojibwa *nōdin* 'wind', Cree *yōtin* 'wind blows', and Wiyot *wayit* 'to bend' with Ojibwa *wāgina* 'to bend', Cree *wākisiw* 'he is bent', which do not conform to the phonetic laws laid down by Dr Sapir. Certain Wiyot comparisons involve the assumption of prefixes in the nouns of that language, against which see Kroeber in *University of California Publications in American Archaeology and Ethnology*, vol. IX. Under the circumstances it would have been better to leave out such comparisons. Wiyot *tem* 'to sit' is compared with Delaware *lūm^{wt}-api-* 'to be seated'. I can not analyze the first part of the latter term, but the last part suggests comparison with Fox, etc., *api-* 'be seated'. Though perhaps not germane to the subject, I should like to point out that Cree -*n* of the first and second persons singular indicative is not identical with the -*n* of the third person inanimate indicative of intransitive verbs: in Fox in the first case there is no correspondent, e. g. -*si*; in the second -*enw^d*, in which -*en-* is a secondary connective stem, and -*w^d* the inanimate termination lost phonetically in Cree. I have not listed here all comparisons to which exception might be taken; but I may add the number of positive errors that at present can be demonstrated as such, is below the fifty percent allowed by Dr Sapir.

A word on Dr Sapir's criticism of my list of the un-Algonquian morphological features of Wiyot. He has suppressed the second part of No. 3—"nor are the exclusive and inclusive first persons plural distinguished." So there are more than "only two independent statements" in Nos. 2, 3, 4, 10, 12; nor is "one of them" "highly questionable." Dr Kroeber has not pointed out that in Wiyot animate and inanimate third persons are distinguished, even if he has pointed out that in Yurok certain adjectives apparently do make such a distinction. Yurok and Wiyot are not the same. That Dr Sapir's remarks apply to the Wiyot and not the Yurok list is shown by the numbers attached to the quotations. As to the distinction made in Yurok regarding adjectives, I think there is need of further material before this point can be elucidated.

As to the point raised by Dr Sapir with respect to vocalic change in participials, it is sufficient to refer to what I have said, namely, "Now it

is perfectly conceivable that a divergent Algonquian language might possess a few of the un-Algonquian traits mentioned above." I am by no means satisfied that vocalic change in the participial is lacking in Natick, though I have not sufficient material at hand to demonstrate it absolutely. Lest the reader think from Dr Sapir's language that the change is confined to Fox, Cree, and Ojibwa, I may assure him that it is found in several other Algonquian dialects.

If most of the list of un-Algonquian traits of Wiyot are "trivial," it surely would have been easy for Dr Sapir to refute them one by one, which he has not done.

At the time at my disposal (I saw Dr Sapir's article in galley proof only) it is not possible for me to make so long a list of words that resemble one another in Algonquian and in other languages than Yurok and Wiyot as Dr Sapir has made of Yurok, Wiyot, and Algonquian; at the same time the following will indicate that such a list probably could be made with sufficient time, even if an "onerous task."

YUKI

kan, talk
mi, drink
muy, future
na^w, see
pon, fall, stumble
tas, snare, trap
pok, burst
tuk, strike

YOKUTS

na, I (verbal)
nān, we (pl. excl.)
yūwīn, wife
ponpon, snow
me^t, large
bok, find
padu, enter
wid, say, tell
dapi, pick, gather

ALGONQUIAN

Fox, *kan-*, *kanō-*, talk
 Fox, *meno-*, drink
 Fox, *ma*, future
 Fox, *nām-* (really *nā-*), see
 Fox, *pāna-*, fail, miss¹
 Fox, *tes-*, snare, trap
 Fox, *pō'k-*, break
 Cree, *takiskawew*, strikes him with the foot

ALGONQUIAN

Fox, *ne-* (verbal), I
 Cree (Fort Totten), *-nān*, we (excl.)
 Fox, *wīwāni*, his wife
 Fox, *pepōn^t*, winter
 Ojibwa, *mūchā*, it is large
 Fox, *me'k-*, find
 Fox, *pīti-*, enter
 Fox, *wīl-*, tell
 Fox, (A) *lāp-*, pick up

I maintain that these random Yuki and Yokuts words resemble Algonquian ones fully as closely as do the most striking Yurok and Wiyot words of Dr Sapir's list. Would Dr Sapir conclude from the Yuki and

¹CL. *pānālakānī*, 'you must have let it fall astray,' Jones, 230.11.

Yokuts list that Yuki and Yokuts are Algonquian languages, even if their morphology is fundamentally un-Algonquian, so long as we have a trifle more than "half a dozen lexical resemblances" and "one really striking morphological parallel" in that Yokuts and Algonquian distinguish the exclusive and inclusive first person plural?

TRUMAN MICHELSON

Epilogue

Dr Michelson evidently dies hard. His "rejoinder" to my reply contains quite a number of statements that I would have something to say about, did I not feel convinced that the reader is as sick of this fruitless squabble as I am. I shall therefore let the real reply to both Dr Michelson's "rejoinder" and original criticism consist of a reference to my article on "Wiyot and Yurok, Algonkin Languages of California." I prefer to have the reader form his opinion of the merits of the case from the article itself than from either the article as interpreted by Dr Michelson or as explained by myself. For further criticism, I shall confine myself to expressing regret at the second paragraph of Dr Michelson's "rejoinder," as it makes capital of certain opinions which (whether justifiable in themselves or not is another matter) are not at hand for the reader to refer to.

E. SAPIR

A NOTE ON KINSHIP TERMS COMPOUNDED WITH THE POSTFIX 'E IN THE HANO DIALECT OF TEWA

IN discussing the kinship terms of the New Mexican Tewa, Mr J. P. Harrington and Dr E. Sapir¹ have called attention to the formation of reciprocal terms by adding the suffix 'e (which is ordinarily post-fixed to nouns to form diminutives such as *musa'e*, 'little cat,' *kege'e*, 'little house,' and also used as an independent noun meaning 'child,' 'offspring') to express the relation of junior to senior relatives. In the Hano dialect² there are nine such pairs of terms:

SENIOR	JUNIOR
I. <i>Mymz</i> , mother's brother, etc.	<i>mymz'e</i> , man's sister's child.
II. <i>Ko'o</i> , mother's sister, etc.	<i>ko'o'e</i> , woman's sister's child.
III. <i>Ka'je</i> , mother's elder sister, etc.	<i>ka'je'e</i> , woman's younger sister's child.

¹ J. P. Harrington, Tewa Relationship Terms, *Amer. Anthr.*, N.S., 14, 1912, 472-498; E. Sapir, A Note on Reciprocal Terms of Relationship in America, *Amer. Anthr.*, N.S., 15, 1913, 132-138.

² See B. Freire-Marreco, Tewa Kinship Terms from the Pueblo of Hano, Arizona, *Amer. Anthr.*, N.S., 16, 1914, 269-287.

SENIOR	JUNIOR
iv. <i>Sa'ja</i> , mother's mother, etc.	<i>sa'ja'e</i> , woman's daughter's child.
v. <i>Papa</i> , mother's mother's mother, mother's mother's father, mother's mother's brother.	<i>papa'e</i> , daughter's daughter's child, man's sister's daughter's child, <i>p'epe'e</i> , <i>papa'e</i> , <i>pe'e</i> , man's sister's daughter's child.
vi. <i>P'epe</i> , mother's mother's brother.	<i>ku'e</i> , woman's son's child.
vii. <i>Kuku</i> , father's mother.	<i>'e'e'e</i> , man's daughter's child, etc.
viii. <i>Tefe</i> , mother's father, etc.	<i>lu'e</i> , man's brother's child.
ix. <i>Tu'je</i> ¹⁰ , father's brother.	

Dr Sapir conjectures "that originally the two members of a reciprocally related pair of individuals were referred to by exactly the same term, as in . . . the Takelma examples cited" [where *wi-gamdi* means 'my paternal grandparent' and also 'my son's child'] . . . but that the tendency to use the diminutive element with such terms [to indicate youth or affection] led to a specialization of usage." (p. 136.) Mr Harrington suggests a different explanation, namely, that in the formation of these pairs of terms the initiative, so to speak, is taken by the junior relative, so that the corresponding diminutive form represents a response on the part of the senior. "It is interesting," he writes, "to compare such English usages as when a child says: 'Auntie!' and its aunt answers, 'O you dear Auntie's child!' Thus, also, in Tewa: *ko'o*, 'Aunt!'—response: *'u'ko'o'e*, 'You nephew or niece.' " (p. 473.)

In support of the view that the titles of junior relatives, in these senior-and-junior terms with postpounded 'e, are not secondary modifications of reciprocal terms which were originally identical, it may be noted that a quite unusual proportion of all the Tewa names for senior relatives appear to belong to the class of "baby names."¹¹ They consist, that is, of reduplications of easily articulated sounds, *ba*, *da*, *ga*, *ma*, and so on, some of which find a place in the kinship terms of almost every language, because, uttered as they are at random by very young children, they are welcomed and appropriated by the older members of the home circle as evidences of recognition and attempts at significant speech.²

¹ See E. B. Tylor, *Primitive Culture*, chap. vi; J. C. R. Buschmann, "Ueber den Naturlaut," Berlin, 1853, transl. *Proc. Philological Soc. London*, vol. 6.

² Mrs C. B. Hodson, F.L.S., has been kind enough to procure the following notes on the first sounds uttered by an infant, the child of French and English parents, born in England: At about two months old he said "a"; at six months "de de da"; fifteen days later, "dadad," and occasionally "dadi." At one year he could say

Thus the Hano-Tewa *tada*, 'mother's husband, father, father's brother, father's clansman' (Rio Grande Tewa *tata*, *tato*) may be classed with English *dada* 'father,' Hindustani *dada* 'nurse,' Georgian *dēda* 'mother,' Welsh *idd* 'father,' Spanish, popular Latin, Bantu, Eskimo,¹ Minnitaree² *tata* 'father,' Kickapoo³ and Slave Lake Indian⁴ *thāthā* 'elder brother' and 'mother's brother,' Slave Lake Indian⁵ *tā* 'father,' English *ta* 'thanks,' English *tata* 'goodbye,' 'go' Italian for *dede* 'play,' and so forth.

Papa, 'mother's mother's mother' 'mother's mother's brother,' and (?) 'mother's mother's father' (San Ildefonso Tewa *papa* 'great-grandfather'), corresponds with English, French, Spanish, popular Latin, Caroline Islanders *papa* 'father,' Laguna⁶ *pāpā* 'grandmother,' Kootenay⁷ *pāpa* 'grandparent,' 'granddaughter,' Australian⁸ *pappi* 'father' and *pappa* 'young one,' Tule and Tabasco *pāp* 'father,' Chibcha⁹ *pābā* 'father,' Servian *baba* 'grandmother,' Hindustani *baba* 'father,' *babu*, 'child, prince,' English *pap* 'food,' popular Latin *papas* 'drink,' *papas* 'nurse-father,' *pappus* 'old man,' Italian *bobo* 'drink,' Santa Clara Tewa *paba* 'bread.'

T'ele, 'mother's mother's husband,' 'mother's father,' 'mother's father's clansman,' 'father's father' (New Mexican Tewa *t'ele*), and *p'epe*, 'mother's mother's brother' (not found in New Mexican Tewa), are very possibly the baby-names *tata* and *papa* modified, by the regular Tewa device of aspiration, to mark a distinction between the mother's husband and the mother's mother's husband, the mother's mother's father and the mother's mother's brother. An informant at Hano explained *p'epe* as "the same as *papa*," and the common diminutive *papa'e* confirms this.

Tūly'ny, 'father's own brother' (New Mexican Tewa *ty'ny*, 'father's brother,' Santa Clara and Nambe; 'father's or mother's brother,' San Ildefonso) seems to be another specialized form of *tata*.

"maman"; at fourteen months he began to attach a meaning to certain sounds, using "da" or "din" for "donne" and "tiens." At fifteen months he said "papa," and "A bole" (for ça brule), and frequently repeated "déradéra." At sixteen months he began to repeat words which his parents tried to teach him. At his present age of twenty-two months he makes almost daily progress, but shows some preference for reduplicated sounds, e. g. "baba" for "boire."

¹ Morgan's tables.

² Tylor, loc. cit., tribe not specified.

³ The irregular use (which Mr Harrington points out) of *mq'qmq* and *mq'qmq'e* in New Mexican Tewa, I take to be part of a general break-down of kinship terms connected with the change from matrilinear to patrilinear reckoning and the decay of clan consciousness.

M̄m̄m̄, 'mother's brother,' 'elder clansman' (New Mexican Tewa *m̄m̄*¹) is to be classed with the almost universal *mam*, *mama*, 'mother,' 'breast,' 'suck,' of European languages; Tahkali, Tlatskanai, and Georgian *māma*, 'father,' Kocch *mama* 'uncle,' Tamil and Telegu *mama*, 'mother's brother.'

Pīpī, 'elder brother' (not found in New Mexican Tewa), is comparable with Hindustani *bihī* 'nurse,' Swahili *bibī* 'aunt,' Australian¹ *bee-bee* 'breast.'

Kaka, 'elder sister' (not found in New Mexican Tewa), is the meaningless *ga-ga* of English baby-speech.

Possibly *ka'je*, 'mother's sister,' is a modification of a baby-word *ka*, and *tife*, 'younger brother or sister' of a baby-word *ti*; compare New Mexican Tewa *titi* 'doll,' 'baby,' and Lowland-Scottish *titty*, 'younger sister.' The baby-word *n—n—* (as in Tule *nan* and Spanish *nana* 'mother,' English *nana* 'nurse,' Blackfoot¹ *ninnah* 'father,' Greek *νννν* 'uncle,' Milanese¹ *ninin* 'bed,' Italian¹ *ninnare* 'to rock the cradle') does not form any kinship term in the Hano dialect; and, as far as I know, it appears only in *nana* 'father's sister' in the Santa Clara Tewa.

At the present time, one constantly hears Tewa mothers teaching their infants to pronounce relationship terms. A mother holds up her baby to greet (say) her husband's mother, saying to it repeatedly "*kuk'ugi na tul*" 'say *kuk'ul*'; and, if the child complies, or even before it does so intelligibly, the elder relative never fails to respond with enthusiasm, "*h̄p, n̄q̄bi ku'el*"—"yes, my little *ku*!"

If we are right in supposing that the first member in each of these pairs of reciprocal terms (except in *saja—saja'e*) is a baby-word, more or less modified, then some such process as this must have brought about in the past the standardization of these terms. The first step in forming them must have been taken by the junior of the two relatives. The baby, stimulated by the sight of a friendly face, must be supposed to utter the sounds *m̄ m̄* or *pa pa*, and the senior relative to respond *n̄q̄bi m̄m̄'e* 'my little *m̄m̄*!' or *n̄q̄bi pa'pa'e* 'my little *papa*!' The child is encouraged to repeat these successful sounds, and a particular relative is pointed out to the child in connection with them. Later, under adult influence, the mother's mother's husband is distinguished from the mother's husband as a different kind of *tada—a t'el'e*. The suffix *'e* is essential to the reciprocal term.

¹ Tylor, loc. cit., tribe not specified.

These adaptations of baby-words as terms to express relationship are not without bearing, I think, on Professor Kroeber's contention¹ that modes of using terms of relationship are conditioned not by social causes but by causes purely linguistic and psychological. Undoubtedly such forms as *mama*, *papa*, *dada*, come into existence only because they are sounds which young children pronounce easily and therefore frequently and distinctly, and they become kinship terms only because they are appropriated as such by adult relatives; and to this extent they are "determined primarily by linguistic factors." But the assignment of these words in various languages as names to particular relatives and classes of relatives is another matter. The few examples quoted in this paper are enough to dispose of any "purely psychological" explanation.

As Tylor suggested forty years ago,² if *mama* in one language means 'mother' and 'breast' and in another 'uncle,' and *tata* means 'father' in one language and in another 'good-bye,' the application can scarcely be determined by "inherent expressiveness." It is plainly a question of household familiarity—of residence; the easiest and earliest baby-words are appropriated to the relatives who see the baby most often. In other words, the usage is determined by social causes. For example, in the European "family" system,³ based on the father-mother-and-child home, the easy labial forms *m*—*m* and *p*—*p* are appropriated to the child's own mother and father: 'Chiamo papa à chi me da pane.' And, in European family life, what does an infant know of its mother's mother's brother or even of its mother's brother? But in the "clan" system of the Hano-Tewa, based on the home-life of a matrilinear clan household with matrilocal marriage, it is not surprising that the easy labial forms *papa* and *mɛmɛ* should be assigned to important members of the mother's clan.

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LINGUAL CONSONANTS IN INDIA AND NORWAY

STUDENTS of philology and phonetics recognize a class of consonants in the languages of India called variously linguals, cacuminals, or cerebrals. The last designation is a mistranslation of the Sanskrit *mūrdhanya*

¹ *Journ. Roy. Anth. Inst. Gl. Brit.*, 1909, XXXIX, 77.

² Tylor, *op. cit.*

³ Dr Rivers (*Kinship and Social Organisation*, 1914, pp. 71, 82) suggests a three-fold division into "family," "kindred" and "clan" systems in place of the two-fold division into "descriptive" and "classificatory."

(literally, 'head sounds'), "thoughtlessly repeated by many Sanskrit scholars," to quote Max Müller, "and retained by others on the strange ground that the mistake is too absurd to mislead anybody" (*Science of Language*, London, 1899, II, p. 157). These sounds are uttered with the tip of the tongue turned up and drawn back so that the lower surface is brought against the dome of the palate. Such are the Sanskrit *ḷ*, *ḥ*, *ḡ*, *ḥh*, and *ṇ*. This type of consonants is peculiar to the languages of India, at least they do not appear to be found in any Aryan or Indo-European language outside of India, with one exception. This exception is of special personal interest to the present writer, as it happens to be found in his ancestral speech, the rural dialect of the "east country" or interior of southeastern Norway. There occur lingual *d*, *t*, *n*, *r*, and *l*. These are popularly known as "thick l." Thus both of these lines of a popular saying have lingual terminations:

"Regner og skinner solen
Er det fineste veiret paa jorden."

(Literally, "Rains and shines the sun is the finest weather on the earth.")

Special study has been made of the origin and distribution of the lingual or cerebral consonants in India by the later Rev. L. O. Skrefsrud, head of the Scandinavian Mission to the Santals, who came from the "east country" of Norway, and therefore recognized in them familiar sounds of his native dialect. He was a scholar of distinguished attainments in both European and Asiatic languages, honored by English and Indian institutions and societies.

The Santals are a division of the Munda or Kols, also known as Kolarians, who form a distinct linguistic stock, though racially they appear to be of mixed origin. Negroid, Mongolian, and Caucasian characteristics are found among them, the last being the most prevalent. Tribes of Munda speech formed an element of the aboriginal population of India, before the arrival of the Aryan-speaking people. They were formerly spread over the plains of Bengal, but are now restricted to the hills and jungles between Upper and Lower Bengal, the Chota Nagpore plateau, and from the Ganges to about 18° N. lat. (see Keane, *Afan Past and Present*, p. 558). The Santals give their name to the district of Santal Parganas. The prevalence of Caucasian physical traits among the Santals and kindred peoples indicates that extensive mixture has taken place between the aborigines and the Aryan immigrants, and there are also evidences of reciprocal cultural influences. Dr Skrefsrud holds that this aboriginal type of language has had great influence on Sanskrit

and its descendants, the Aryan languages of modern India. The lingual consonants, with which we are here concerned, are found also in Santālī, and it is the opinion of this authority that their presence in Sanskrit is the result of borrowing or imitation, that they were not originally Aryan phonetic elements (*Prædikener og Foredrag*, Minneapolis, 1896, pp. 143 sq.). Their occurrence in Norwegian dialect presents an interesting phonological problem. It need hardly be said that the writer is not endeavoring to lay the foundation for a theory of linguistic transmission between India and Norway, after the manner of the author who cited the presence of *ṭ* in a certain Old-world language as proof that the Mexican aborigines originated in that particular region of the Eastern Hemisphere.

It may be mentioned here that the excellent volume entitled *The Folklore of the Santal Parganas* (London, 1910), which bears on its cover and title-page the name of the English translator, Mr C. H. Bompas, of the Indian Civil Service, is a product of many years' painstaking and scholarly work by Dr Skrefsrud and his coadjutor and successor, the Rev. O. Bodding. A large part of the material contained in the book was previously published in Norwegian in this country and in Scandinavia.

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SCIENCE NOTES FROM IRELAND

By the death of Dr Patrick Weston Joyce at his home in Rathmines, County Dublin, on January 7, 1914, at the ripe age of nearly 87 years, Ireland loses one of her most devoted sons and her most profound interpreter since the passing of O'Donovan and O'Curry more than half a century ago. Doctor Joyce first saw the light in 1827 in the little village of Glenosheen ("Glen of Oisín"), County Limerick, almost under the shadow of the historic Galtees and in the center of a district where the old life and language were well kept up to within a recent period. Born under the Penal Laws, when education was proscribed and the school-master outlawed, he lived to become, under the kindlier working of a more enlightened policy, a chief factor in the educational upbuilding of his native country. His first teaching was in the "hedge schools," sometimes in the open air under the shelter of a roadside hedge, but more often in the cabin kitchen of his mother, with the rest of the pupils, study and recitation going on amidst the noise and confusion of the household routine. The teacher himself might be a graduate of Paris or Salamanca. Wherever the class held, young Joyce was always a welcome part of it,

for he carried a fife, and, taught by his father, who was a lover of the old music, could "roll off jigs, reels, hornpipes, and song tunes without limit." When eighteen years of age, being already well grounded in the classics and natural sciences, he went to Dublin, successfully passed the required civil service examination, and was appointed a teacher of method in the Training College of the Commissioners for National Education. In 1874 he became principal in the same institution. One fruit of these years of experience is his *Handbook of School Management*, which was adopted as the official standard and went through twenty-five editions. Later he was appointed one of the commissioners for the translation and publication of the Brehon Law Code of ancient Ireland. In 1893 he retired from official duties to devote himself to his chosen field of Irish studies, for which he was thoroughly equipped by his intimate knowledge of the language, history, music, and customs of the country. Among his more important works, most of which have passed through several editions and revisions, are: *A Social History of Ancient Ireland*, in two volumes, a work of immense research and based in part upon O'Curry's *Manners and Customs*; *The Story of Ancient Irish Civilization*; *A Concise History of Ireland*; *Origin and History of Irish Names of Places*, in two volumes, another work of great research and value; *Old Celtic Romances*; *A Grammar of the Irish Language*; *A Handbook of School Management*; *Ancient Irish Music*; *Old Irish Folk Music and Songs* (1909), containing more than eight hundred old airs and songs hitherto unpublished. His latest work, *English as we Speak it in Ireland*, a masterly analysis of the Anglo-Irish dialect, appeared in 1911. He also edited the *Ballads of Irish Chivalry*, of his gifted brother, Robert Dwyer Joyce, author of *Deirdre*, *Blánid*, and other poems of the old heroic period. Doctor Joyce was an M.A. and LL.D of Trinity College, member and councilor of the Royal Irish Academy, member and president (1909) of the Royal Society of Antiquaries of Ireland, member of the consultative committee of the Irish Texts Society, and active worker in the Gaelic League, particularly in the popularizing of the old native music, in which he found his chief delight. He was a man of lovable personality and stood for all that was best of his race and country.

THE archeological collection of W. J. Knowles, Esq., of Ballymena, County Antrim, the finest private collection in Ireland, has been catalogued and offered for sale by the owner. Mr Knowles is recognized as the dean in Irish archeology, and for more than half a century has devoted all his leisure and a considerable part of his resources to the exploration of the mounds, souterraines, and sand-dunes of the northern and western

coasts of Ireland, the results appearing in various publications of the Royal Irish Academy. Being now 83 years of age and no longer able to prosecute active field research, he has decided to dispose of the collection, which has already served its first study purpose. Exclusive of arrow-points, it comprises some 40,000 stone implements of the Neolithic period, many of which are unique and without duplicate in any museum. It is also very rich in artifacts of the early and later Bronze periods. Mr Knowles has prepared an illustrated catalogue, in which work he was ably assisted by his talented daughters, Miss Margaret Knowles, the artist, and Miss Matilda C. Knowles, of the National Museum in Dublin. The collection is valued at £6000. Offers have already been made for portions of it, but the owner desires to sell it intact if possible, and to keep it in the country. It may interest readers on this side of the water to know that Ballymena was the home of James Adair, trader among the Southern tribes prior to the Revolution, and author of the noted *History of the American Indians* (London, 1775).

AN important contribution to our knowledge of early civilizations in the north of Europe is *The Bronze Age in Ireland*, recently issued by Hodges, Figgis & Co., Dublin. The author, Professor George Coffey, T.C., M.R.I.A., holds the position of Keeper of Irish Antiquities in the National Museum of Ireland, and is already known for his studies of Keltic antiquities of the early Christian period, his monograph on the great chambered mound of New Grange, and his researches concerning the Cretan and Aegean influences in western Europe. The work deals also with the prehistoric gold art in Ireland.

UNDER the editorship of Professor Carl Marstrander, M.R.I.A., professor of Keltic philology in the University of Kristiania, the Royal Irish Academy has undertaken the publication of a monumental source "Dictionary of the Irish Language," based mainly on Old and Middle Irish manuscript materials from the earliest literary period to about the close of the sixteenth century, and embodying all of Professor Kuno Meyer's "Contributions to Irish Lexicography." The primary purpose of the work is to furnish a key to the study of the ancient manuscripts. We quote from the prospectus issued by the Council:

"The present work is on a much larger scale than that of the 'Contributions' of Professor Kuno Meyer, referred to. The aim of its editor, Professor Carl Marstrander, is to provide a thesaurus of the Irish language on historical principles, from the earliest times down to the modern Irish period, with copious citations illustrating not only the meanings of words, but also their grammatical inflexions and the changes they have

undergone in the course of centuries. The material upon which the work is based has been collected by the Academy during a number of years, and is derived from manuscripts and printed sources, covering almost every field of Irish literature. There exists at present no dictionary of these monuments of early Irish literature, which are, without such a key, inaccessible to all save the very few. Students have had to content themselves hitherto with the slender aid provided by glossaries to individual texts, quite inadequate for the purpose. The Dictionary when complete will fill three volumes of about 1000 pages each. . . . It will be issued in fasciculi, the price of which, to subscribers only, will be one shilling per sheet of 16 pages (2 columns each page), post free; or large paper edition, of which only 100 copies will be printed, one shilling and threepence per sheet. The first fasciculus, containing 112 pages, will thus cost subscribers 7s., or on large paper 8s. 9d. The price to non-subscribers will be 8s. 6d. and 10s. 6d. respectively.

In connection with the present activity in Gaelic studies Mr T. O'Neill Lane of Tournafulla, County Limerick, one of the leading authorities upon the language, announces as nearly through the press his great *English-Irish Dictionary*, upon which he has been engaged for a number of years. The published volume will make nearly 1600 octavo pages, with material and illustrative examples drawn from every part of the country, and as a compendium of the spoken language of today will undoubtedly take first rank. The advance sheets have received the hearty endorsement of such distinguished Keltic scholars and philologists as Hyde, Meyer, Windisch, Rhys, Gaidoz, Pedersen, Dottin, and Van Hamel. In a personal letter the author states that he has devoted to the work a large part of twenty years, and all of his time for the last six years, and has spent upward of £2500 in getting the material. He adds: "I have endeavoured to make the Dictionary a national monument, and you will see by the enclosed comments of Celtic scholars of international repute that I have to a considerable extent succeeded in my aim, and at all events produced a book which will be an honour to our country and a valuable contribution to Indo-European philology as well as an important aid to all students of Irish."

JAMES MOONEY

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THE "RED-PAINT PEOPLE"—II

IN my article on the identity of the "Red-paint People" which appeared in this journal (vol. 15, 1913, pp. 707-710), I endeavored to make

my argument clear and concise, but in this I evidently failed as is shown by the wording of Mr Moorehead's reply (*ibid.*, vol. 16, pp. 358-361).

The graves discovered by Mr Moorehead's party in Maine are of interest, but their origin is not a veiled mystery as he is striving to have all believe. This endeavor on his part is seemingly caused by his desire to discover the unusual, and his failure to consult the writings of others. He prefers to formulate his own opinions irrespective of known facts and conditions.

My argument is this: The graves discovered by Mr Moorehead on the coast of Maine differ in no respect from those rifled by the Pilgrims near the present Provincetown, November 11, 1620. These burials had been made in pits which could not be distinguished from those containing corn and other provisions. The bodies were in a good state of preservation, indicating recent burials. These were wrapped and bound, and the bundle thus formed contained "a great quantitie of fine and perfect red Powder." Many articles were found in or about the graves, including "Boules, Traves, Dishes, and such like Trinkets." The material of which these were made is not specified, but they were probably fashioned of wood or of bark, as was the custom among the New England Indians. Therefore we have no mention of pottery vessels occurring in these graves, and it is interesting to know that lack of pottery among the Maine graves is given by Mr Moorehead as one of the characteristic features of these burials.

Although Mr Moorehead worked carefully, he was unable to discover the limits of many graves, but Mr Willoughby was more successful and was able to show them to be in the form of pits, from two to three feet in diameter and of about the same depth. Hence these correspond to the caches met with in the vicinity of many Indian villages, similar in every respect to those opened by the Pilgrims, some of which still contained corn and other stores, while others had been utilized as places of burial. Could we at the present time discover these graves, dating from the early years of the seventeenth century, they would present the same features as those occurring on the coast of Maine. All material of a perishable nature would have disappeared, only the "red paint" and implements remaining. These facts will be understood and acknowledged by all who are not seeking the weird and mysterious.

At present it is not known to what extent this form of burial was practised by the aborigines of New England, but finding it in several places in Maine, and having indisputable evidence of its having been followed by the inhabitants of Cape Cod, leads us to believe that similar

graves could be discovered at other points along the coast, and possible in the interior.

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THE "RED-PAINT PEOPLE"—II

IN the *American Anthropologist* for January-March, 1913, Prof. Warren K. Moorehead, in describing his archeological work in Maine, calls the makers of the graves investigated there by him, the "Red-paint People," and tells us that, excepting the strange remains of the cave people of the Ozark mountains (which also were investigated by him), perhaps nothing found in recent years in the United States is comparable in interest to the problem of the "Red-paint People."

When a claim implying so much is brought forward about some scientific discovery the assertion should, of course, be clearly substantiated in every particular, and all the more should this be done when one has allowed himself to make it in reference to his own work.

In the *American Anthropologist* for January-March, 1914, I pointed out how inappropriate it was to call the makers of these graves in Maine "the Red-paint People," and cited instances of the use of this red paint with burials, with which Professor Moorehead ought to be perfectly familiar.

In this journal for April-June, 1914, Professor Moorehead replies to my criticism, but fails to show, in my opinion, by what right the title "Red-paint People" was accorded by him to the makers of the Maine graves, inasmuch as the use of red paint with large numbers of burials, and often in great quantities, had been reported prior to his investigation. If Professor Moorehead thinks he has discovered a new culture in Maine, let him select a title for the people connected with it which shall be at least distinctive and not one that might be applied to a class of paleolithic burials, to many ancient burials in Europe and in this country, and to very numerous interments throughout a certain part of Florida, all of which had been reported prior to Professor Moorehead's archeological investigations in Maine.

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ANTHROPOLOGIC MISCELLANEA

Anthropology at the British Association.—The Australian meeting of 1914 will always occupy a prominent place in the annals of the British Association, if only on account of the interest attaching to the proceedings of its Anthropological Section. Not only did the representatives of this rapidly developing branch of science muster in full strength, but their discussions, bearing as they did largely on Australian problems which are concerned with the most primitive of existing human types, were throughout directed to fundamentals. Needless to say, the shadow of the great war raging in Europe cast a chill over the spirits of all concerned, and it needed a certain moral effort to carry through a program in which, at least as originally designed, business and pleasure claimed equal shares. As it was, the inclination of the balance toward the side of seriousness was not without its advantage for those students who found the allotted time all too short to enable them to cope with Australia's magnificent ethnological collections. These must be seen before one is in a position to assign to Australian culture its true place in the evolutionary scale.

In Western Australia certain anthropologists of the advance party got into touch with aborigines, and again in South Australia Professor Stirling organized a most successful expedition of the whole section to Milang, where a large group of the Narrinyeri tribe were on view, so that everyone was presently hard at work, spurred on by the discovery that, even if degeneration has gone far, there still exists plenty of valuable lore to be garnered. It must be added that in the Adelaide Museum Professor Stirling has amassed wealth untold in the way of ethnological material, special value attaching to the spoils from the central deserts, illustrative as they are of the life of the now famous Arunta and their congeners. At Adelaide, too, Professor Sollas gave an evening lecture on prehistoric man, which delighted his large audience.

Formal proceedings opened at Melbourne on Friday, August 14, Prof. G. Elliot Smith leading off with a remarkable comparison of certain customs and inventions of the ancient Egyptians with those of primitive peoples of the Far East, the full development of his argument being unfortunately somewhat hampered by want of time. After Dr A. Low had described the finding of certain curious cists of the Bronze age in the

northeast of Scotland, the section adjourned to the museum. Here, first of all, Messrs A. S. Kenyon and D. J. Mahoney exhibited and explained a very rich series of aboriginal stone implements, extending from the well-polished adze at one end of the scale to the roughest Paleolithic and even Eolithic types at the other. Then Prof. Baldwin Spencer showed all manner of specimens of native handiwork, including a remarkable series of drawings on bark from the Alligator river, Northern Territory.

On Tuesday, August 18, Mr Balfour gave forth the results of his investigations into the remains of an early Stone age in South Africa. He was followed by Dr Marett, who, as chairman of the committee that has undertaken the recent excavation of a Mousterian cave habitation in Jersey, was able to report a rich harvest of discoveries. Prof. G. Elliot Smith and Prof. J. Symington then engaged in a discussion, scarcely less impassioned than it was profound, concerning the possibility of deducing the shape of the human brain from that of the inner surface of the cranial wall, with special reference to the primitive characters that have been attributed on these grounds to the Piltdown skull. Major A. J. N. Tremearne, who was returning next day to Europe on military duty, wound up the morning with a well-illustrated account of the Bori, or disease-spirit, ceremonies of certain Hausa colonies in North Africa. In the afternoon Prof. Felix von Luschan, of Berlin, delighted a large audience with a discourse dealing with the question, "Are we degenerate?" and embodying various more or less startling proposals of a practical nature in the interest of eugenics.

On Wednesday, August 19, the whole morning was devoted to a debate, initiated by Dr Rivers, on the subject, "Is Australian Culture Simple or Complex?" The section listened with the greatest interest to Dr Graebner, who holds strong views on this particular topic, and the ball was kept rolling by Professors Sollas, Berry, von Luschan, and Haddon, Rev. J. Mathew, Mr Balfour, Mr A. R. Brown, Dr Malinowski, Dr Marett, and others. The discussion as a whole was most profitable, though perhaps it raised more problems than it solved. It remains to add, in reference to proceedings in Victoria, that, besides enjoying unlimited facilities for study at the museum, and in Professor Berry's well-equipped department of anatomy, the anthropologists had the opportunity of visiting an aboriginal quarry at Fisherman's Bend, near Melbourne, and, again, of making further acquaintance with aborigines, since the Colanderrk station near Healesville provides types from several parts of the continent, the older members of the native community pre-

serving considerable traces of their former culture, as witness their corroborree songs which Professor von Luschan was careful to record by means of the phonograph.

Arrived at Sydney, the section on Friday, August 21, was treated by Sir Everard im Thurn to a presidential address which summed up in telling fashion his impressions of the character of the so-called "savage" in the shape of the primitive Fijian. He emphasized "the enormous, scarcely conceivable difference in habit of thought which separates the savage from the civilized man," and showed on the strength of his experience as an administrator that the process of mutual adjustment, so far as it is possible at all, must necessarily be slow, demanding, too, on our part much patience, good will, and anthropological science.¹ Dr Ashby followed with an account of various archeological discoveries of his own at Malta. Then a most sensational announcement was "sprung" on the meeting. It appears that, just about the time that the pioneers of the British Association were setting foot on Australian soil, a highly petrified skull was found on the Darling Downs, Queensland, such as may very well prove to be assignable to Pleistocene times, Pleistocene man in Australia having hitherto existed only in the sphere of pure hypothesis. Professors David and Wilson, who exhibited the specimen to the much-moved section, were careful to state the case for the attribution of a high antiquity to the specimen with the greatest caution, the chief argument, pending a full study of the anatomical characters, resting on the fact that the state of petrification which the skull displays corresponds closely to that observable in regard to the remains of *Diprotodon* and other extinct animals from the same district. The Reverend Doctor George Brown then read extracts from an interesting paper on Samoan folklore, which he has offered to *Folk-Lore* for publication.

On Tuesday, August 25, the morning session opened with a discussion, led by Dr Haddon, on the importance of the study of anthropology for the administrator. The president lent the weight of his great authority to the plea for a more thorough instruction of those who are set over natives in the mental habits and culture of their charges, and something was said by other speakers of what is being done by some of the British universities to provide an education in anthropology, both theoretical and applied. Dr Rivers next spoke of gerontocracy in its bearing on marriage in Australia, showing how the old men's tendency to appropriate all available wives has in certain cases left its mark on the per-

¹ Sir Everard im Thurn's presidential address appears in *Science*, New York, October 9, 1914.

manent structure of society. Mr A. R. Brown followed with an account of the varieties of totemism in Australia, his classification covering several new types recently discovered by himself in Northern Territory, or by Mrs Bates in the Eucla district. In the afternoon the section repaired to the museum, where local experts provided a full program. Mr R. Etheridge commented on various ethnological exhibits from Australia and New Guinea, being part of the rich collection over which he presides. Mr S. A. Smith dealt with various anatomical peculiarities of the Australian aborigines. Messrs Flashman, Hedley, Enright, and Elmore were also to thank for interesting contributions and exhibits, while a great debt is due to Prof. J. T. Wilson, who, despite the severe duties of military censor, managed to arrange for so strongly supported and well-organized a sectional meeting as that of the anthropologists at Sydney.

It has proved quite impossible to do justice here to the multitudinous experiences which, altogether apart from the formal proceedings of the section, have served to make the Australian visit of the Association, and of the anthropologists in particular, at once pleasant and profitable in a quite unique way. The unfailing kindness and hospitality shown by our over-seas brethren one and all make it a too invidious task to assign special thanks, and it must suffice, by way of showing due gratitude, to see to it that, in the way of science, Australia's myriad wonders and excellences are henceforth rated at their proper worth. As for the anthropologists in particular, they cannot be accused of having neglected Australia, since it has ever been the happy hunting-ground of the theorist seeking to reconstitute the life of primitive man; but at any rate it is likely that henceforth the study of Australian problems will proceed more intensively, inasmuch as the astonishing wealth of the Australian museums has been realized from near at hand. Moreover, we come away feeling that we have left on the spot plenty of men capable of carrying out the best kind of anthropological work, if only those in control of ways and means can be induced to make proper provision for a branch of study in which Australia might well aspire to lead the world. — *Nature*, London, October 22.

A Cheyenne Dictionary.—The veteran Mennonite missionary, Reverend Rodolphe Petter, who has spent twenty-three years with the Cheyenne of Oklahoma, and is without question the best authority on the language and general ethnology of the tribe, announces as nearly ready for publication his "English-Cheyenne Dictionary," a monumental work which has engaged much of his study time for a number of years. Mr

Petter is of Switzerland, the country which has given to American ethnology Gallatin, Gatschet, and Bandelier. After graduating in theology and receiving ordination at home, he volunteered for the Indian mission work, having as an equipment, besides a practical knowledge of agriculture and mechanics, a ready acquaintance with the classical languages, French, German, and medicine, to which he afterward added English on arriving in this country. In 1891 he was assigned to the Cheyenne mission at Cantonment, Oklahoma, where he has since resided until within the last year, being now on temporary furlough for the purpose of arranging his linguistic material. On coming to the tribe Mr Petter at once devoted himself to an earnest study of the language, which he mastered so thoroughly that for years he has used it entirely in all his communication with the Indians, both in church and in camp. His English also is nearly perfect, and he preaches as occasion demands in any one of four languages with almost equal fluency. A manuscript English-Cheyenne dictionary which he prepared some years ago has been several times laboriously duplicated for the use of other missionaries in the tribe, both in Oklahoma and Montana, and forms the basis of the present work. He has also published in the same language a *Cheyenne Reading Book* (1895), the first book ever published in Cheyenne; translations of the gospels of Luke and John; the *Pilgrim's Progress*; several compilations of hymns; and a considerable volume of extracts from the Old and New Testaments (*Hoxz Makeo Heessistoz*, 1913). His "Sketch of the Cheyenne Grammar" was published in Volume I of the *Memoirs of the American Anthropological Association* in 1907. He has also a Cheyenne-English Dictionary and a Cheyenne Grammar still in manuscript.

As originally planned, the present dictionary would make nearly 1000 printed pages of large size, in two volumes, and embodying, besides etymologies and definitions, a great amount of ethnologic material relating to botany, medicine, geography, ritual, and daily home life. The price is necessarily high, the edition being limited to about fifty copies, and the printing being done upon the Gammeter multigraph, by his son, Valdo Petter, who was born with the tribe and knows the language thoroughly. Should the work receive sufficient encouragement it will be followed by a Cheyenne-English Dictionary and a Cheyenne Grammar. Further information and specimen sheets may be obtained by addressing the author, Rev. Rodolphe Petter, Kettle Falls, Washington.

JAMES MOONEY

Philadelphia Meeting of the American Anthropological Association.—

The annual meeting of the American Anthropological Association was held at the University Museum, Philadelphia, December 28-31, 1914, in affiliation with the American Folk-Lore Society and Section H of the American Association for the Advancement of Sciences. The attendance was satisfactory, and a rather extended program was presented. It was decided to hold a special session in San Francisco, August 2-7, 1915, and to empower Prof. A. L. Kroeber, of the University of California, to make all arrangements relating to the meeting. A decision as to the place of the next annual meeting was referred to the Executive Committee. The secretary of the Committee on Phonetics, Dr E. Sapir, read the committee's report in abstract, and the members were instructed to publish the entire report in whatever form seemed most appropriate. The following officers for 1915 were elected by acclamation: President: E. W. Hodge, Bureau of American Ethnology. Vice-President, 1915: Clark Wissler, American Museum of Natural History. Vice-President, 1916: A. L. Kroeber, University of California. Vice-President, 1917: George B. Gordon, University of Pennsylvania. Vice-President, 1918: Berthold Laufer, Field Museum, Chicago. Secretary: George Grant MacCurdy, Yale University. Treasurer: B. T. B. Hyde, New York City. Editor: Pliny E. Goddard, American Museum of Natural History. Associate Editors: J. R. Swanton, R. H. Lowie. Executive Committee: A. M. Tozzer, E. Sapir, J. Walter Fewkes.

Council: F. W. Putnam, F. Boas, W. H. Holmes, J. W. Fewkes, R. B. Dixon, F. W. Hodge, C. Wissler, A. L. Kroeber, G. B. Gordon, B. Laufer, G. G. MacCurdy, B. T. B. Hyde (*ex-officio*); A. E. Jenks, S. A. Barrett, W. Hough, A. Hrdlička, A. M. Tozzer, F. G. Speck, A. A. Goldenweiser, E. A. Hooton, A. V. Kidder, F. C. Cole (1915); Byron Cummings, G. H. Pepper, W. C. Farabee, J. R. Swanton, G. G. Heye, H. J. Spinden, T. T. Waterman, C. M. Barbeau, W. D. Wallis, A. B. Lewis, Stansbury Hagar (1916); W. C. Mills, H. Montgomery, C. B. Moore, W. K. Moorehead, C. Peabody, C. C. Willoughby, T. Michelson, A. B. Skinner, M. H. Saville (1917); A. C. Fletcher, C. P. Bowditch, S. Culin, R. H. Lowie, C. H. Hawes, E. Sapir, N. C. Nelson, H. Bingham, J. A. Mason, G. A. Dorsey, E. W. Gifford (1918).

"Pawnee," "Tatarrax," and "Harahey."—Information received from Mr James Murie, a member of the Pawnee tribe, sheds additional light on the derivation of these three names. After extended inquiry Mr Murie has reached the conclusion that the common tribal name

PAWNEE is from *Parés**, signifying "hunters," and was the answer given by Pawnee when first asked by white people who they were. In this term the *r* is not pronounced as in English, but sounds like fused *r-d*, while the final vowel (*) is barely uttered. TATAERAX, it will be recalled, is mentioned by Gomara (Hist. Gen. Indies, cap. ccxiii, 1553) as the name of a chief of the province of Harahey, that lay beyond the province of Quivira, which latter has been identified as the country of the Wichita Indians in eastern central Kansas in the middle of the sixteenth century. Mr Murie states that Tatarrax is evidently intended for *Táturash*, meaning "I found it," sometimes shortened to *húrash*. A Skidi Pawnee bearing the same name died in Oklahoma after the tribe was removed thence from Nebraska in 1873-75. The name HARAHEY, asserts Mr Murie, is unquestionably derived from *Awáhi*, the name by which the Skidi are known to the Wichita. Indeed this derivation is the only reasonable one, since Coronado learned of the province of Harahey while among the Wichita (Quivira) Indians, consequently his chroniclers recorded the Wichita designation for the important Skidi branch of the Pawnee.

F. W. HODGE

The Berlin Music Archive.—One of the most important and interesting departments of the Berlin University Museum is the Phonogramm-Archiv, a collection of phonograph records of the music of primitive peoples in all parts of the world. The Archiv is in direct connection with the Psychological Institute and is under the able supervision of Dr Erich M. von Hornbostel, of international reputation in his specialty, assisted by Dr Otto Abraham. Dr von Hornbostel himself is originally of Vienna, where he established the first important work of the kind, the Phonogramm-Archivs-Kommission of the Imperial Academy of Sciences, now in charge of Dr Rudolf Poch, author of a valuable *Guide for Collectors of Phonograph Records*. The Berlin collection exceeds 5000 cylinders, representing hundred of tribes, particularly those of the German colonies and protectorates in Africa and the Far East, and including also a number of Indian records taken by Dr von Hornbostel while studying the Plains tribes some years ago. Bulletins and journal papers embodying the results of special studies are published from time to time, one of the latest, by Dr von Hornbostel, relating to the music of the Solomon islands, based on material of the Thurnwald South Sea Expedition, 1906-1909. He has also in contemplation monographs on the pan-pipes and xylophone, and on Chinese musical form. A series of lectures on music development is conducted for the University by Dr C. Stumpf, author of *The Beginnings of Music*.

JAMES MOONEY

William Nelson, lawyer and historian, died at Paroma, Mata, on August 10, after an illness of more than a year. He was born in Newark, N. J., February 10, 1847, received a public school education, and was given the degree of A. M. by Princeton in 1896. He engaged in journalism in Newark and Paterson for several years, was admitted to the bar, and practised law at Paterson since 1875. Mr Nelson was chairman of the Public Records Commission of New Jersey, secretary of the New Jersey Historical Society since 1880, and a member of several other historical and scientific organizations, including the American Anthropological Association, of which he was a founder. He was editor of the *New Jersey Archives*, and author of *The Indians of New Jersey*, *Personal Names of the Indians of New Jersey*, *History of the City of Paterson*, etc.

IN the September number of *Folk-Lore* (London) Miss C. S. Burne continues her valuable studies of the geographical distribution of British folk-customs. In this paper she deals with the customs known as soul-ing, clementing, and catterning, practised in parts of the western midlands in November. They exhibit an example of successive layers of imported custom superimposed on a foundation of indigenous custom. First come the ancient, almost prehistoric, autumnal celebrations of the Old and New Year, probably always combined with a Feast of the Dead. Then Christianity transforms the pagan feast into the festival of Hallowmass. Next we meet with that combination of newly introduced subsidiary cults with newly organized and specialized crafts, which marks the progress of civilization in the Middle Ages. Thus St Clement and St Catherine come into local prominence. Finally comes the period of decay, when the theological changes of the sixteenth century shatter the religious side of the kindly old customs, while simultaneously the centralizing despotism of succeeding centuries and a civilization growing more and more complicated deprive these rites, once so important, of any real significance, and they dwindle away or are kept up only by the most conservative part of the population, the children, wherever their elders allow them to benefit by them.—*Nature*.

MR GEORGE G. HEYE has added a number of specimens to his North American ethnological collection in the University Museum, Philadelphia. Some of these were obtained by him in Europe during a journey which he made in the summer of 1913. Among these objects are a fine old painted buffalo-hide war-shield protected by its deerskin cover. This is a first-rate example of the war-shield of the Plains Indians. A number of pieces of quillwork also deserve special mention, as well as several pairs of

leggings of the Naskapi Indians with characteristic decorations in fine style and workmanship. The Heye collections have further been enriched by a number of wampum belts which, added to those already on exhibition, make this collection of wampum now the largest and most notable in existence. Among the Indian tribes represented by these wampum belts are the Penobscot, the Passamaquoddy, the Micmac, the Ojibway, the Delawares, the Huron, and the Iroquois. Besides the belts which have historical association, having been identified with treaty obligations, there are a number of ornaments and strings of wampum, such as served for ceremonial use.

IN the *Journal* of the Royal Society of Antiquaries of Ireland for September Mrs Brunnicardi contributes an interesting summary of our existing knowledge of the shore-dwellers of ancient Ireland. The map shows the curious distribution of their kitchen-middens. They appear at only three sites on the east coast, while on the west and south they are fairly numerous, chiefly in Donegal, Galway, Clare, Kerry, and near the harbors of Cork and Waterford. The writer discusses these remains in great detail with references to the original authorities. Very little pottery and no evidence of the use of metal are found in them, and Mr Knowles regards them as among the earliest remains we possess of the Neolithic age. These shore-dwellers appear to have been a distinct race, probably a degraded one, living almost entirely on shell-fish, periodically migrating in search of food, but possessing what may be termed headquarters to which the whole tribe sometimes returned, and this they regarded as their home.

THE UNIVERSITY MUSEUM of Philadelphia has announced the following lectures early in 1915: January 9, Roy Chapman Andrews, of the American Museum of Natural History, New York, "In the Wilderness of Northern Korea and Southern Manchuria." January 16, Professor A. V. Williams Jackson, of Columbia University, "Persian Art." January 23, Dr Esther B. Van Deman, Associate of the Carnegie Institution, "Roman Remains in Northern Africa." January 30, Prof. Charles C. Torrey, of Yale University, "Mohammedan Art." February 6, Prof. E. Washburn Hopkins, of Yale University, "Art of India." February 13, Prof. Frederick W. Williams, of Yale University, "Chinese Art."

The Sectional Committee of Section H of the American Association for the Advancement of Science recommended the names of twenty-eight members for fellowship, and the Council of that Association duly elected them. The recommendation of the Sectional Committee that George

M. Stratton, of the University of California, be elected Vice-President of the Section for the ensuing year, was likewise approved by the General Committee. Professor L. Witmer was elected a member of the Council; Dr P. E. Goddard a member of the General Committee; and Prof. F. Boas a member of the Sectional Committee to serve five years.

MR HARLAN I. SMITH, archeologist, of the Geological Survey of Canada, is carrying on intensive exploration in the shell-heaps of Merigomish, Nova Scotia, where important results are anticipated, especially since the country lying around the Gulf of St Lawrence was formerly inhabited by no fewer than four totally different tribes. W. B. Nickerson is continuing explorations in the mounds, earthworks, and village sites of southwestern Manitoba, and W. J. Wintenberg is exploring a section of country between Prescott and Peterborough for a site of a culture different from that of the Roebuck site which he excavated in 1912.

As previously announced in this journal, *CURRENT ANTHROPOLOGICAL LITERATURE* ceased publication with Volume II, No. 4 (October-December, 1913). Members of the American Anthropological Association or of the American Folk-Lore Society would do well to examine their files of this periodical, and should any of the quarterly numbers be lacking, to make immediate application for the missing parts to the Editor of the Association, who will have the lacunæ filled without cost. To non-members of either of the organizations mentioned the price is twenty-five cents per number.

A VALUABLE collection of ethnological specimens has just been received by the University of Pennsylvania Museum from Dr William C. Farabee, who is at the head of the University's Amazon expedition. The specimens were collected in the southern part of British Guiana among the Carib and Arawak Indians and other hitherto unknown tribes. They include clothing for men and women, made from the feathers of the macaw and other birds of rich plumage, paintings of religious ceremonials on sticks, beadwork, bows and arrows, spears, hammocks, and domestic utensils.

THE NATIONAL ACADEMY OF SCIENCES is to publish a monthly journal of proceedings, commencing with the present year. The main purpose of the proceedings is to obtain the prompt publication and wide circulation of a comprehensive survey, in the form of brief original articles, of the more important scientific researches currently made by American investigators. The field of anthropology will be represented in the new publication by Mr W. H. Holmes.

THE AMERICAN MUSEUM OF NATURAL HISTORY has received from Messrs M. Guggenheim and Sons the gift of a small collection of pre-historic objects found in a copper mine at Chuquicamata, Chile. The collection consists chiefly of hafted stone hammers and wooden scrapers. These were the implements used by the Indians in pre-Spanish days in collecting the copper (atacamite) with which they made knives and other implements.

A REMARKABLE showing was made during the first weeks of the year at the University of Utah at Salt Lake City, where more than forty students were enrolled in the elementary course in American archeology, seven in the advanced course (given in 1914-15 for the first time), and more than twenty in the class for Greek archeology. The courses in archeology are given by Dean Byron Cummings.

DR ALBERT S. BICKMORE died at Nonquitt, Mass., on August 12, aged seventy-five years. Dr Bickmore rendered great aid to the American Museum of Natural History, New York, in obtaining its charter in 1869, from which time until 1884 he was its curator; subsequently he traveled many thousands of miles in the interest of the Museum, gathering large collections.

IN the course of 1914, Mr F. H. S. Knowles, formerly of Oxford University, England, was appointed permanent physical anthropologist of the Geological Survey of Canada. The Anthropological Division of the Geological Survey now comprises three sections, Ethnology (including Linguistics), Archeology, and Physical Anthropology.

AT the meeting of the San Francisco Society of the Archeological Institute of America held at the Art Institute, November 28, papers were read by Dr Thomas T. Waterman on The Social Organization of Ancient Tenochtitlan and by Dr A. L. Kroeber on The Problem of the Age of the American Race and Cultures.

DURING the week ending November 14, Professor George Grant MacCurdy lectured twice for the Pittsburgh Academy of Science and Art, once at Swarthmore College, and once for the Hartford Society of the Archeological Institute of America.

THE LIBRARY OF CONGRESS has enriched its collection of books relating to the native languages of North America by the purchase of 168 volumes of duplicates in the Edward E. Ayer collection.

THE HARVARD CORPORATION has appointed Arthur W. Carpenter, of Boston, to the Central American fellowship in archeology, with an income of \$600 a year.

The American Folk-Lore Society re-elected Dr P. E. Goddard president and Prof. C. Peabody secretary, and elected Mr A. B. Skinner assistant secretary.

DR FERDINAND FREIHERR VON ADRIAN-WERBURG, former president of the Anthropologischen Gesellschaft in Wien, died April 14, 1914.

DR OTTO FINSCH, the well-known ethnographer and geographer of Braunschweig, celebrated on August 8 his seventy-fifth birthday.

DR J. WALTER FEWKES, of the Bureau of American Ethnology, has been elected a member of the American Antiquarian Society.

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EXOAMY AND THE CLASSIFICATORY SYSTEMS OF RELATIONSHIP¹

BY ROBERT H. LOWIE

SOME connection between exogamy and primitive relationship terminologies has been recognized for a long time. Morgan noted that among the Iroquois all clan members were brothers and sisters as if children of the same mother.² And though in his theoretical treatment of the subject he does not derive the classificatory system as a whole from the exogamous principle, he does attribute the change from the older Malayan to the later and more common Turanian form of the system to punaluan marriage as a predecessor of the institution of exogamy and to exogamy itself.³ Tylor, to my knowledge, was the first to view exogamy and the classificatory system as but "two sides of one institution."⁴ More recently both Frazer⁵ and Rivers⁶ discovered the origin of the classificatory system in "a social structure which has the exogamous social group as its essential unit," both conceiving this group as

¹ Read before the American Anthropological Association at Philadelphia.

² *League of the Ho-dé-no-sau-nee or Iroquois*, Book 1, chapter 4.

³ *Ancient Society*, Book 3, chapters 1-3.

⁴ "On a Method of Investigating the Development of Institutions, Applied to Laws of Marriage and Descent," *Journal Anthropological Institute*, xviii (1889), pp. 245-269, especially, p. 261 et seq.

⁵ *Totemism and Exogamy*, iv, p. 114.

⁶ "On the Origin of the Classificatory System of Relationships" in *Anthropological Essays presented to Edward Burnett Tylor*, pp. 309-323; *Kinship and Social Organization*, p. 70 et seq. The latter is an astonishingly stimulating contribution to the whole subject of kinship nomenclature.

an exogamous moiety, which indeed had already figured prominently in Tylor's essay.

It will be best to put this theory in somewhat more concrete form. Among the Iroquois, Morgan noted that a single term was applied to the maternal grandmother and her sisters; to the mother and her sisters; to the father and his brothers; and so forth. On the other hand, distinct terms were applied to the father's and to the mother's brother, to the father's and to the mother's sister.¹ All these facts are readily formulated by deriving the classification from the exogamous groups extant among the Iroquois: those relatives distinguished in our own nomenclature and not distinguished in that of the Iroquois are members of the same exogamous division, while those not distinguished by us and separated by the Iroquois are necessarily members of different divisions. From this point of view the objection otherwise plausibly urged against denying the name "classificatory" to our own system since it, also, ranges certain relatives in *classes*, becomes impossible. It is no longer a question, whether our terms "uncle," "aunt," or "cousin" are "classificatory" in a purely etymological sense of the term; nor whether the classificatory principle is quantitatively more important in certain primitive systems than in our own.² The point at issue is the *basis* of the classification, and having regard to this there obviously exists a real difference between a system that classifies, say, cousins from both the father's and the mother's side under a common term and a system that rigorously divides relatives of the paternal and the maternal line on the ground of their different clan or gentile affiliations. Thus, the Tylor-Rivers theory, on the one hand, briefly summarizes and makes intelligible certain modes of classification operative in many primitive systems that otherwise might seem purely capricious; and, moreover, it furnishes at last a logical basis for separating our civilized system from that of the primitive peoples concerned.

I am profoundly impressed with the influence of the exogamous principle on primitive kinship nomenclature, but I feel strongly that the principle has not yet been formulated with adequate pre-

¹ *League*, l. c.

² Rivers, *Kinship and Social Organisation*, p. 2.

cision and due regard to coordinate principles of a different type. It seems to me that most writers on the subject suffer from the familiar disease of conceptual realism: the concept "classificatory system" is for them a sort of Platonic idea in the essence of which particular systems of this type somehow participate.

Even Dr Rivers cannot be freed from this charge. In practice he does not treat classificatory systems as fully determined by the clan or gentile factor, but smuggles in additional elements that go hand in hand with exogamy in moulding relationship nomenclature. Most important among these is the principle, so strongly emphasized by Cunow, that members of the same generation are classed together and apart from other generations. Dr Rivers regards this as so general a feature of "classificatory" systems that departures from the rule at once elicit from him special hypotheses.¹ Again, in a concrete illustration of his theory, he has it that in tribes possessing a classificatory system a person will apply a single term to all the members of his father's clan *of the same generation as his father*. I am certainly in favor of considering clan, generation, and other causes as jointly operative in the development of kinship nomenclature, but if this method is accepted an attempt must be made to indicate the interaction of these several principles. The fact is that the mode of interaction for the two factors that are here taken into account *varies*. In some cases, Dr Rivers's statement, that members of the same clan (or gens) *and* generation are united, holds. But in other cases, for example among the Tewa, Crow, Hidatsa, and Tlingit, the exogamous principle predominates and overrides the generation category. Here, then, is an empirical problem, to be settled for every people and only obscured by the characterization of classificatory systems generally as "clan" systems; to wit, the problem how the exogamous group is coordinated with other principles of classification.

The fact that Dr Rivers has not attempted to evaluate the several factors that together determine primitive relationship terminology has led him into the curious position of underestimating in practice the very factor that occupies the dominant position

¹ Ibid., pp. 29-31.

in his theory. Again and again he invokes special social usages to account for "relatively small variations of the classificatory system" that are at once explained by the prepotency of the exogamous principle. For example, he cites the East Indian term *bahu*, which is applied to the son's wife, the wife, and the mother; and in explanation of this classification he assumes a one-time form of polyandry in which a man and his son had a wife in common.¹ This assumption is *de trop* because with a dual organization and paternal descent, I and my son belong to my father's moiety, while my mother, my wife, and my son's wife must belong to the complementary moiety; hence, *bahu* may simply connote females of that exogamous group. Again, Dr Rivers cites the Pawnee use of one term for the wife and the wife of the mother's brother, explaining this by a special form of marriage.² But, given a dual organization with maternal descent, I and my mother's brother are members of the same moiety, while my wife and his wife are fellow-members of the complementary moiety. Finally, the confusion of generations in the Banks Islands³ requires no special hypothesis. With maternal descent, my father's sister's son is classed with my father because, as among the Tewa of Hano, he is my father's clansman. My mother's brother's children are classed with my children because my mother's brother, being my clansman, is my brother; and because two brothers regard each other's children as their own. Thus, in the first confusion of generations the clan principle alone has been operative; in the second case, the clan principle has established a relationship from which a really non-existent distinction of generation is the logical derivative.

Thus, on the one hand, the exogamous theory does not suffice to explain the "classificatory" systems in their totality; on the other hand, it eliminates certain auxiliary hypotheses considered necessary by the most eminent of its advocates. Obviously, there is something wrong with the formulation of the theory.

The solution of the difficulty lies implicitly in the original and

¹ Ibid., p. 90.

² Ibid., pp. 53-54.

³ Ibid., p. 28 et seq.

invaluable portion of Professor Kroeber's essay on the subject¹—the very part ignored or misunderstood by his critics—where he lists the categories in which the North American Indians have ranged relatives, and by the quantitative importance of each of which a given system may be defined. Among these categories is that of distinguishing lineal and collateral relatives,—the father from the father's brother, the mother from the mother's sister, the brother from the cousin. When we turn to Morgan's earliest description of what he afterwards took for the starting-point of his definition of the classificatory type of system,² we find that what impressed him above all was the abeyance of the rule that collateral shall be distinguished from lineal relatives. This, then, forms the core of Morgan's concept, however obscured by adherent features that are logically quite unrelated. And from this point of view the Tylor-Rivers theory assumes a different aspect. Exogamy cannot explain why generations are so generally distinguished; it cannot explain the frequent differences between elder and younger *Geschwister*, or the frequent distinction between vocative and non-vocative forms; it cannot explain a hundred and one features of classificatory systems so-called. But it does explain why lineal and collateral lines of kinship are merged in the particular way characteristic of the Iroquois, Ojibwa, and many other primitive systems conforming to Morgan's Turanian type. Thus purged, the theory must now be subjected to empirical verification.

It might appear at first sight that such an empirical verification has already been given by Dr Rivers with regard to Oceania, though this, of course, would not render it unnecessary to collect corroborative evidence from other regions. However, Dr Rivers has in reality made a different point. In Oceania he is not dealing with classificatory and non-classificatory systems, but merely with the two forms of the classificatory system,—the Hawaiian and the Turanian. In both forms lineal and collateral relationship are merged, but in the Hawaiian nomenclature the terms are even more inclusive, no distinction being drawn between relatives of the

¹ "Classificatory Systems of Relationship," *Journal Royal Anthropol. Inst.*, 1909, xxxix, p. 77 et seq.

² *League*, Book 1, chapter 4.

maternal and the paternal side. Setting out with his theory and these two forms of the classificatory system before him, Dr Rivers undertakes to show how the Hawaiian form could have developed from the Turanian form which alone follows logically from the exogamous principle. He finds that where the Hawaiian form is most clearly developed, traces of exogamy are lacking, while the highest development of exogamy is accompanied by a Turanian form of kinship system. An indefinite number of intermediate social organizations are accompanied, we are told, by intermediate kinship terminologies. The general interpretation of the phenomena offered is that a progressive change has occurred from the Turanian to the Hawaiian form, going hand in hand with the substitution of non-exogamous marriage regulations for regulation by exogamous divisions.¹

This is obviously not testing the theory that the classificatory system is a function of exogamy, but merely interpreting by a special historical hypothesis the occurrence of an aberrant type of classificatory system, on the supposition that the theory is already established. Granting that the hypothesis correctly represents the course of development in Oceania, we cannot assume that exogamy everywhere represents an older condition, and indeed in North America the evidence points in the opposite direction.² Without assuming the priority of either the exogamous or the loose social organization, we can test the Tylor-Rivers theory by grouping together exogamous tribes, on the one hand, and non-exogamous tribes, on the other hand, and comparing the corresponding kinship terminologies. North America, where the geographical distribution of types of organization is fairly well determined, offers a favorable field for such an inquiry.

In the first place, there can be little doubt that the custom of identifying in nomenclature lineal and collateral relatives is very largely coextensive with the exogamous practice. It is found in at least three of the four main exogamous areas of the continent,—east of the Mississippi, among the southern Siouan and northwestern

¹ *Kinship and Social Organisation*, p. 65 et seq.

² See the present writer's "Social Organization," *American Journal of Sociology*, 1914, pp. 68-97.

Plains tribes, and on the Northwest coast. For the Southwest satisfactory data seem to be lacking except for the Tewa,¹ where conditions are markedly anomalous. Both among the patrilineally organized Tewa of New Mexico and the matrilineal Tewa of Hano, Arizona, there are distinct terms for father's brother and father, although the term for "father" is "applied loosely to father, elder brother, father's brother, or other relatives older than self" in New Mexico,² and at Hano to all father's clansmen, including of course his own brothers.³ For the present purpose it is important to note that at Hano it is the distinct term for "father's brother" that seems to be the older mode of designation, now rendered obsolescent by the term for "father."⁴ Similarly, in both branches of the Tewa, the mother's sister is carefully distinguished from the mother; in Hano, we are told emphatically, a mother's sister is never addressed as mother; and conversely we find that a woman does not address her sister's children like her own children but by a reciprocal term with diminutive suffix.⁵ In New Mexico there is a further invasion of the exogamous principle inasmuch as no distinction is drawn between paternal and maternal uncles and aunts respectively.⁶

For the Tewa, then, the hypothetical correlation does not hold. In the New Mexican division of the people the grouping of relatives has been affected only to a very slight degree by the gentile organization. At Hano the effect of the corresponding clan organization has been greater, for among other extensions, the word for "child" is applied by a male to any of his clansmen's children and a single term embraces all the speaker's clansmen other than his own brothers. Nevertheless, even in this pueblo the divergence from the type in the designations for father, mother, and child is so great that we cannot, without doing violence to the facts, describe

¹ Harrington, "Tewa Relationship Terms," *American Anthropologist*, 1912, xiv, pp. 472-498; Freire-Marreco, "Tewa Kinship Terms from the Pueblo of Hano, Arizona," *ibid.*, 1914, xvi, pp. 209-287.

² Harrington, *l. c.*, p. 479.

³ Freire-Marreco, *l. c.*, p. 277.

⁴ *Ibid.*, p. 278.

⁵ *Ibid.*, p. 276; Harrington, 488.

⁶ Harrington, pp. 487, 488.

the kinship system as a "clan" system. In short, here is a striking instance of exogamy without an exogamous alignment of kindred.¹

A thoroughgoing explanation of the Tewa anomaly will be possible only when other southwestern systems shall have become known. For the present a few hints must suffice. So far as the Hano people are concerned, it will be well to remember that their present rule of descent, as well as parts of their kinship terminology, may be due to the influence of the surrounding Hopi and their isolation from the other Tewa pueblos. Not the inhabitants of the single village of the Tewa enclave in Hopi territory, as Miss Freire-Marreco seems to suppose, but their New Mexican congeners may use a kinship system approaching the ancient Tewan type. The problem thus narrows down to that of explaining why the patrilineal Tewa use a nomenclature that does not reflect their gentile grouping. Two alternative solutions occur to me. Either the Tewa adopted their present social organization at so recent a period that the innovation has not yet affected their mode of designating relatives. Or they have abandoned an older kinship system and borrowed a new one from some non-exogamous tribe. A third possibility, however distasteful to some minds, must be reckoned with. Though the influence of a clan or gentile organization on kinship terminology seems to be a very general phenomenon, it cannot be accepted as a law of nature. It remains conceivable that a tribe should possess an exogamous social organization that finds little or no expression in the linguistic designation of kindred, just as it is now an established fact that the linguistic grouping of different relatives under the same category does not blind the users of such a terminology to the differences in the relationships.

However this may be, the single exception that has been noted cannot invalidate the empirical rule that there is a considerable correlation between exogamy and the merging of lineal and collateral relatives. Our next question is, what happens to kinship nomenclature among non-exogamous tribes? The most important

¹ This is confirmed by Morgan's statement that in Tesuque, the southernmost Tewa pueblo, all cousins alike were addressed as brothers and sisters. *Systems of Consanguinity and Affinity*, p. 263.

North American tribes without a clan or gentile organization are the Eskimo, the Mackenzie river, Plateau, and California Indians. Let us rapidly survey representative kinship terminologies of these tribes.

The Eskimo system differs so radically from the characteristic "classificatory" form that even Morgan claimed at best only a remote relationship between the two. The father's brother is distinguished from the father, the mother's sister from the mother, the children of my father's sister and of my mother's sister are designated by a common term, and so forth.¹ For the Mackenzie river district Morgan's informants seem to establish the presence of fairly well-defined exogamous kinship features among these non-exogamous peoples; however, in contravention of such a system cousins are uniformly addressed as brothers and sisters.² Moreover, the exogamous features may be the result of borrowing from two distinct sources,—the Algonkian tribes to the south, and the Pacific coast population to the west. The striking coincidence of certain Northern Athapascan with Algonkian traits is noted by Morgan himself. Passing to the Salish tribes of the interior of British Columbia, we find a marked departure from the exogamous type of nomenclature. The Coast Salish draw no distinction between cousins on the father's and the mother's side; class together paternal and maternal uncles and aunts, distinguishing them from the parents; and distinguish children from all nephews and nieces. The Bella Coola likewise distinguish uncles and aunts from parents, and class together those of the paternal and those of the maternal line. Among the Shuswap there seem at first sight to be some "classificatory" features inasmuch as nephews are classed with sons, and nieces with daughters; but they are classificatory only in an etymological, not in Dr Rivers's sense of the word, since the brother's and the sister's children are included in the same category. Boas points out that, while the Shuswap distinguish the parents from their brothers and sisters, the term used by boys for uncles

¹ Morgan, *Systems*, pp. 276-277.

² *Ibid.*, pp. 234-340. In Chipewyan, according to Legoff (*Grammaire de la langue montagnaise*, p. 330) a distinction as to father's and mother's side is made when the speaker addresses a cousin of the opposite sex.

coincides with the stem for "father" in other dialects, while that used by girls for aunts approximates the stem for "mother" in other branches of the Salish stock. This fact is of the utmost significance for a study of kinship terminology from a psychologico-linguistic point of view, but has no bearing on the present issue since, even in these instances, the uncles and aunts are not distinguished as to paternal or maternal side. Among the Okanagan this difference is indeed made, but the terms for parents remain distinct. In Kalispel Salish, likewise, the mother's sister is not confounded with the mother in nomenclature, nor the father's brother with the father; the terms applied by a female to her nephews and nieces are obviously related to those for "son" and "daughter," but again the brother's and sister's children are not distinguished. In short, the non-exogamous Salish tribes have a non-exogamous kinship system.¹ For California published data are meager, but Kroeber's statement that the systems of that area display a remarkable differentiation between the lineal and collateral lines supports the assumption of their non-exogamous character.² Finally, we may consider the Shoshonean family for which partial lists by Sapir are available for the Kaibab Paiute and Uintah Ute,³ as well as unpublished data collected by the present writer among the Wind River Shoshone, White River (?) Ute, Southern Ute, and Northern Paiute, not to forget Morgan's imperfect presentation of the Uncompahgre system. With the single exception of the Wind River Shoshone, the kinship nomenclature of the entire stock is markedly non-exogamous; parents are distinguished from uncles and aunts, children from all nephews and nieces. Among the Kaibab maternal and paternal uncles or aunts are not distinguished, and even among the Wind River Shoshone all cousins are designated by a single term. On the other hand, all the Shoshonean systems are characterized by a feature shared with

¹ Boas, "Terms of Relationship of the Salish Languages," *Report of the Sixtieth Meeting of the British Association for the Advancement of Science*, 1890 (London, 1891), pp. 688-692.

² Kroeber, l. c.

³ "A Note on Reciprocal Terms of Relationship," *American Anthropologist*, 1913, p. 135 f.

the Tewa,—the frequent use of reciprocal instead of correlative terms for the members of a related pair. We may well pause for a moment to consider the influence of historical accident on the course of theoretical speculation. It has been said by an eminent scientist that if physicists had first studied thermal rather than mechanical phenomena, heat would not have been described as a mode of motion but motion as a mode of heat. Had Morgan begun his researches in the Plateau area, we might have heard less of classificatory and more of reciprocal systems of relationship.

Summing up the result of our sketchy survey, we may say that the Tylor-Rivers theory derives strong corroboration from North American data. Despite some conflicting evidence exogamous kinship systems coincide so largely with an exogamous social organization and are so commonly lacking where exogamy does not obtain that a functional relation between the two must be regarded as more than probable.

We are thus emboldened to pursue our inquiry somewhat more rigorously. Having compared exogamous tribes as a whole with non-exogamous tribes as a whole, we may profitably undertake a more intensive comparison of narrower scope. Since a multiplicity of operative causes must be recognized, it becomes necessary to minimize all other differences save in point of exogamy for the purpose of studying the effect of that factor by itself. This may be done by grouping tribes according to various principles of classification. Within the Algonkian stock, for example, the Cree are reported to lack an exogamous organization. How, then, does the Cree kinship system compare with that of the linguistically and culturally most closely related Algonkian tribes possessing the gentile organization, such as the Ojibwa? From Morgan's data it appears that the kinship terminologies of these tribes agree very closely, both indicating the influence of the exogamous factor.¹ Does, then, the Tylor-Rivers theory break down? Not at all. It must simply be taken in connection with certain concrete facts. That kinship nomenclature may persist after the conditions in which it originated have disappeared, is a principle never urged

¹ *Systems*, pp. 204-208.

more emphatically than by Morgan himself. The Cree terminology may therefore well be a survival from a former gentile organization, which is in this instance rather probable from its prevalence in a number of closely allied Algonkian peoples. Again, within the same stock, the Arapaho and the Gros Ventre, sharing the essential traits of Plains culture and speaking mutually intelligible dialects, differ in point of organization; the Arapaho having a non-exogamous and the Gros Ventre a gentile system. If the Arapaho and Gros Ventre kinship systems differed accordingly, the history of the difference might be sought in the influence of the Blackfoot with whom the Gros Ventre have been in intimate contact and from whom they have demonstrably borrowed a number of cultural traits. The Arapaho and Gros Ventre systems, however, are identical, and, except for the designation of cousins, conform to the exogamous type. Shall we be inclined, as in the previous instance, to assume a former condition of Arapaho exogamy?

This raises an important problem. Tylor was so strongly impressed with the correlation of "classificatory" systems and exogamy that he felt warranted in inferring exogamy from the presence of such a system. Nowadays, we shall hardly go quite so far. Granting that a correlation is established, it would still have to be proved that it is a hundred per cent. correlation, that not only do exogamous peoples possess a corresponding kinship system but that no other cause could have produced such a system. The geographical distribution of certain relationship categories demonstrates that these categories, like other cultural traits, may be diffused by borrowing. In the paper already quoted Dr Sapir points out that in the southwestern United States the use of reciprocal terms with diminutive suffixes to designate the junior relative is strangely similar among the Tewa and the Shoshonean tribes. The distribution of reciprocal systems is so definitely localized in North America, without being confined to members of a single linguistic family, as to become intelligible only on the hypothesis of borrowing. This being so, the confusion in language of lineal and collateral relatives may likewise have spread through historical connection,

¹ Kroeber, *The Arapaho*, pp. 9 f., 150.

as has already been suggested for the Athapascan of the Mackenzie River region. We shall therefore certainly be on the alert for evidence of former exogamy where the kinship system is exogamous, but we shall not accept the system as proof of exogamy unless, as in the Cree instance, there are specific conditions to corroborate the conclusion. In the Arapaho case the conditions are not, in my opinion, of such a character. Here we have not a group of closely related tribes all of whom, with a single exception, possess an exogamous organization. The Arapaho and the Gros Ventre stand alone within the Algonkian family, and as already stated the Gros Ventre may have borrowed the gentile organization from the Black-foot. Under the circumstances I do not pretend to give a solution of the problem but content myself with enumerating various possibilities. It may be, as Tylor would argue, that the Arapaho-Gros Ventre originally had an exogamous organization still preserved by the Gros Ventre, of which the Arapaho kinship system is a survival. Or, the as yet undivided parent tribe lacked exogamy, but borrowed an exogamous terminology from some neighboring people. Or, the parent tribe had neither exogamous divisions nor an exogamous nomenclature, but the Gros Ventre adopted them from the Black-foot; and the Arapaho, in recent times, borrowed the Gros Ventre terminology. Or, the common terminology developed quite independently of exogamy,—to my mind the least acceptable hypothesis.

The two illustrations hitherto given of intensive comparison have been made on the basis, primarily, of linguistic affiliation. Important as such a classification must be when we are dealing, after all, with elements of speech, it is not always possible. This applies, for example, to California, where the degree of linguistic differentiation necessitates a different mode of grouping. Here we might ask, for instance, how the exogamous Miwok differ as regards kinship from their non-exogamous neighbors, such as the Maidu, Washo, or Yokuts. Similarly, in the Plains area, the system of the non-exogamous Kiowa would be of great interest for our present purpose. Again, the Pawnee seem to have an exogamous kinship system without exogamy. This *may* be a survival from one-time exogamy; but it may also be the result of borrowing, and a detailed

comparison of the Pawnee system with that of all the tribes with which the Pawnee have come in contact may determine its source of origin.

Only through such intensive studies of detail shall we obtain an insight into the workings of the exogamous principle in its effect on kinship terminology and in its relations to other principles that may check or nullify its influence.

As has already been suggested, exogamy may do more than produce the fusion of lineal and collateral lines; as among the Hano Tewa, Crow, and other tribes, it may override the generation principle. This possibility is admitted by Dr Rivers, who is, however, strongly inclined to explain the disregard of generations not by exogamy but by the practice of special forms of marriage. The special case of the father's sister's son being classed with the father is intelligible, we are told, if a man marries the wife or widow of his mother's brother, for thus he comes to occupy his maternal uncle's social status, and his uncle's children therefore regard him as their father.¹ This assumption has already been criticised from the point of view of logical method: on the principle that hypothetical causes shall not be multiplied unnecessarily I have argued that no special hypothesis should be advanced for minor variations of the classificatory system if the theory purporting to explain that system as a whole suffices to explain the variations. This argument does not of course refute the existence of special causes. How, then, can we be sure that it is the exogamous factor and not some such social usage as that suggested by Dr Rivers that determines the classification under discussion? In the first place, it should be noted that the neglect of generations among the Tewa, Hidatsa, and Crow is not limited to the person of the father's sister's child, but that a single term is applied to the father's sister and all her female descendants, immediate and through females, *ad infinitum*. Shall we construct successive hypotheses as to forms of marriage by which a man would become the son of his father's sister's daughter's daughter and her successive female descendants when all the facts are summed up by the plain statement that there is one word for a

¹ *Kinship and Social Organization*, pp. 34, 28-31.

father's clanswoman? That the clan is indeed the determining factor, is indicated by the effect of eliminating it. Among the Crow, as soon as we pass out of the clan by taking the daughter of the father's sister's *son* rather than of the father's sister's daughter, the generation factor at once enters: my father's sister's son is indeed my father since he belongs to my father's clan, but his daughter belongs to her mother's clan, hence is related to me only genealogically as my "father's" daughter, hence is my *sister*, not my mother or aunt.¹

The conclusion is corroborated by other evidence. If the rule of descent is changed from maternal to paternal, kinship nomenclature should not be affected provided it has been shaped by forms of marriage, which are substantially uniform throughout the Plains area. If, on the other hand, kinship nomenclature has been shaped by exogamy the change from matrilineal to patrilineal descent² must produce a change in the terminology since my father's sister's daughter no longer belongs to my father's exogamous division. Within the Siouan family, to which the matrilineal Crow and Hidatsa belong, there are also patrilineal tribes, of which the Omaha are the best known. Among the Omaha my father's sister's daughters are classed not with my father's sister but with my sister's children, while her husband is my brother-in-law. These facts seem to indicate the influence of the gentile factor, for my father's sister belongs to my gens and is therefore my gentile sister, although it must be noted that the Omaha distinguish the father's sister from the own sister. The Crow and Hidatsa with greater consistency class not only the mother's brother's children with the brother's children—which corresponds exactly to the Omaha usage, having regard to the given differences in descent—but also class the mother's brother with the elder brother. Thus, the change from the clan to the gens has eliminated the classification of the father's sister's children with the first ascending generation, and their classification with the

¹ The Crow address the father's sister as "mother," but refer to her non-vocatively as "aunt."

² This phrase is not to be taken as expressing the chronological order of events but simply the conditions of our *Gedankenexperiment* since we are passing from the consideration of a matrilineal to that of a patrilineal tribe.

first descending generation among the Omaha becomes intelligible through the gentile principle. But this principle may be proved to have been operative in a quite unexceptionable manner. The Omaha class the mother's brother's son and all his male descendants, immediate or through males, with the mother's brother. And again as soon as we pass out of the exogamous group, the terminology varies: my mother's brother's son's son is my mother's brother, but my mother's brother's *daughter's* son is my brother since the bond between him and me is no longer gentile but genealogical, through his mother, who is my "mother."¹ According to Morgan these characteristics obtain for all the southern Siouan tribes.² In other words, where the matrilineal Hidatsa and Crow Indians class in one category the father's sister and her female descendants, immediate and through females, the patrilineal Omaha, Oto, Kansa, and other southern Siouan tribes unite the mother's brother and his male descendants, immediate and through males, *ad infinitum*. Better proof could hardly be demanded for the theory that the disregard of generations is the result of the exogamous principle.³

Exogamy thus furnishes a sufficient explanation of the invasion of the generation principle as encountered in Melanesia and various North American tribes. The chief value of the theory that kinship classification has followed exogamous groupings lies, however, in another direction. It explains the remarkable resemblance between the terminologies of widely separated and quite distinct peoples without recourse to hypothetical historical connections. If we abandon Morgan's theory that the development of the family has been unilinear, with the main stages impressing their stamp on kinship nomenclature, how can we account for the far-reaching similarity between, say, the system of the Seneca of North America and that of the South Indian Tamil? So widespread a custom as exogamy is admirably fitted to explain the distribution of the lineal-

¹ J. O. Dorsey, "Omaha Sociology," *3d Annual Report of the Bureau of Ethnology*, p. 254; Morgan, *Systems*, pp. 335-336.

² *Ibid.*, pp. 178-179.

³ In comparing the Choctaw with the Omaha system of kinship Dr Kohler has called attention to the influence of the rule of descent on nomenclature. See "Zur Urgeschichte der Ehe," *Zeitschrift für vergleichende Rechtswissenschaft*, 1897, xii, pp. 187-353, esp., p. 303.

collateral category, and it seems eminently worth while to extend the verification of the Tylor-Rivers theory both extensively and intensively. Such a study will be far from exhausting the subject of kinship nomenclature. The merging of lineal and collateral relationships constitutes but one of a number of categories, the geographical distribution of each of which must be definitely ascertained. Moreover, we are sadly in need of the intensive investigation of particular systems, giving all the connotations of every term, and indicating by comparison with closely related systems how and why kinship nomenclature changes. A comparative study of all the Siouan, or all the Athapaskan, or all the Southwestern systems would be of the greatest value in this respect. However, the connection between exogamy and the "classificatory" system often hinted at but never systematically examined before Dr Rivers's investigations in Oceania, constitutes even by itself a problem of great significance and its partial solution cannot help but to react on a study of other phases of the whole question of kinship terminology.

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THE KNOWLEDGE OF PRIMITIVE MAN¹

By A. A. GOLDENWEISER

HOW does primitive man think? is the question we are prone to ask when dealing with his mentality. Among elaborate attempts to answer that question one may cite such works as Tylor's *Primitive Culture* or Spencer's *Principles of Sociology*, vol. 1, or even such recent works as Lévy-Bruhl's *Les fonctions mentales des sociétés inférieures* and Durkheim's *La vie religieuse*. The authors of these works agree that the intellectual potentialities of the savage are not markedly, if at all, different from our own, but they insist that his thinking is very different indeed. Spencer and Tylor held that the thinking of the savage was vitiated by his premises. Grant the savage his premises, they taught, and his thinking will prove satisfactory. As against these older authors, more recent writers defend the view that something is radically wrong with the thinking itself of the savage.

The cardinal principle pervading savage thought, says Lévy-Bruhl, is the law of participation. Emotional and intellectual associations are established, or indeed exist from the beginning, between beings, things, activities, and the phenomena thus psychically correlated form mental clusters of great stability which determine the character of primitive mentality and make it thoroughly different from ours. Thus it comes that the mind of the savage is proof against the demands of logic, his thinking is *prelogical*. In a review of Lévy-Bruhl's suggestive work² and in another of Lévy-Bruhl and Rivers³ I have attempted to show that Lévy-Bruhl's conclusion is due to a faulty selection of the terms of his comparison, that the principle of participation holds sway in a large domain of our own thinking, that much of savage thinking is as

¹ Read before the American Folk-Lore Society at Philadelphia.

² *American Anthropologist*, XIII, 1911, pp. 121-130.

³ *Current Anthropological Literature*, I, 1912, pp. 103-108.

logical as some of ours, and that when analyzing the categories of thought prevailing in a group, we must always examine these categories within their particular cycle of participation. Then only may we hope to see them in a proper perspective.

In his analysis of Australian totemism Durkheim repeatedly turns to the general problem of savage mentality and attempts to show that the concepts of category, of force, of cause, were born within the religio-magical realm of primitive thought. Totemic classification of nature in accordance with the social divisions of the group thus lies at the root of all classification, while the concepts of cause and force find their matrix in the primitive conception of the totemic principle, which is but an early form of *mana*, the all-pervading magical substance. As against Durkheim's view we must urge that the savage knows of other forms of classification which are not totemic, refer to animals, plants, objects, actions, dreams, and are based on observed differences and similarities between the phenomena classified together or apart. That these tentative classifications should all be reducible to the prototype of totemic categories in nature seems a gratuitous and ill-founded assumption. Similar objections may be raised against the religio-magical derivation of the concepts of cause and force.

The above remarks resolve themselves into a general criticism of most studies of primitive mentality, on the ground that in such studies almost exclusive attention is given to the elucidation and analysis of primitive *thinking*, especially those domains of it which differ most from our own and hence appear to us as irrational, whereas another vast realm of primitive mentality is almost completely neglected, namely the positive knowledge of the savage, the domain of his concrete experience, his familiarity with beings, things, relations, processes, actions. That such a domain exists and that its scope is vast is a fact which readily appears from the data of ethnography.

The knowledge of the properties of material things is always there and in some groups is extensive. The snowhouse of the Eskimo, the wooden structures of the Kwakiutl or Haida, the bark dwellings of the Iroquois, if we restrict our examples to North

America, give evidence of a manifold and, in part, accurate knowledge on the part of their makers, of the properties of the various materials employed, their strength, durability, pliability, etc. In the selection of suitable materials, we observe that certain trees, for instance, are utilized, so and so old and of a given thickness. And, of course, in the preparation of materials for use, long series of processes are gone through which are all based on knowledge of properties of the materials, and mastery of processes of work. We need do no more than point out that such knowledge, based on extensive and prolonged observation and practice, is involved in all industries: the building of houses, canoes, rafts; the making of pottery, basketry, wood-ware; spinning, weaving, tanning of skins; sewing, embroidery, carving, etc. The details of various devices for the hunting, trapping, and snaring of animals, in addition to giving evidence of knowledge of the type referred to above, disclose an equally thoroughgoing and, if anything, more accurate familiarity with the characters and habits of different animals. Unfortunately for the history of thought, the objects of material culture, while giving abundant indication of the direction and concrete result of mental processes, effectively disguise the history of such processes. Every material object of culture represents a chronologically extended series of inventions and adjustments compressed into a spatially and temporally unified system. It is but seldom that a glimpse may be gained into the history of observation, induction, generalization, trial and error, invention, improvement, which all have their share in the development of the final product. The existence and importance of these processes, however, cannot be doubted.¹

¹ It may, perhaps, be advisable to restrict the above remarks to material culture. Similar considerations, however, can easily be shown to apply to social organization, ethics, law, etc., where, however, the distinction between knowledge and thought is less clearly marked. Thus, in the domain of social organization, we find the understanding of the importance of a central authority, especially on occasions requiring co-ordinated action, the realization of the principle of equilibration of power, as shown, for instance, in the appointment of two military leaders, among the Seneca-Iroquois, the powers of each serving as a check on those of the other. The fundamental principles of equity, justice, are well understood. Another fact, which in the eyes of many field ethnologists serves more than any other factor to emphasize the psychic unity of savage and civilized, is the former's understanding of human nature. This understanding does not fail to create a bond between the sympathetic ethnologist and his informant, a bond transcending their racial, cultural, and individual differences.

The status of medicine, which combines properties of material and spiritual culture, reveals similar facts. Doubtless the entire field of primitive medicine is pervaded by magical ideas. Here, if anywhere, witchcraft reigns supreme. But on a par with magical devices, prescriptions, incantations, and other accessories of the magical art, closer study reveals a field of experiential knowledge of minerals, parts of animal bodies, and the curative properties of plants, a knowledge that is wide if not always accurate. Such methods of treating disease as the use of emetics, purgatives, blood-letting, massage, are also widely known in primitive communities.

I shall not multiply examples. The subject is an unexplored field, and these remarks are not designed to bring conclusions, but to direct attention to a hitherto neglected aspect of primitive mentality. But enough has been said to suggest some general corollaries.

The savage mind is certainly pervaded by irrational cycles of participation. They do not extend to all sides of life and thought in equal degree or equally at all times, but few if any are the aspects of his mentality which are safe against their intrusion. Based, on their relational side, on emotional and intellectual associations, these cycles of participation, on the side of their concrete content, are so many attempts to interpret nature, its phenomena and processes. On the other hand, the savage faces nature in his direct and daily experience and through his senses acquires an ever-widening knowledge of things, beings, processes, and their relations. He also utilizes this knowledge for his purposes. True, his thinking, the conscious elaboration of his mental content, busies itself but little with this aspect of his mentality. Here the irrational cycles of participation hold almost undisputed sway. This sway, however, cannot be assumed to be absolute; and it may, perhaps, be suspected that insufficient familiarity with the experiential knowledge of the savage is, in the main, responsible for our ignorance of the degree to which consciousness enters into that elaboration of savage experience which brings such conspicuous results most strikingly in the achievements of material culture, but also of spiritual culture.

Another corollary refers to the history of thought. For, as a result of studies suggested in these remarks, we may come to conceive of intellectual progress, from savagery to civilization, not as an evolution of mentality, but as a continuous accumulation of positive knowledge and a correlated advancement in the degree to which such knowledge determines thought.

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ARTIFICIAL MOULDING OF THE INFANT'S HEAD AMONG THE SCANDINAVIAN LAPPS

By GUDMUND HATT

THE custom of influencing the form of the child's head by means of massage, bandages, and narrow¹ caps is still practised by the Scandinavian Lapps, although of late years it is falling into disuse. The term "deformation" would not be very appropriate in this case as no strikingly abnormal forms are produced; on the contrary, the Lapp mothers strive to intensify the brachycephaly, characteristic of the prevailing physical type of the nation. One of their main objects in treating the heads of their children is to make them as perfectly round as possible; and they are most anxious to mould the heads of children who show a tendency to long-headedness, a trait exceedingly repulsive to the esthetic feelings of the Lapps. It is probably due to this fact that the discovery of this custom has been so recently made. The first investigator who discovered this secret of the Lapp mothers was Emilie Demant Hatt. Mrs Hatt and the writer found the custom widespread among the Lapps. Preliminary notes upon the subject were published last year;² since, then, however, it has been possible to gather still more interesting data.

Only a minority of the Lapp women adhere to this old practice and know how to perform it properly, though, it seems to be in use, or at least distinctly remembered, by some persons in almost every Lapp camp. Our data were collected in Härjedalen, Jämtland, Västerbotten, Pite Lapmark, and Torne Lapmark.

The most detailed description of the procedure, given by a middle-aged Lapp woman in Pite, shows very clearly that massage

¹ Narrow is used throughout this paper with the meaning of tight-fitting.—Ed.

² Emilie Demant Hatt, *Med Lapperne i Højfjeldet*, Stockholm, 1913, pp. 49-50, and note 41. Gudmund Hatt, "Om den kunstige Formning af Barnehovedet hos de skandinaviske Lapper," *Geografisk Tidsskrift*, 22, B. H. II. København, 1913.

played an important rôle, and also that not only the head, but other parts of the body were manipulated.

As soon as the child was born, the midwife, a skilful Lapp woman from the neighborhood, would start to mould its head, nose, ears, chin, neck, fingers, knees, and ankles, applying massage to all these parts, for which purpose her hands were greased with fat from the reindeer's intestines. The same process was repeated after the newborn child had been given its first bath, and repeated after the bath on the two following days. (Lapp infants are bathed every day during the first months of their existence.) In Pite Lapmark this treatment of the head is called "to press (*dabsjot*) the head" and it is accomplished in the following way: the woman places one hand on the forehead of the child, and with the other open hand she presses against the occiput and strokes the back part of the head, moving the hand upwards. The sides of the head are also pressed and stroked in like manner. Then the woman proceeds to squeeze (*tsibtsot*) the nose of the child between two fingers, so as to produce a beautiful turn-up nose (*garvardas njunje*); this type of nose being especially desirable if the child be a girl. The chin is likewise squeezed and moulded, to make it long and prominent, "like a button." The ears are also squeezed and pulled, in order to make the lower part of them outstanding. Even the tongue is pulled and pinched, that the child may come to speak well. The neck is rubbed (*ruvet*), in order to make it long, which is especially desirable if the child be a boy. The thumbs, as well as the fingers, are bent back, so that the child's hands may become good "lasso-hands"; if a boy, that he be skilful in carving and the making of wooden implements; if a girl, clever at sewing. The ankles are massaged and likewise the knees, that the child may become just sufficiently bandy-legged, but on no account knock-kneed. Ordinarily, the treatment given to the head, nose, chin, ears, tongue, and neck was repeated only during the first three days of the child's life; while the treatment given to the ankles, knees, and fingers was continued for the space of two months. If the mother deemed it necessary, she might continue to mould the head for a longer time, especially if the child showed a tendency to long-headedness, or if the anterior fontanella (*sutte*) remained open too long.

Our Pite informant considered that the manipulation of the head and the nose was the most essential part of the procedure. In olden times, however, the moulding of the other portions of the body was also considered as very important; and she mentioned several old Lapps, now dead, who had abnormally long and prominent chins. In Västerbotten, the Lapps have the notion that long and prominent chins were characteristic of the "ancient Lapps"; in fact, a few persons still living bear this remarkable trait.¹ It is probable that the importance which was formerly attached to a long prominent chin has some connection with the belief, still found in Pite, that a child, boy or girl, born with a tendency to a long chin and also with a long lock of hair on the back of his head, would become a "student," i. e., a sorcerer.

The moulding of the nose of the newborn child is also in vogue among the Torne Lapps. The massage treatment of the knees and ankles is practised also in Torne Lapmark and in northern Jämtland. Everywhere, however, the treatment of the head is the most important part of the whole procedure; also, it is the moulding of the head that has the widest distribution even in many localities where the



FIG. 38.—Lapp woman moulding the head of her infant with her hands.

¹ J. Tornöus in the seventeenth century described the Lapps as having long chins (J. Scheffer: *Lappland*, Frankfurt a. M. and Leipzig 1675, p. 34). Hogguer, who in 1828 made a journey in Pite Lapmark, makes a similar remark, and one of his drawings shows a Lapp man with very prominent chin (Hogguer: *Reise nach Lappland*, Berlin, 1841, p. 148).

moulding of other parts of the body has fallen into oblivion or perhaps was never in use.

The massage-like treatment of the head seems to be handled everywhere in about the same manner. Figure 38 shows a Lapp mother in Frostviken, Jämtland, performing this act on her child. (Unfortunately she does not wear her native dress and her child is swathed, which is not a Lappish custom, but one borrowed from the Scandinavian peasants.) She is pressing one hand against the forehead of the child and the other against the occiput. That woman contended that it is the *pressure* of the hands which produces the desired effect, therefore she discarded the stroking movements. "To press (*dieltiedet*) the child's head," was the term she used for this operation.

The pressure upon the child's head is also produced in other ways. The practice of wrapping a neckerchief firmly around the child's head, binding it in front on the forehead, is very common; this is done after each treatment with the hands. A silk kerchief is preferred. It seems that some of the Lapp women consider this practice of swathing the child's head as more important than the pressing with the hands; a woman from Jämtland even designated the whole procedure according to the term for this particular process. The pressure exercised by means of the bandage must have been rather considerable in some cases, if we are to trust an old Jämtland Lapp who said: "In old times they used to swathe a child's head so firmly, that they pressed all sense out of it." He did not like this practice; in fact, many Lapps are against it, and even those who practise it emphasize the necessity of its being done cautiously.



FIG. 39.—Lapp girl, three years old, with child's cap.

But even those who do not seek to influence the form of the child's head through pressure by hands or bandages, have in many cases retained a belief in the utility of the child's narrow cap. This form of headdress, worn by infants all over Lapland, is held to have

a very beneficial effect on the growth of the head, preventing it from becoming too long and too large.

The massage-like treatment with the hands and the use of bandages is performed only during the first three to eight days of the child's life, while the head is "soft as dough"; the use of the narrow cap, on the other hand, extends over one, two, or even five or more years, as it is supposed to prevent the head from growing "wildly." The general form of the Lappish child's cap is seen in figure 39 on a girl from Torne Lapmark. It fits very closely to the head and is seldom removed. The infant's cap is made especially narrow, and if it does not fit tightly enough a handkerchief is laid inside it. A few years ago the Southern Lapps were still using reindeer-hide for such caps; now they make them of cloth. In Northern Jämtland the cap of the boy-infant is provided with a special band (*gihpare*) of leather, which goes around the forehead and the sides of the head and is tied behind; this head-band is used upon the child during the space of one year.

When the Lapps are asked why they treat their children's heads in the above-described fashion, they most often will give as their reason an esthetic motive. A nice round head, not too large, is an essential element in the Lapp ideal of beauty; and by means of the three methods described, a well-informed woman is supposed to be able to mould the head of her child to that desired shape. A Lapp woman even spoke derisively of the peasant women, because they do not know how and do not even try to improve the ugly long heads of their children. Often, however, a hygienic motive is given by Lapp women as another reason for these practices, a motive, which seems to lie deeper than the esthetic one.

In many cases it is clear that the main object of the massage treatment and the bandaging is to hasten the closing of the anterior fontanella (*sutte*). A woman in Northern Jämtland proudly showed us that the "*sutte*" was already closed in the head of her little girl aged one month, although it had been comparatively large at the time of birth; her only reason for treating the head of this child was the fear, that the "*sutte*" might otherwise remain open too long; the form of the head, she said, was sufficiently beautiful

from birth. Most of our informants laid stress upon this point. The early closing of the anterior fontanella is held to be necessary for the sound development of the child. Headache is one of the bad results which may come from retardation of the closing of the fontanella. "In olden times, people did not have headaches, and that was because their heads had been treated properly while they were infants," said a woman who defended the old practice, "but now, they let the head grow wildly!"

Fear of the size and persistence of fontanelles is very common among the Lapps; and retardation in their closing is held to be associated with retardation of the faculty of walking,¹ a belief which is evidently based on correct observation, as both traits accompany rachitis. Therefore it seems plausible to conjecture that the hygienic motive for the compressing of the child's head is older than the esthetic motive. The head of a newborn child has such a disquietingly frail appearance, that it is easy to understand that the desire might arise to hasten the ossification of the brain-case; that desire being supported by the experience of the fact, that retardation of the ossification of the cranium is associated with retardation of other branches of the child's development.

Perhaps the idea has been rife (this, however, is hypothetical) that the persistence of the fontanelles is caused by too fast a growth of the brain which could be counteracted by pressure with the hands, by swathing with the kerchief, and by the narrow cap. The pressure with the hands took the character of massage, in which art the Lapps, like a great number of primitive peoples in different parts of the world, are adepts. In fact, as a cure for headache, the Lapps massage the head in a way not so very different from that which they use in moulding the heads of their infants, the idea being "to drive the wind out which has come in through the ears" and which is supposed to cause the pain.

The esthetic motive might very well be of later origin, coming into play when the moulding of the head had already arisen as a result of purely hygienic measures.

¹ Manuscript of Nensén, p. 288. Lycksele (in the University library of Uppsala, Sweden).

Hygienic motives underlie, to some extent, the practices pertaining to deformation of the head, which are found so widely distributed in certain regions of France. Icart¹ declared, that cranial deformation was produced by some women, by compressing the heads of infants for the purpose of diminishing the fontanelles. Ambialet² also mentions another reason: the fear, that the bones of the cranium might separate under the weight of the brain. This brings to mind what an old Lapp woman in Jämtland told us; she said that in some extreme cases the "*sutte*" was so large, that the head had the appearance of being in two parts; in such instances, of course, the moulding and swathing of the head was particularly necessary. The old women in the region of Toulouse gave Ambialet still another important reason for the use of the head-band, which they place almost vertically on the head of the infant, covering the anterior fontanella. They claimed that this band was a protection against the cold which might easily injure the child through the anterior fontanella.

It is not improbable that some sort of hygienic motive may prevail also among other peoples practising head-deformation. At any rate, the absence of such motives is not proved by the fact that ethnographers have not discovered them; esthetic and social motives are much more easily noticed, and much more striking on account of their apparent absurdity; but wherever hygienic motives exist together with esthetic and social motives, the probability is that the hygienic motives are the oldest. Esthetic and social conceptions might easily become associated with them and influence the moulding of the head, when the custom first had come into existence; but it seems improbable that the women of a tribe would start to mould the heads of their children in order to conform them to esthetic ideals, had they not been acquainted beforehand with the fact that such moulding is possible. Hygienic motives, on the other hand, might directly lead to the use of narrow caps and bandages and to massage treatment of the head and this would, at first unintentionally, result in a moulding of the head.

¹ *Leçons pratiques sur l'art des accouchements*, Castrès, 1784.

² Ambialet, *La déformation artificielle de la tête dans la région toulousaine*, 1893, p. 10.

I do not claim that all instances of head-deformation have had this origin. Virchow has shown that among the Patagonians another motive, just as rational as the above, is underlying: the infant's head is fastened firmly to the cradleboard, to prevent the head from being tossed back and forth and so being injured when the child is carried on journeys.¹ This motive for bandaging the head of the infant seems to have existed also in other cases. It is not, however, found among the Lapps; although the Lapp infant is laced firmly to the cradle, its head is not fastened, though it is protected by a special little screen.

To what extent the practices above described really do influence the form of the head among the Lapps, I have not been able to ascertain. As I have already remarked, it would be incorrect to speak of "deformation," as the form of head which the Lapp mothers desire to produce is a short, well rounded one, of the type described by Virchow as characteristic of the Lapps.² It would, of course, be desirable to compare heads that have been artificially moulded during infancy, with such that have not; investigation of that kind, however, would be attended with great difficulties, owing to the fact that in many cases it would be hard or even impossible to ascertain whether moulding had been attempted or not.

The Lapps themselves claim that the moulding processes may influence the form of the head considerably. A woman told us that one of her children was born with a distorted face, with one eye lower than the other, and that the Lapp midwife moulded the head and face of this infant into the correct shape. Proof of the importance attached by the old-fashioned Lapps to this custom is found in an old tale told by the Pite Lapps about an infant that had been killed by his parents (the latter not having been married to each other), but who in some mystic way came to life again and was brought up by a woman relative; that child grew to manhood. The only peculiarity about him was, that he had a larger head than

¹ *Zeitschrift f. Ethnologie*, XI, 1879, Verhandlung, p. 200.

² *Zeitschrift f. Ethnologie*, XI, 1879, Verhandlungen, p. 144. "Im ganzen ergab sich als herrschende Kopfform, auch bei der blossen Betastung die kurze und runde. Je ausgeprägter dieselbe, namentlich bei gleichzeitiger Höhe, wurde, um so mehr wurde sie geradezu kugel- oder bombenförmig."

was usual among the Lapps, because his head had not been moulded while he was an infant!

It ought to be mentioned that an unintentional deformation is often effected upon the heads of Lapp infants as a result of their cradles. This was still more evident a generation ago, when the Lapps did not place a pillow under the child's head. Old Lapps often show a marked flattening of the occiput, produced in this way in their infancy; the Lapps, themselves, being well aware of the cause. This unintentional deformation was noted as early as 1742 by Major Schnitler.¹ Figure 40 represents an elderly Lapp woman from Southern Västerbotten with the typical round head and a distinctly flattened occiput.

A few words must be said regarding the question whether any historical connection exists between the head moulding of the Lapps



FIG. 40.—Elderly Lapp woman showing characteristic head form.

and similar customs among other tribes. In the first place, it ought to be mentioned that the Finlanders, in several parts of Finland and in Carelia and Ingermanland, mould the heads of their children

¹ *Det norske Geografiske Selskabs Aarbog*, 1, p. 51.

through pressure exercised by means of hands and bandages; J. Lukkarinen¹ has lately discovered this habit which was not known to exist among the Finlanders previously, as no striking and abnormal head forms are produced. So far, we do not know of the custom being practised by any other living people of the Finnish-Ugrian stock. Sidonius Appolinaris tells us that the Huns deformed the heads of their infants by means of bandages; and Amedée Thierry supposes that it was the Finnish-Ugrian element of the Huns that practised this deformation.²

In France, the well-known Toulousean deformation of the head is practised to the present day; its historic connections, however, seem quite obscure in spite of all the theories which have been presented. Moulding of the head was certainly practised here and there throughout a large part of middle and southern Europe in earlier times. It is mentioned, though not very definitely, in a Swiss medical book,³ dated 1697. Andreas Vesalius⁴ attributes this custom to the Genoese, Greeks, and Turks. Blumenbach⁵ says that the moulding of an infant's head by means of pressure with the hands, bandages, or other ways was practised in Belgium and in some parts of Germany, even as far north as Hamburg. Flower⁶ says that the custom of dressing an infant's head with tightly fitting bandages was in vogue in Norfolk, England, until lately. Artificial deformation seems, however, never to have been practised by the Scandinavians, and, therefore, it seems rather doubtful whether any direct historic connection can ever be traced between the above-described Lappish custom and the head-deformation of France and middle Europe. An indirect connection might be found, could it be proved that the customs in question reached Europe from some common center in the east; but for this the necessary data are lacking. Authorities do not even agree as to whether the artificial deformation in France was introduced from outside

¹ In the Finnish periodical "*Suomen Museo*," 1913, p. 12.

² Amedée Thierry, *Histoire d'Attila*, Paris, 1856, I, p. 8.

³ J. Muralt, *Kinder- und Hebammenbüchlein*, Basel, 1697, p. 39.

⁴ Vesalius, *Opera omnia anatomica*, Lugduni Batavorum, 1725, I, p. 16.

⁵ Blumenbach, *De generis humani*, Göttingen, 1795, p. 226.

⁶ W. H. Flower, *Fashion in Deformity*, London, 1881, p. 38.

or whether it originated in that country. Attempts to prove historic connection with the analogous practices of the famous Macrocephales, described by Hippocrates, have failed.¹

A usage of the kind here discussed does not, as far as I can judge, lend itself very readily to transmission from one people to another except where relations between them are rather intimate. If it does not produce strikingly abnormal forms, it may then exist for hundreds of years in a tribe without being noticed by its neighbors. The Scandinavian peasants seem to know nothing of its existence among the Lapps. On the other hand, if very abnormal head forms are produced, they tend to become tribal characteristics, not readily borrowed by foreign tribes.

As the practices connected with the bringing up of infants are rather apt to escape observation, this side of the life of primitive tribes is by no means as thoroughly known as it ought to be. If the exact distribution of the uses of narrow caps, head-bands, and, particularly, massage-treatment of infants' heads were known, then, probably, some light would be thrown on the question, how and where these customs originated. In studying the subject of artificial moulding of the head, we must not solely regard such cases in which marked deformation has been accomplished; such cases are only extreme instances of customs which have a wider distribution. I wish to emphasize the great rôle which the massage-like treatment of the head plays, not only in Europe, but also among several tribes in India.² A massage-like squeezing of the infant's head, followed by the use of a narrow cap, has also been observed among the Eskimo of Frobisher Bay.³ It is probable, that massage-treatment serves

¹ F. Delisle, "Les déformations artificielles du crâne en France," *Bulletin et mémoires de la Société d'Anthropologie de Paris*, T. III (v ser.), 1902, pp. 111-167; Delisle, *Les Macrocephales*, *ibid.*, pp. 26-35.

² Jagor in *Zeitschrift f. Ethnologie*, VIII, 1876, Verh., p. 196 (Badagas in the Nilgiri mountains), X, 1878, Verh., pp. 123 and 236 (Nayer and Pulayer castes on the Malabar coast), XI, 1879, Verh., p. 78 (Kanikar tribe in Attrumally mountains, South India) and p. 169 (Vedas in Travancore), XIV, 1882, Verh., p. 231 (Naga Kurumbas, Nilgiri mountains). See also Jagor's description of similar practices among the Micopias, Andaman Islands, *Z. f. Ethnologie*, VIII, 1876, Verh., p. 51.

³ C. F. Hall, *Life with the Eskimaux*, London, 1865, p. 521. Compare the use of narrow infant caps among the Naskapi Indians, described by Turner, *Ethnology of the Ungava District*, 11 Rep. Bureau of Ethnol., Washington, 1894, p. 291.

as a preliminary step, in some cases, where more effective measures are taken afterwards—this at least holds good for the head-deformation practised by several Indian tribes in the Columbia river region, according to John Scouler.¹

NEW YORK CITY.

¹ Cited by Morton in Schoolcraft, *History, Condition, etc., of the Indian tribes of U. S.*, Part II, Philadelphia, 1854, p. 325.

TYPES OF MACHU PICCHU POTTERY¹

By HIRAM BINGHAM

ALL the pottery found at Machu Picchu appears to have been hand-made, with the exception of two or three fragments of very recent pottery evidently belonging to the present Indian inhabitants. It seems likely, however, that what may be described as a primitive form of wheel was used in the manufacture of a large part of the ancient pottery. The method may have been such as is at present used in some of the outlying districts (fig. 41).

We observed at the base of Mt Coropuna in 1911 some Indian potters working at an elevation of about 14,000 feet, who used rough clay plates on which to build up the pot they were making, and on which the pots were allowed to dry in the sun before being baked. The pottery was made by women, who revolved the clay plate with the left hand while building up the pot with strips of wet clay with the right hand. The pottery was baked in a shallow depression in the ground, covered and surrounded by llama dung, this being ignited by bundles of dried grass laid on top of the whole (pl. xviii).



FIG. 41.—Indian potters' huts near the foot of Coropuna. Photograph by H. L. Tucker.

¹ Read before the American Anthropological Association at Philadelphia.

Peruvian pottery found in the coastal desert region, the source of most of the specimens now in museums, has come down to us in fairly good condition on account of the sand and volcanic ash in

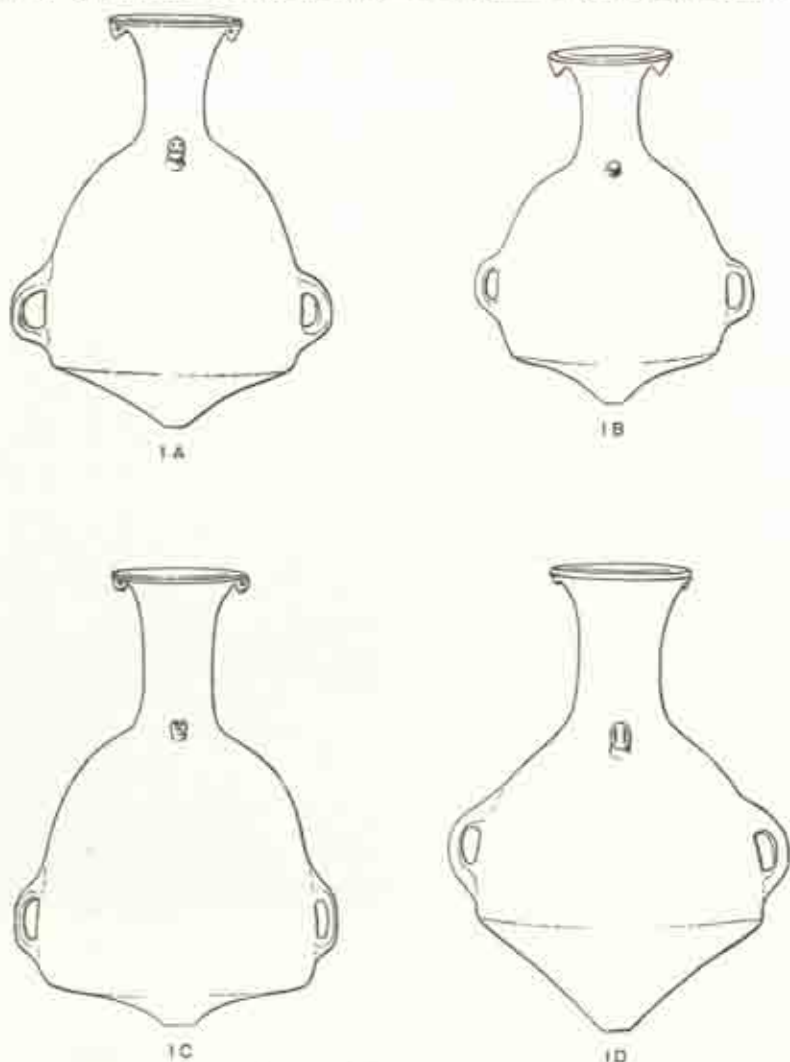


FIG. 42.—Type 1.—Arybállos.

which the cemeteries were placed. One reason for the great scarcity of mountain pottery appears to be that the burials were in caves and other rocky places which did not conduce to the life of the pot.

Machu Picchu was no exception to this rule. Nearly all of the pottery found was in a damaged condition, and much of it is beyond repair. Most of the forms of which we found sufficient pieces to enable us to restore the pots with reasonable certainty oc-



FIG. 43.—Type 2.—Beaker-shaped olla.

curred under rocky ledges or in caves in the jungle (pl. xviii), where in the process of time the roof of the cave had fallen in, or the rough stones used in sealing the mouth of the cave or covering the graves had been responsible for destroying much of the pottery that had been placed there at the time of burial. Some of the fragments of individual pots were found in more than one cave, indicating perhaps that the wild beasts of the jungle in devouring the ceremonial offerings to the departed had smashed the dishes and carried off some of the pieces to neighboring caves, or else that the ceremonial burial offerings had been fragmentary.

Owing to the fact that the collections at Machu Picchu were made under favorable auspices for recording the location of the finds, it has seemed worth while to restore as many of the types as possible.

The object of this paper is twofold: first, to present these types in outline, so as to exhibit the varieties of form that have been

found in this well-preserved and relatively unexplored ruin, the most recent part of which is undoubtedly Inca, however ancient the megalithic structure may be; and second, to offer suggestions toward the adoption of certain definite descriptive terms which may be used in the future in describing pottery from the Cuzco or Inca region.

So much of the Inca pottery bears a striking resemblance to the pottery of Greece, Mycenae, and Troy, that with the generous aid and assistance of Professor Baur of Yale University, I have felt justified in borrowing and adapting a number of terms from classical archeology. It seems to me that it would be distinctly to our advantage in American archeology if we use, wherever possible, terms already adopted and understood by students of classical archeology. In taking a step of this kind no



2C

FIG. 44.—Type 2.—Beaker-shaped olla.

one realizes better than I how many mistakes are liable to occur and how many chances there are for improvement.

I have given a number to each of the main types, for example the arybállus I have called Type 1; the beaker-shaped olla, Type 2; the pot cover, Type 3; and so on. I have given a letter to each of the styles of each type; thus the first style treated of the arybállus is called Type 1A, enabling frequent reference to be made to this type and style, while less frequent and more intelligible reference may be made by using the term with the style letter, as for example, Arybállus, Style A.

The different types and the styles of each, as presented in the Machu Picchu pottery, are as follows:—

Type 1A.—*Arybállus*. Style A. Mouth flaring. Two *pierced* earlike nubbins attached to the rim; a single incised conventionalized animal



NEWLY-MADE POTTERY IS TO BE SEEN IN THE FOREGROUND, THE ARROWS INDICATE A SHALLOW DEPRESSION WHERE THE WARE IS BAKED. PHOTOGRAPH BY H. L. TUCKER



CAVE AT MACHU PICCHU SHOWING BONES. PHOTOGRAPH BY G. F. EATON



AN INDIAN FAMILY WHO LIVE AT THE FOOT OF COROPUNA IN HUTS 14,500 FEET ABOVE SEA LEVEL; THE WOMAN AT THE LEFT HAS JUST FINISHED A CLAY VESSEL AND IS MAKING ANOTHER. PHOTOGRAPH BY H. L. TUCKER

head nubbin, attached to the shoulder; two hand-shaped handles attached vertically to the body below the ears. Base pointed. Very common.

Arybálli are usually also decorated by means of paint and sometimes a slip. The principal part of the decoration nearly always occurs on the same side as the nubbin. They were intended to be carried on the back and shoulders by means of a rope passing through the handles and around the nubbin. When being carried the decorations would thus be plainly in view.

- 1B.—*Arybálli*. Style B. Ear-nubis not pierced. Shoulder nubbin not incised.
- 1C.—*Arybálli*. Style C. Mouth not flaring. Neck nearly cylindrical. Handles attached extremely low on the body.
- 1D.—*Arybálli*. Style D. Ear nubbin incised. Mouth not flaring; handles attached relatively high on the body; base much elongated. Probably a late type. Only one example found.



FIG. 45.—Type 3.—Pot-cover.

- 2A.—*Beaker-shaped olla*. Style A. (Called *olla* in Spanish because undoubtedly a cooking pot.) All specimens found were very much fire-blackened. In this particular style the bowl is set off at a sharp angle where it joins the foot, which is more elongated than in the other styles. Height: 23 cm.; width: (greatest diameter of the bowl) 16 cm.

- 2B.—*Beaker-shaped olla*. Style B. Bowl rounded in a continuous curve with the foot, which is of medium height. Example of this style badly broken. Impossible to give original measurements.

- 2C.—*Beaker-shaped olla*. Style C. Bowl broad and flat, and foot short in proportion to the height. Height: 11 cm.; width: 15½ cm.

No paint. In nearly every case the decorations consist of a low relief attached to the shoulder opposite the handle. These have a wide variety of form.

- 3A.—*Pot-cover*. Style A. Probably intended for use with the beaker-shaped olla. Handle a hand-shaped loop; base nearly flat. Height: 8 cm.; width: 13½ cm.

- 3B.—*Pot-cover*. Style B. Handle hand-shaped, but of one piece with the cover, instead of being attached to it. Base concave. Height: 5½ cm.; width: 11½ cm.

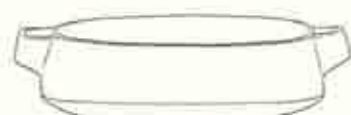
- 3C.—*Pot-cover*. Style C. Loop-handle, circular in section; base convex.
Height: 2 cm.; width: 10 cm.
No paint or other decoration.



4A



4B



4C



4B



4E



4D

FIG. 46.—Types 4 and 5.—Two-handled dish.

- 4A.—*Two-handled dish*. Style A. A deep dish in which the width is only slightly greater than the height, handles band-shaped, attached horizontally below the rim. Height: $14\frac{1}{2}$ cm.; width: $18\frac{1}{2}$ cm.
All show signs of paint or slip decoration.

- 4B.—*Two-handled dish*. Style B. A shallow variety in which the height is less than half the width; handles band-shaped, attached horizontally below the rim. Height: 8 cm.; width: $17\frac{1}{2}$ cm.
An uncommon form.

- 4C.—*Two-handled dish*. Style C. Band-shaped handles attached horizontally at the rim. Height: 6 cm.; width: 20 cm.

A rare form.

- 4D.—*Two-handled dish*. Style D. Band-shaped handles attached horizontally below the rim; bottom slightly convex, instead of being flat as in the other styles of this type. Height: 3 cm.; width: $12\frac{1}{2}$ cm.

Painted inside on a white slip that covers the entire dish.

- 4E.—*Two-handled dish*. Style E. Handles in the form of fierce-looking animals, attached vertically, and connecting the rim and body, the animal heads rising above the level of the rim and tails turned to the right. Fragments of a number of these dishes were found, but it has been impossible to reconstruct a complete specimen. We have been able to assemble nearly one-half of one dish, which measures 12 cm. in height and approximately 23 in width.

A fairly common type, occurring only in the excavations, and not in any of the graves. A fine specimen resembling this type is in the American Museum of Natural History in New York, and is figured in color opposite page 294 of Professor Bandelier's *Islands of Titicaca and Koati*.

- 5A.—*Two-handled bowl*. Style A. Handles band-shaped, curving slightly upwards above the mouth, and attached vertically, connecting rim and body. Height: 9 cm.; width: 17 cm. Rare.

- 6A.—*Pelike-shaped jug*. Style A. Ribbon-like handles connecting rim and shoulders. Base flat. Height: 49 cm.; width 27 cm. Fairly common.

- 6B.—*Pelike-shaped jug*. Style B. Short, rounded handles, connecting rim and shoulders; lip flaring. Height: 17 cm.; width: 16 cm.

- 6C.—*Pelike-shaped jug*. Style C. Handles band-shaped; attached vertically slightly below the upper rim; base flat. Height: 23 cm.; width: 18 cm.

- 6D.—*Pelike-shaped jug*. Style D. Bowl markedly larger than mouth. Height: 19 cm.; width 21 cm. Very uncommon.

- 7A.—*Diota-shaped olla*. Style A. Handles band-shaped, connecting rim and shoulder; base pointed; very much fire-blackened. Height: 27 cm.; width: 19 cm. Rare.

- 8A.—*Pithos*. Style A. Handles broad, band-shaped and set vertically. Bottom probably flat. Height: 42 cm.; width: 34 cm. Rare.

- 9A.—*Hydria-shaped olla*. Style A. Two broad, short, band-shaped handles, attached horizontally just below shoulder; third handle attached vertically connecting rim and shoulder. Base pointed. Very much fire-blackened. Height: 15 cm.; width: $14\frac{1}{2}$ cm. Rare.

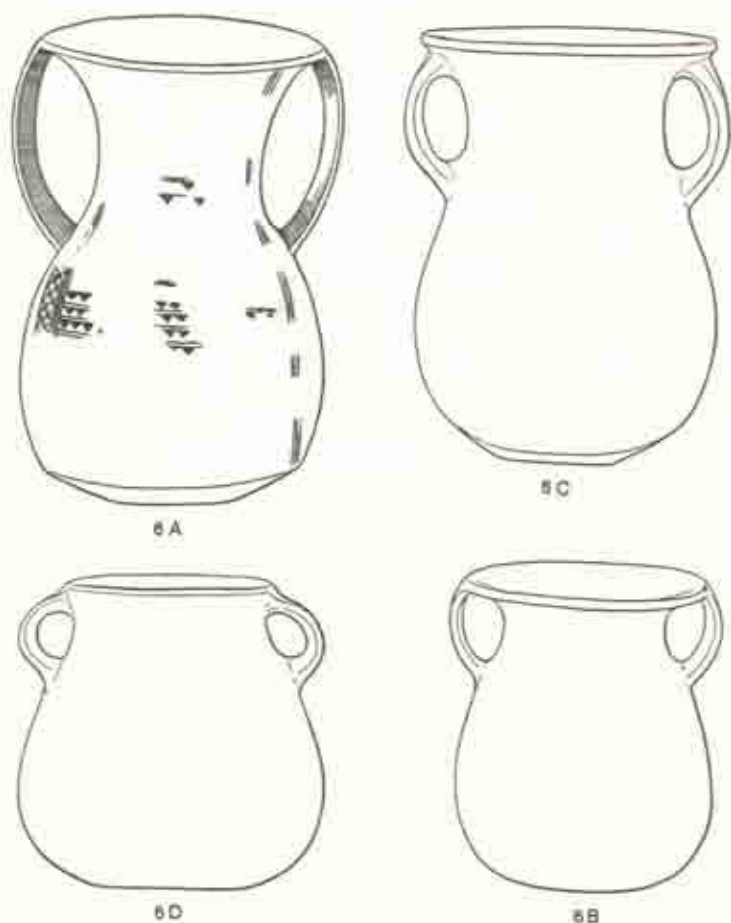


FIG. 47.—Type 6.—Pélle-shaped jug.

- 10A.—*Lebes-shaped kettle*. Style A. Handles small, band-shaped, attached horizontally to shoulder; lip conspicuously high. Height: 19 cm.; width: 21 cm. Rare.
- 10B.—*Lebes-shaped kettle*. Style B. Handles band-shaped, attached to body; shoulders decorated with two snakes in relief in the so-called "Barbotine" technique. Height: 14 (?) cm.; width: 16 cm. Rare.
- 11A.—*Ladle or Deep Plate*. Style A. Duck's head handle. Incised double nubbin attached to rim, opposite handle. Height: $3\frac{1}{2}$ cm.; width: $13\frac{3}{4}$ cm. Very common.

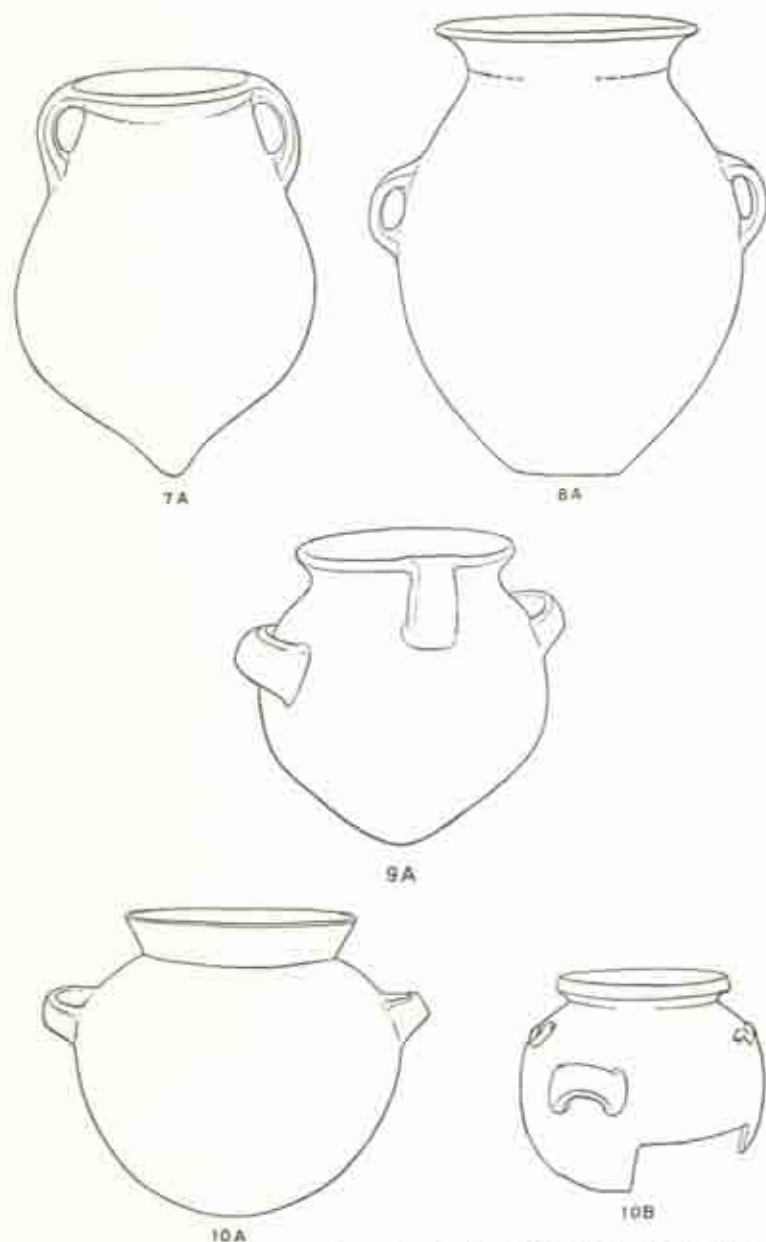


FIG. 48.—Types 7, 8, 9, and 10.—Diota-shaped olla. Pithos, Hydria-shaped olla, and Lebes-shaped kettle.

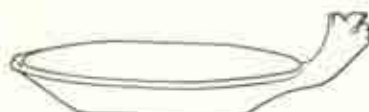
- 11B.—*Ladle or Deep Plate*. Style B. Crested bird's head handle in relief. Height: 4 cm.; width: 14 cm.
- 11C.—*Ladle or Deep Plate*. Style C. Llama or alpaca head handle in relief. Height: 4 cm.; width: 14 cm.
- 11D.—*Ladle or Deep Plate*. Style D. Human head handle, partly in relief, and partly painted. Nubbins not incised. Height: 4 cm.; width: 15 cm.
- 11E.—*Ladle or Deep Plate*. Style E. Loop-handle attached vertically to the rim; double unincised nubbin opposite handle. Height: 3½ cm.; width: 16½ cm. Fairly common.
- 11F.—*Ladle or Deep Plate*. Style F. Loop-handle attached horizontally to rim, and double incised nubbin opposite. Height: 4 cm.; width: 14½ cm. A rare form.
- 11G.—*Ladle or Deep Plate*. Style G. Duck head handle. No nubbins. Height: 4 cm.; width: 13 cm.



11A



11B



11C



11D



11E



11F



11G

FIG. 49.—Type 11.—Ladle.

- 11H.—*Ladle or Deep Plate*. Style H. Toadstool-shaped handle, incised nubbins. Height: $3\frac{1}{2}$ cm.; width: 15 cm.
- 12A.—*Deep Plate*. Style A. Two handles attached horizontally to rim. Height: 5 cm.; width: 25 cm. Rare.
- 12B.—*Deep Plate*. Style B. Incised double nubbins instead of handles. Height: 3 cm.; width: 16 cm. Common.
- 12C.—*Deep Plate*. Style C. Plain, unincised double nubbins attached to rim instead of handles. Height: 4 cm.; width: $19\frac{1}{2}$ cm. Rare.
- 12D.—*Deep Plate*. Style D. Without handles or nubbins. Height: 3 cm.; width: 12 cm. Rare.

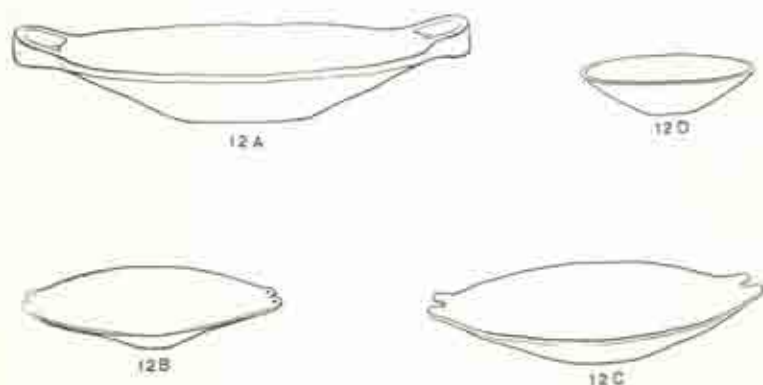


FIG. 50.—Type 12.—Deep plate.

- 13A.—*Jug*. Style A. Very large loop handle, attached vertically to shoulder. Height: $11\frac{1}{2}$ cm.; width: $11\frac{1}{2}$ cm.
- 13B.—*Jug*. Style B. Mouth flaring, neck decorated with human face in relief. Pierced loop handle attached vertically immediately below rim. Height: 23 cm.; width: 18 cm.
- 13C.—*Jug*. Style C. Mouth flaring, pierced loop handle connecting rim to body. Height: 10 cm.; width: 11 cm.
- 13D.—*Jug*. Style D. Neck decorated with human face, partly in relief and partly painted; loop handle, connecting rim and shoulder. Height: $14\frac{1}{2}$ cm.; width: 11 cm.
- 13E.—*Jug*. Style E. No lip. Neck cylindrical; handle connecting neck and body. Height: $9\frac{1}{2}$ cm.; width: $6\frac{1}{2}$ cm.
- 13F.—*Jug*. Style F. Neck, probably cylindrical; loop handle attached vertically to shoulder. Height: uncertain; width: 11 cm. Rare.
- 13G.—*Jug*. Style G. No lip. Neck nearly cylindrical; decorated with human face in relief; shoulder carrying hump on one side and human arms in relief on the other. Loop handle connecting shoulder and body. Height: 17 cm.; width: $13\frac{1}{2}$ cm.

- 13H.—*Jug*. Style H. No lip. Neck cylindrical; loop handle, attached horizontally to shoulder. Height: $15\frac{1}{2}$ cm.; width: $11\frac{1}{2}$ cm.
- 14A.—*Jar*. Style A. Handle a pierced nubbin attached vertically to shoulder; lip a pierced disk attached to rim. Made as though intended to be used for oil or ointment. Height: $4\frac{1}{2}$ cm.; width: $5\frac{1}{2}$ cm.
- 15A.—*Cup*. Style A. Sides nearly straight. Height: (?); width: 9 cm. Rare.
- 15B.—*Cup*. Style B. Concave sides. Height: $9\frac{1}{2}$ cm.; width: 8 cm.
- 16A.—*Three-legged Brazier with one handle*. Style A. Handle band-shaped, attached vertically to top of brazier; mouth formed with a small lip, irregular in form and placed on one end. Three openings or vent-holes in top. Legs solid and cylindrical. Interior and exterior much fire-blackened. Height: $17\frac{1}{2}$ cm.; width: 15 cm.; depth: 18 cm.

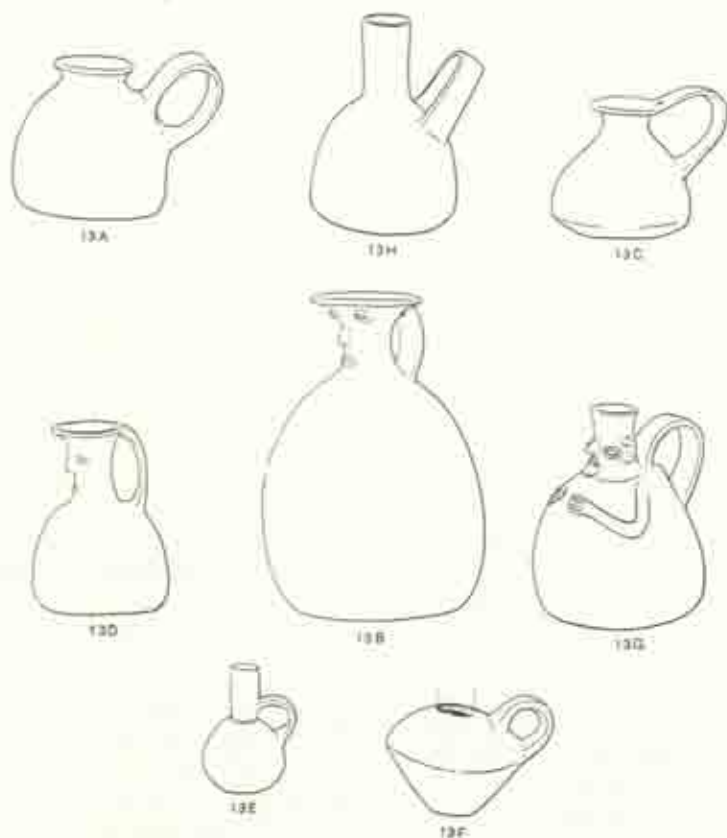


FIG. 51.—Type 13.—Jug

This is the commonest form not represented in any burial caves, and occurring only in fragments in the excavations in the city. Hitherto the only known specimens of this type, so far as I have been able to discover, are a small model, about 4 cm. in diameter, in the Berlin Museum, and a slightly larger one, about 8 cm. in diameter, in the American Museum of Natural History in New York. Full-sized braziers, of which we found remains of twenty-five or thirty at Machu Picchu, do not appear to have been found anywhere hitherto. These braziers were probably used

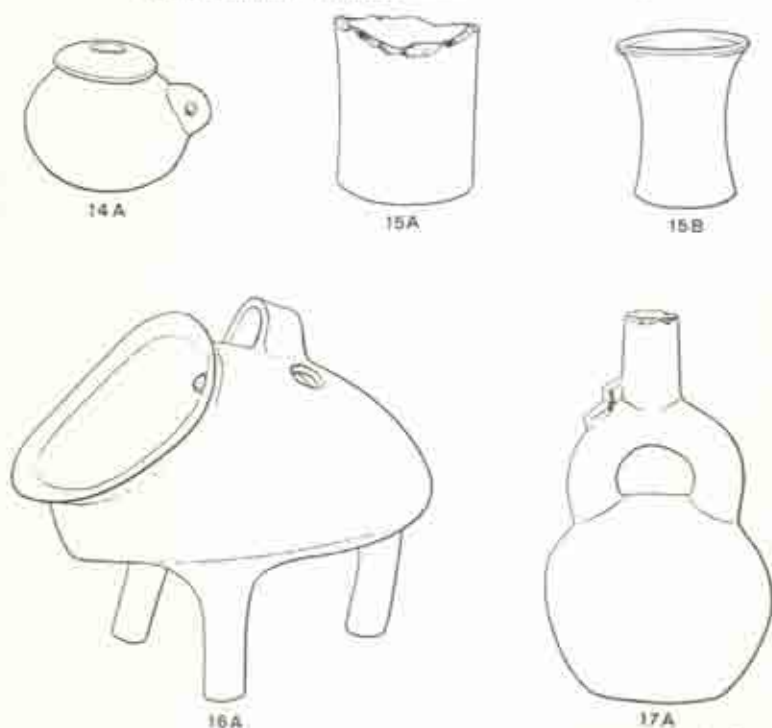


FIG. 52.—Types 14, 15, 16, and 17.—Jar, cup, three-legged brazier, and spherical bottle.

for re-heating or annealing small pieces of metal, presumably by means of a charcoal fire. Dr C. H. Mathewson, Assistant Professor of Metallurgy in the Sheffield Scientific School, tells me that: "There is no question but that small bronze implements could be re-heated very conveniently in a utensil of this shape." He adds: "If I were going to anneal an article of this kind I could easily make use of a utensil of this sort. I could take it to the laboratory now and use it for that purpose. It has an enclosed

chamber with provision for blowing if desired, the openings being properly located for this purpose."

- 17A.—*Spherical Bottle*. Style A. Neck stirrup-shaped; conventionalized animal attached to one side of neck. Height: 23 cm.; width: 13 cm. Only one found.

CONCLUSION

The common types of pottery at Machu Picchu are:—

- (1) *The aryballus*, that most characteristic Inca form. It is found in great variety at Machu Picchu, varying from 13 to 90 centimeters in height, the latter size being not at all uncommon.
- (2) *The beaker-shaped olla* or cooking-pot, of which many specimens were found in the more recent graves, and which vary in size from 9 to 43 centimeters in height, and from 10 to 29 centimeters in width.
- (3) *Pot-covers*, evidently intended for use with the beaker-shaped ollas, and varying in size from 2 to 4 centimeters in height, and from 10 to 18 centimeters in width, corresponding to the various sized openings of the beaker-shaped ollas.
- (4) *Two-handled dishes*, usually found in the same grave with the beaker-shaped ollas, and varying in height from 5 to 15 centimeters, and in width from 7 to 24 centimeters.
- (5) *Pelike-shaped jugs*. Although very rare, almost unknown in other parts of South America, this form was common at Machu Picchu. The specimens vary in height from 27 to 49 centimeters, and from 11 to 14 in width, and occur in the more recent graves.
- (6) *Deep ladles, or plates with a handle on one side*, and a double nubbin opposite, somewhat resembling the Greek *patara* in form,—the handle sometimes being a broad loop, but more often a conventionalized animal or bird head. They differ but little in size, the average being about $3\frac{1}{2}$ centimeters in height and 16 in width.
- (7) *Jugs*, with loop-handles, and varying in size from 7 to 23 centimeters in height and from 6 to 18 centimeters in width.

These are all well-known Cuzco-style types, and occur most often in later graves containing the best skeletal material.

In conclusion, one may say the evidence of the pottery found at Machu Picchu tends to point to two distinct periods, an early period, represented by forms rarely found in collections of Inca material, and a later period, the period when the more recent burials were made, represented by well-known types of the so-called Cuzco style or pure Inca.

Finally, with regard to the use of terms: The word *arybállus* has been for some time adopted without question as a descriptive term applying to the well-known Inca bottle-shaped vase with ears, low handles, and a pointed base. The new terms submitted herewith are: *beaker-shaped olla*; *diola-shaped pot*; *pithos*; *pêlike-shaped jug*; *hydria-shaped olla*; and *lebes-shaped kettle*.

YALE UNIVERSITY
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KIVAS OF THE SAN JUAN DRAINAGE¹

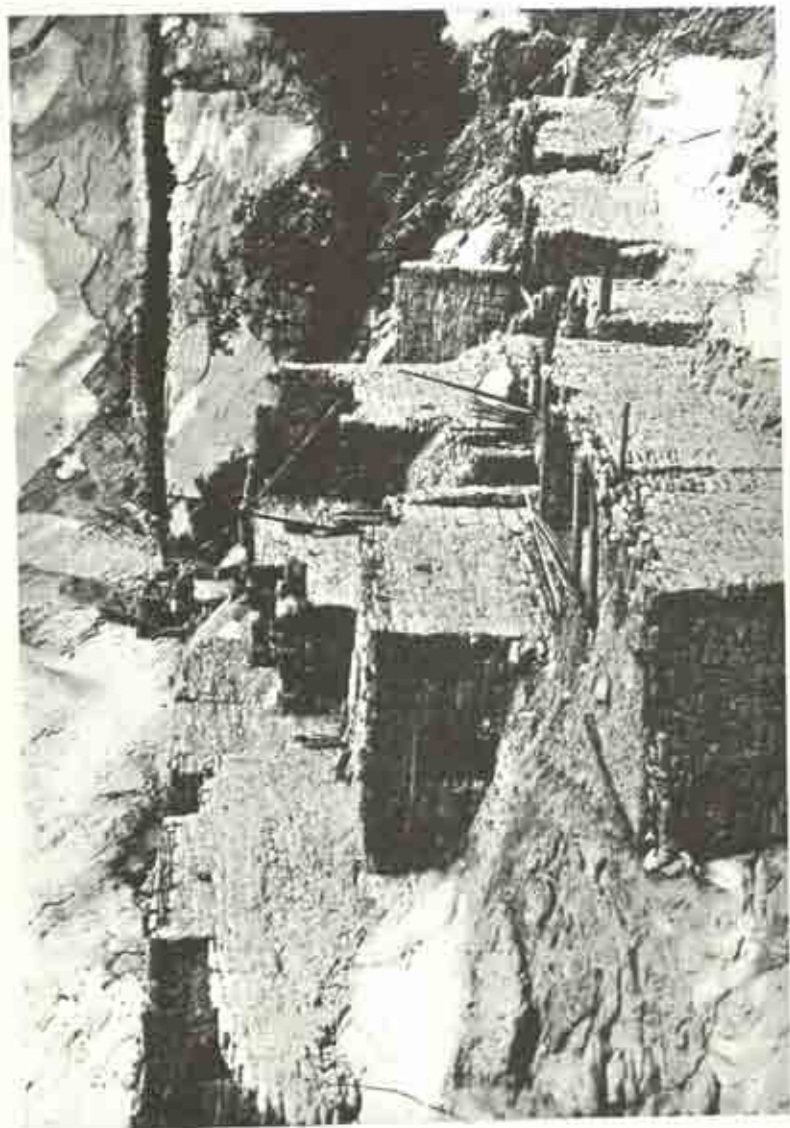
BY BYRON CUMMINGS

TO one who has tramped or ridden all day across the sandy plains of the Navajo or Hopi reservations without finding a spring or a decent water hole, there is no need of explaining the importance of mother earth and the rain gods in the theology of the Indians of that region. The scanty vegetation draws its sustenance from the soil; the pockets in the rocks store the precious fluid that keeps flocks and herds alive; and from the crevices in the cliffs man draws the life-giving nectar of the gods and goes on his way with a prayer of thanksgiving on his lips. Is it any wonder that the Indians who drew their sustenance from that scanty soil centuries ago and their still primitive descendants look upon the earth as their cherishing mother and upon the rain clouds as benign beings coming from the four quarters of the earth to bless mankind? Man must ever worship some power which he recognizes as superior to himself, must personify it, clothe it with life and initiative and capacity to understand his petitions. In so far as the attributes of that power are beyond his comprehension, superstition holds sway and the primitive imagination runs riot, filling religious observances with all sorts of fantastic forms and concepts.

The early inhabitants of our southwestern plains were evidently struggling toward a truer comprehension of the phenomena manifest about them and a determination of their relationship to those phenomena. They grasped germs of great truths and filled in the background with a strange mixture of half truths and imagination that custom welded into divine laws that the gods insisted must be carried out with great precision.

As an expression of belief in the sustaining power of mother earth, the greater number of the ceremonial chambers of the ancient and modern population of the Pueblo country are sunk beneath the

¹ Read before the American Anthropological Association at Philadelphia.



BATATKIN (SIDE HILL HOUSE) SHOWING A RECTANGULAR CEREMONIAL ROOM IN THE CENTER. SAGUE CANYON, ARIZONA

surface of the earth and form halls located wholly or in part beneath the floor level of the living rooms of the village. Thus the priests descend again into the embrace of the earth-mother and come into closer touch with that mysterious life-giving power which they see her manifest on every hand. In the creation myths of the Hopi, the Zuñi, and the Navajo we find accounts of how mankind has emerged from the interior of the earth, struggling upward with the help of the gods from one plane of existence to another until they are able to climb out upon the surface of the earth and endure the full light of the sun-father. This underground chamber, called by the Hopi, a kiva, represents the last stopping place or stage of existence before man emerged on to the surface of the earth (fig. 53).



FIG. 53.—A kiva with irregular recesses and a *sipapu* situated between the fire screen and the entrance to the sacred passage. Kayenta, Arizona.

Thus it commemorates the important phase—achievement—in that great struggle of mankind toward the fuller light of the present day.

In the *sipapu*, the opening in the floor situated usually a little beyond the center and in line with the fire-box and entrance to the shaft, we have represented the opening from which the spirits of

men have passed from the interior of the earth on their journey to the presence of the sun-father. The fire-box, usually located close to the center, represents the invigorating heat of the sun-father whose presence they are approaching. Here they pause and warm and dry themselves, as their existence heretofore has been in regions that are cold, dark, and damp. After they have become accustomed to the warmth and dim light of the kiva, they pass on by the fire screen and enter the passage through the side wall at the floor level which leads to the bottom of a small shaft which extends usually vertically into the open air above. Through this passage they ascend to the surface of the earth. Thus man has accomplished his journey, stands in the presence of the sun-father, and begins his career in the great out-of-doors of the world's forces.

In the ruins of the cave and cliff people of the San Juan drainage that we have examined, this underground chamber is almost invariably round, evidently following the form of the most primitive dwelling of these people and thus recording the history of their architecture. Primitive people everywhere seem first to have constructed for themselves circular homes. We see this manifest among the neolithic people of Europe and Asia as well as among the aborigines of America. In the San Juan drainage all of the oldest homes we have found, buildings that plainly antedated the well constructed cliff-dwellings, are circular in form.

The past summer we found some interesting groups of houses in a section of very rough country that seemed comparatively unknown. In a deposit of clay and broken shale which had partially filled numerous caves of the section, the people had excavated circular rooms, roofing them over with poles, brush, cedar bark, and clay. In some instances these older habitations were filled up, and well constructed rooms of stone and clay of the so-called "Cliff-Dwellers" built above them. In other sections as in Sagie or Sosie cañon, a branch of the Moonlight, and in Water Lily cañon, a branch of the main Sagie, we have found numerous instances of circular rooms constructed of flat stone set up on edge, braced by posts and poles and the holes filled with grass, cedar bark, or clay. Some of these, judging from their location and construc-

tion, plainly were ceremonial chambers; others served merely as living rooms. Many are in such a state of decay that it is impossible to determine the uses to which they were put; but all are of circular form.

In the older kivas of the "Cliff-Dwellers" one finds the walls built of roughly constructed masonry with four strong posts set into them to serve as supports for the larger timbers that carry the weight of the roof. As they learned to break the stones more evenly and lay them up more firmly, they made the walls stronger, letting well built pilasters take the place of the supporting posts, and setting the wall between them back a few inches after it had reached a height of about three feet from the floor. These intervening spaces made excellent recesses for storing ceremonial material and perhaps also convenient places to sleep when men wished to see visions and secure answers to the questions that were disturbing



FIG. 54.—Kiva 20 ft. in diameter showing a bench extending around the entire chamber, Water Lily cañon, Arizona.

their peace of mind. The pilasters and accompanying recesses usually number six, although we find many variations from this form. In White cañon we have found well-made kivas with five pilasters, in Sage cañon, kivas with two and three recesses up near the roof and others with no recesses at all, the wall having been

built strong and smooth from the floor to the ceiling. On the Kayenta in 1909 we found a kiva in a cave ruin in a small side cañon, that has a bench extending exactly half way round the circular chamber. This kiva is fifteen feet in diameter, its walls are exceedingly well built, and the curve of the room very regular.

In Twin Cave House in Water Lily cañon, one of the head branches of Sagie cañon, we found a kiva 20 feet in diameter which has a bench 2 feet high extending entirely around the chamber (fig. 54). This building is very well constructed and has the greater part of the bench paved with thin flat stones. A large one forms the top of the entrance to the shaft, or sacred passage. A rectangular box-like depression in the floor 4 by 8 inches takes the place of the circular *sipapu* which we have found in the other kivas. The fire screen was made by standing two short posts firmly in the clay floor, two feet apart, and filling in the space between with upright sticks plastered with clay. In the lower part of the wall near the floor you usually find one or more cubby-holes about 8 by 10 inches and 6 to 10 inches deep. These were probably used as receptacles for prayer plumes and sacred medicines.

The roofs are either flat or dome-shaped, both varieties of which have been well described by Dr Fewkes in his monographs on Spruce Tree House and Cliff Palace in Mesa Verde National Park, Colorado, and by Mr Morley in his discussion¹ of the ruins of McElmo cañon. The greater number of these kivas have flat roofs supported by heavy timbers which rest upon the pilasters, or, where there are no pilasters, are bedded into the top of the wall. At right angles and resting upon these are poles placed from 6 to 12 inches part. Upon these and also at right angles rests a layer of split cedar or of willow twigs laid closely together. Over these is a thick layer of cedar bark or rushes and this, in turn, is overlaid with about 3 inches of clay packed closely by treading. The dome-shaped roofs are obtained by placing smaller and shorter timbers from the top of one pilaster to the one next adjacent, and others across the angles thus formed by the ends of the first tier, gradually drawing them toward the center until the roof beams close the space or

¹ *American Anthropologist*, October-December, 1908, pp. 596-610.

leave only a small hole in the top. Upon these supporting timbers are placed a layer of brush or cedar bark and then all is covered and leveled with earth and clay.¹ To one side of the center in both forms of roof is left a rectangular opening about 2 by 2½ feet by which access to the kiva is had on a ladder.

In some of the cave pueblos, as in Batatakin and Bat-woman houses in branches of Sagie cañon, no circular ceremonial chambers are found. Rectangular rooms built on the same level as the living rooms seem to have been used for that purpose. Taking one from Batatakin as typical (pl. xix), the entrance is at the side and opens upon a platform that extends from the threshold to the fire screen which rises from the edge of the fire-box. The fire screen, built up of masonry five inches thick, is 2 feet wide and 2 feet 6 inches high. The floor of the chamber is the solid rock of the cave floor, and contains no *sipapu*. A shallow circular depression that has been pecked into the rock 18 inches from the fire-box suggests a *sipapu*, though probably it is not one. In the roof above the fire-box is an opening 8 by 10 inches which probably served for the exit of the smoke. Midway in the front wall and 4 feet 6 inches from the floor is an opening, 4 by 5 inches, that has been carefully prepared. This may be the suggestion of the sacred passage, but there is no exterior shaft manifest. The back wall is formed of the cliff wall of the cave and contains an irregular jog which served as a shelf. There were at least four such chambers in Batatakin and two in Bat-woman House. In the latter pueblo, however, all rooms in the central part of the cave were so badly destroyed by huge blocks of stone that had fallen from the roof of the cave that it is impossible to be at all sure of the detailed character of the respective rooms.

On the back wall of the Bat-woman House is painted a large image of the Bat-woman and on the side wall of Batatakin a similar image of the slayer god. Since these images are found only in these pueblos where there are no circular chambers, and since these villages show as high development in the arts of weaving and

¹ This method of construction is shown in one form of hogan built by the Navajo in that region today.

pottery-making as is found anywhere, and since also we are able to obtain from old Navajo priests a reasonable explanation of these images, it is probable that these are as recent as any of the Cliff-Dwellers' villages.

The old Navajo relate the myth of the Bat-woman and the slayer god as follows:

A very long time ago their people used to be destroyed by the big animals that lived in the country. The last of these big animals were the big eagles, which lived on the top of Shiprock, a steep isolated cliff in northwestern New Mexico, and used to swoop down upon their villages, carry off their women and children, and steal their turquoise. Finally, they appealed to the Slayer God to help them. He went to the top of Shiprock, killed the big eagles, and took all their feathers. When he turned to come down, the cliff was so steep that he was afraid to try it. Pretty soon Bat-woman, his grandmother, came along and he asked her to help him. She said she would if he would get into her basket, which she always carried suspended by fine silken threads, and keep his eyes closed until they reached the ground. He thought the cords looked pretty small; but she bounced the basket up and down and showed him how strong they were. Knowing that his grandmother would never deceive him, at length he got into the basket and was taken down to the ground. But on the way, while his eyes were closed, the Bat-woman threw all of the eagle feathers into the air, and they turned into birds. That is why we have so many birds. Since then the people have never been troubled by big animals. The Slayer God is the son of the Sun-father and a beautiful, chaste Navajo girl, the daughter of the Bat-woman.

In Pine Tree House, a cave pueblo of thirty-six rooms which we discovered last summer near the head of Nitznoeboko, a branch of the Sagie cañon, we found at the extreme front of the cave the remains of a circular room built into the cliff, in the old style, with flat stone on edge and braced with posts; and near one end of the cave an old kiva of circular form, though somewhat irregular; while toward the other end and opening off from a little court, was a rectangular room that had plainly served the purpose of a ceremonial chamber. The circular room was sunk below the level of the surrounding rooms in a large hole between sections of the cliff

floor of the cave, and consequently, was not perfectly round. It was $5\frac{1}{2}$ feet deep; and its average diameter was $8\frac{1}{2}$ feet. Against the rock, on the front side, was the fireplace; while 3 feet to the right, was the entrance to the shaft, or sacred passage, which opened out into a tiny triangular court on that side of the chamber. There was no fire screen, as the location of the fire-box seemed to preclude the need of one. In the inside of the sacred passage, 12 inches from the top, are two small oak sticks set into the masonry of the walls at right angles to each other. A similar arrangement is found in the shafts of some kivas in the White cañon on the north side of the San Juan. This seems to preclude the use of the shaft for profane purposes. The fact that the roof was entirely gone and the chamber filled with all sorts of rubbish seems to indicate that the community had ceased to use this room and had transferred their ceremonies to the larger rectangular room in the other part of the village. This chamber measured 10 feet 1 inch by 10 feet 5 inches and contained a fire-box and a *sipapu*. The *sipapu* is rectangular, and measures 24 by 10 by 5 inches. It was covered by a piece of plank which rested upon a planting stick.

These rooms illustrate well the relationship that plainly existed between the two forms of ceremonial chambers. The circular ones are evidently the older and more numerous. They served the communities as churches, council chambers, and workshops for the men; and were the center of the religious and social life of the respective communities. The rectangular rooms were a later development, and served a similar purpose among the members of clan societies, organized through the influence of immigrants into the region, whose religious customs differed somewhat from the parent stock of the people.

Some interesting conditions are also found in the ceremonial caves of the region, showing the circular idea of the earlier kiva in these earliest places of worship. One in Montezuma creek cañon which we found several years ago, is a small semicircular cave, reached only by a staircase of foot holes pecked in the smooth side of the cliff. These holes were nearly obliterated and had to be pecked out afresh before one could reach the cave which contained

little more than a fireplace. Another found last summer in Monument park was reached only by swinging one of our number over the cliff 75 feet down to a small landing, and then dropping a rope down a hundred feet to the bottom. By this we made our way, hand over hand, to the landing; and thence, we climbed into the interior of the cave. In the inner slope we could trace here and there the remains of foot-holes cut in the rock, but those in the cliff outside evidently had been entirely obliterated. At the back of the cave there is a sandy terrace which is quite level. On this had been set up flat stones in a circle 12 feet in diameter (pl. xx). Buried in the sands that had drifted into this inclosure and scattered down the slope for several feet were hundreds of beads of bone, jet, slate, agate, turquoise, and shell, also several pipes, several arrow and spear points, some arrows and weaving sticks, and many small canopies made of twigs tied with yucca cord. In front and just outside this circle was a coarse black jar, 16 inches high. This

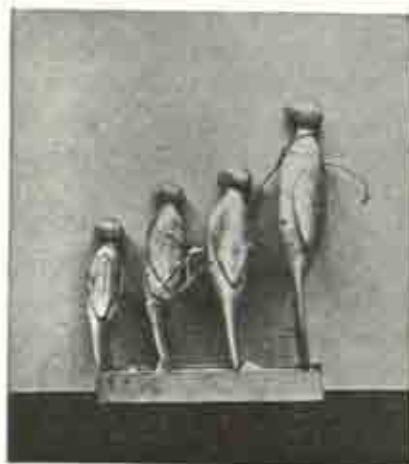


FIG. 55.—Wooden birds from ceremonial cave, Monument Park, Utah.

was buried in the sands that had accumulated since the cave was used, and was covered closely with a flat stone. In it were a string of fifty small wooden cylinders, 36 wooden pendants, shaped like truncated cones, a string of 40 half-gourd shells, a bundle of prayer sticks and bone awls, and four carved wooden birds (fig. 55). Here evidently was a shrine of the rain gods. Here they brought their offerings of beads and feathered arrows, and the emblems of their christening ceremonies.

Here the priests stored the articles which they used in the sacred rites performed to secure the favor of the gods and the blessing of their fields. The four birds of different sizes probably represent the messengers of the rain gods of the east, west, north and south; the wooden beads, the pendants,



KIVA EXCAVATED IN THE SHALE AND CLAY WITH RUINS OF CLIFF DWELLERS ABOVE.
MONUMENT PARK, UTAH



CEREMONIAL CAVE, SHOWING CIRCLE OF STONES ON A SMALL TERRACE AT THE BACK.
HERE WERE FOUND BIRDS, BEADS ETC.

and the half-gourd shells were probably the decorations of the priests as they danced and chanted to the rain gods; while the wooden canopies (placed over the head of a new-born babe to secure the protection of the gods, according to an explanation given us by an old Navajo medicineman) probably represented the canopy of the heavens with the circle of the horizon, the homes of the rain gods of the east, west, north, and south, and the paths across the heavens which lead to the respective abodes of those deities.

In a room in Pine Tree House in Sagie cañon we found, together with numerous weaving sticks and spindles, a band made of splints woven together with yucca cord and bordered on each side with a row of pine nuts strung on cotton cord. The band is painted with a design in black and white. With the assistance of Mrs John Wetherill of Kayenta, Arizona, who possesses a remarkable understanding of the Navajo people and their language, we obtained the following interpretation of this design from Navajo medicinemen: The black and white lines at top and bottom represent the horizon with its dark earth line and the bright light of the sky; the black terraced triangles represent the rain clouds; the broad zigzag lines of white, the lightning; and the vertical white lines, the pillars of beads that hold up the rain clouds so that there will never be any more floods. This band formed the headdress of the priest who impersonated the slayer god in the ceremony commemorating the saving of the people from the great flood that occurred a long, long time ago; but this ceremony, he said, had not been celebrated by his people for a long time.

A peculiarly shaped basket was found in a room in Bat-woman House, and is similar to one found in a cave in Sagie cañon in 1909. It is probably a ceremonial basket; and, according to the explanation of our old Navajo friend, was carried by the war god (the slayer god) to hold his arrows and sacred medicines in the ceremony above described. The two peculiar shaped lobes at the bottom represent the ears of the Bat-woman, the grandmother of the slayer god, who always aided her grandson in his efforts to help the people.

The elaborate design, carried out in color, represents in the bands of black and white the horizon lines of earth and light; the

dark broad bands, the rain clouds; the dark triangles, the water jugs of the rain gods; and the white zigzag lines, the lightning.

While both Navajo and Hopi priests and clan leaders seem able to give reasonable explanations of much of this ancient ceremonial material, is it not remarkable that medicinemen of the Tachinie clan, the oldest clan of the Navajo, seem to be the only ones able to give such ready and definite interpretation to so much of the prehistoric symbolism? It seems to us to indicate quite a close connection between the Tachinie clan of the Navajo and the Cliff Dwellers of the region.

UNIVERSITY OF UTAH

EIGHTEEN PROFESSIONS¹

BY A. L. KROEBER

ANTHROPOLOGY today includes two studies which fundamental differences of aim and method render irreconcilable. One of these branches is biological and psychological; the other, social or historical.

There is a third field, the special province of anthropology, concerned with the relation of biological and social factors. This is no-man's-land, and therefore used as a picnic-ground by whosoever prefers pleasure excursions to the work of cultivating a patch of understanding. Some day this tract will also be surveyed, fenced, and improved. Biological science already claims it; but the title remains to be established. For the present, the labor in hand is the delimitation of the scope of history from that of science.

In what follows, historical anthropology, history, and sociology are referred to as history. Physical anthropology and psychology are included in biology.

1. *The aim of history is to know the relations of social facts to the whole of civilization.*

Civilization means civilization itself, not its impulses. Relation is actual connection, not cause.

2. *The material studied by history is not man, but his works.*

It is not men, but the results of their deeds, the manifestations of their activities, that are the subject of historical inquiry.

3. *Civilization, though carried by men and existing through them, is an entity in itself, and of another order from life.*

History is not concerned with the agencies producing civilization, but with civilization as such. The causes are the business of the psychologist. The entity civilization has intrinsically nothing to do with individual men nor with the aggregates of men on whom

¹ Read by title at the Philadelphia meeting of the American Anthropological Association.

it rests. It springs from the organic, but is independent of it. The mental processes of groups of men are, after all, only the collected processes of individuals reacting under certain special stimuli. Collective psychology is therefore ultimately resolvable into individual human psychology, just as this in turn is resolvable into organic psychology and physiology. But history deals with material which is essentially non-individual and integrally social. History is not concerned with the relations of civilization to men or organisms, but with the interrelations of civilization. The psychic organization of man in the abstract does not exist for it, save as something given directly and more or less completely to the student's consciousness. The uncivilized man does not exist; if he did, he would mean nothing to the historian. Even civilized man is none of history's business; its sphere is the civilization of which man is the necessary basis but which is inevitable once this basis exists.

4. *A certain mental constitution of man must be assumed by the historian, but may not be used by him as a resolution of social phenomena.*

The historian can and should obtain for himself the needed interpretation of man's mind from familiarity with social facts and the direct application to them of his own psychic activities. This interpretation is likely to be of service in proportion as it emanates immediately from himself and not from the formulated laws of the biological psychologist. Whether an understanding of civilization will or will not help the psychologist is for the latter to determine.

5. *True instincts lie at the bottom and origin of social phenomena, but cannot be considered or dealt with by history.*

History begins where instincts commence to be expressed in social facts.

6. *The personal or individual has no historical value save as illustration.*

Ethnological genealogies are valuable material. So are the actions of conspicuous historical personages. But their dramatic, anecdotic, or biographic recital is biographic or fictional art, or possibly psychology, not history.

7. *Geography, or physical environment, is material made use of by civilization, not a factor shaping or explaining civilization.*

Civilization reacts to civilization, not to geography. For the historian, geography does not act on civilization, but civilization incorporates geographical circumstances. Agriculture presupposes a climate able to sustain agriculture, and modifies itself according to climatic conditions. It is not caused by climate. The understanding of agricultural activity is to be sought in the other phenomena of civilization affecting it.

8. *The absolute equality and identity of all human races and strains as carriers of civilization must be assumed by the historian.*

The identity has not been proved nor has it been disproved. It remains to be established, or to be limited, by observations directed to this end, perhaps only by experiments. The historical and social influences affecting every race and every large group of persons are closely intertwined with the alleged biological and hereditary ones, and have never yet been sufficiently separated to allow demonstration of the actual efficiency of either. All opinions on this point are only convictions falsely fortified by subjectively interpreted evidence. The biologist dealing with man must assume at least some hereditary differences, and often does assume biological factors as the only ones existent. The historian, until such differences are established and exactly defined, must assume their non-existence. If he does not base his studies on this assumption, his work becomes a vitiated mixture of history and biology.

9. *Heredity cannot be allowed to have acted any part in history.*

Individual hereditary differences undoubtedly exist, but are not historical material because they are individual. Hereditary differences between human groups may ultimately be established, but like geography must in that event be converted into material acted upon by the force of civilization, not treated as causes of civilization.

10. *Heredity by acquirement is equally a biological and historical monstrosity.*

This naive explanation may be eliminated on the findings of biology; but should biology ever determine that such heredity operates through a mechanism as yet undiscovered, this heredity must nevertheless be disregarded by history together with con-

genital heredity. In the present stage of understanding, heredity by acquirement is only too often the cherished inclination of those who confuse their biological thinking by the introduction of social aspects, and of those who confound history by deceiving themselves that they are turning it into biology.

11. *Selection and other factors of organic evolution cannot be admitted as affecting civilization.*

It is actually unproved that the processes of organic evolution are materially influencing civilization or that they have influenced it. Civilization obviously introduces an important factor which is practically or entirely lacking in the existence of animals and plants, and which must at least largely neutralize the operation of any kind of selection. Prehistoric archeology shows with certainty that civilization has changed profoundly without accompanying material alterations in the human organism. Even so far as biological evolution may ultimately be proved in greater or less degree for man, a correspondence between organic types and civilizational forms will have to be definitely established before history can concern itself with these organic types or their changes.

12. *The so-called savage is no transition between the animal and the scientifically educated man.*

All men are totally civilized. All animals are totally uncivilized because they are almost totally uncivilizable. The connecting condition which it is universally believed must have existed, is entirely unknown. If ever it becomes known, it can furnish to the historian only an introduction to history. There is no higher and lower in civilization for the historian. The ranging of the portions of civilization in any sequence, save the actual one of time, place, and connection, is normally misleading and always valueless. The estimation of the adult savage as similar to the modern European child is superficial and prevents his proper appreciation either biologically or historically.

13. *There are no social species or standard cultural types or stages.*

A social species in history rests on false analogy with organic species. A stage in civilization is merely a preconception made plausible by arbitrarily selected facts.

14. *There is no ethnic mind, but only civilization.*

There are only individual minds. When these react on each other cumulatively, the process is merely physiological. The single ethnic or social existence is civilization, which biologically is resolvable purely into a product of physiological forces, and historically is the only and untranscendable entity.

15. *There are no laws in history similar to the laws of physico-chemical science.*

All asserted civilizational laws are at most tendencies, which, however determinable, are not permanent quantitative expressions. Nor are such tendencies the substitute which history has for the laws of science. History need not deny them and may have to recognize them, but their formulation is not its end.

16. *History deals with conditions sine qua non, not with causes.*

The relations between civilizational phenomena are relations of sequence, not of effect. The principles of mechanical causality, emanating from the underlying biological sciences, are applicable to individual and collective psychology. Applied to history, they convert it into psychology. An insistence that all treatment of civilizational data should be by the methods of mechanical causality is equivalent to a denial of the valid existence of history as a subject of study. The only antecedents of historical phenomena are historical phenomena.

17. *The causality of history is teleological.*

Psychological causes are mechanical. For history, psychology is assumable, not demonstrable. To make the object of historical study the proving of the fundamental identity of the human mind by endless examples is as tedious as barren. If the process of civilization seems the worth-while end of knowledge of civilization, it must be sought as a process distinct from that of mechanical causality, or the result will be a reintegration that is not history. Teleology of course does not suggest theology to those free from the influence of theology. The teleology of history involves the absolute conditioning of historical events by other historical events. This causality of history is as completely unknown and unused as chemical causality was a thousand and physical causality three thousand years ago.

18. *In fine, the determinations and methods of biological, psychological, or natural science do not exist for history, just as the results and the manner of operation of history are disregarded by consistent biological practice.*

Most biologists have implicitly followed their aspect of this doctrine, but their consequent success has tempted many historians, especially sociologists, anthropologists, and theorists, to imitate them instead of pursuing their proper complementary method.

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THE FAMILY HUNTING BAND AS THE BASIS OF ALGONKIAN SOCIAL ORGANIZATION

By FRANK G. SPECK

THE following paper is intended in a preliminary way to make available to ethnologists the results of certain economic and social investigations in an important but hitherto neglected topic; the family group as a fundamental social unit among the hunting tribes of the northern woodlands. The idea has always prevailed, without bringing forth much criticism, that, in harmony with other primitive phenomena, the American Indians had little or no interest in the matter of claims and boundaries to the land which they inhabited. This notion has, in fact, been generally presupposed for all native tribes who have followed a hunting life, to accord with the common impression that a hunter has to range far, and wherever he may, to find game enough to support his family.

Whether or not the hunting peoples of other continents, or even of other parts of America, have definite concepts regarding individual or group ownership of territory, I should at least like to show that the Indian tribes of eastern and northern North America did have quite definite claims to their habitat. Moreover, as we shall see, these claims existed even within the family groups composing the tribal communities. There is, indeed, considerable significance in the fact that these tracts were remotely inherited in the families and that they were well known by definite bounds not only among the owners but among the neighboring groups. In many cases they were also associated with certain social clan groupings within the tribe. It would seem, then, that such features characterize actual ownership of territory.

One of the results of my ethnological explorations in the interests of the Geological Survey of Canada among the tribes of the northern and northeastern United States and Canada, has been to trace the

distribution of the family hunting claims and to study the social side of the institution, which is, to be sure, a fundamental one, among all the Algonkian people. Accordingly, I feel safe in presenting this preliminary report of the ethno-geographical material now, having pursued my objective studies through the tribes from the Atlantic seaboard in Newfoundland, Nova Scotia, Maine, the South Labrador coast, and provinces of Quebec and Ontario as far west as Mattagama river and north to Lake Abittibi beyond the Height of Land dividing the Arctic and St Lawrence watershed.

Before entering upon the specific material from different tribes, let me define the family hunting group as a kinship group composed of folks united by blood or marriage, having the right to hunt, trap, and fish in a certain inherited district bounded by some rivers, lakes, or other natural landmarks. These territories, as we shall call them, were, moreover, often known by certain local names identified with the family itself. The whole territory claimed by each tribe was subdivided into tracts owned from time immemorial by the same families and handed down from generation to generation. The almost exact bounds of these territories were known and recognized, and trespass, which, indeed, was of rare occurrence, was summarily punishable. These family groups or bands form the social units of most of the tribes, having not only the ties of kinship but a community of land and interests. In some tribes these bands have developed into clans with prescribed rules of marriage, some social taboos and totemic emblems. Such, then, is the general aspect of this institution.

Regarding the territorial bounds, I indeed found them so well established and definite that it has been possible to show on maps the exact tract of country claimed by each family group. The districts among the Algonkian seem to average between two and four hundred square miles to each family in the main habitat, while on the tribal frontiers they may average from two to four times as large. I have already prepared such maps of the Penobscot territory in Maine, the Montagnais and Mistassini of Quebec, the Timiskaming and Nipissing in Ontario, the Micmac of Nova Scotia and

Newfoundland, and the Lake Dumoine, Timagami, Matachewan and Mattawa bands of Algonkian and Ojibwa in Ontario and Quebec.¹ In only one instance so far in my investigations have I found this institution occurring among the Iroquois. In this case the Mohawk of the Oka band have a few family hunting territories, the idea evidently having been borrowed from the Algonkin occupying the same reserve. I could not find any traces of the institution among the Cherokee of North Carolina. Mr E. W. Hawkes informs me, concerning the Eskimo of Labrador, that, while aware that their Indian neighbors maintain the hunting territory system, they have not taken it up themselves.

In the west and north several authors refer in more or less definite terms to the institution. Harmon (1800) describes it among the Cree,² while now and then we can detect its occurrence in the regions covered by the reports of later ethnologists.³ As might

¹ "Family Hunting Territories and Social Life of Various Algonkian Bands of the Ottawa Valley," *Memoir, Geological Survey of Canada* (in press).

² D. W. Harmon, *Journal of Voyages and Travels in the Interior of North America* (New York, 1903), p. 330-1.

"Every tribe has its particular tract of country; and this is divided again, among the several families, which compose the tribe. Rivers, lakes, and mountains, serve them as boundaries; and the limits of the territory which belongs to each family are as well known by the tribe, as the lines which separate farms are, by the farmers in the civilized world. The Indians who reside in the large plains, make no subdivisions of their territory; for the wealth of their country consists of buffaloes and wolves . . . But the case is otherwise with the inhabitants of the woody countries . . . should they destroy all these animals in one season, they would cut off their means of subsistence. A prudent Indian whose lands are not well stocked with animals, kills only what are absolutely necessary to procure such articles as he cannot well dispense with."

³ V. Stefánsson, *Anthropological Papers, American Museum of Natural History*, XIV, part 1 (1914), p. 271. "Each group (Athapascan) then kept very strictly to their own hunting grounds and only in extreme need followed game into a neighbor's territory. . . ."

H. J. Spinden, "The Nez Percé Indians" *Memoirs American Anthropological Association*, II, p. 242. "The Nez Percé tribe was divided into bands upon the village or geographical basis. Each village had its chief, its fishing place and its strip of territory along the river."

Clark Wissler, "The Social Life of the Blackfoot Indians," *Anthropological Papers, American Museum of Natural History*, VII, part 1, p. 20. "When two or more bands chose to occupy immediate parts of the same valley, their camps are segregated and, if possible, separated by a brook, a point of highland, or other natural barrier. The scattering of bands during the winter was an economic necessity, a practice accentuated among the Thick-wood Cree and other similar tribes. Something was lost in defensive powers but this was doubtless fully offset by greater immunity from starvation."

indeed be expected, the tribes of the Plains area do not have the institution so far as I have learned incidentally from a few informants. From the allusions in literature, however, we might suspect its general distribution in the Plateau and in the northern or Mackenzie area.

We have reason to know, moreover, from early historical writings, that the typical institution of the hunting territory, with vested rights, so characteristic even today among the tribes of Canada, held sway among the Algonkian kindred as far south as southern New England. This brings the institution well within the limits of the region concerned in the treaty negotiations of our

Finally in this connection attention might be called to the significant passages in the works of R. H. Lowie on "The Northern Shoshone," *Anthropological Papers of the American Museum of Natural History*, II, part 11, p. 208 and on "The Assiniboine"; in those of A. L. Kroeber on the Algonkian Gros Ventre, and in those of A. B. Skinner dealing with the northern Plains-Cree and Ojibwa. Cf. "Notes on the Eastern Cree and Northern Saulteaux" *Anthropological Papers of the American Museum of Natural History*, IX, part 1, p. 150. "Every adult male Northern Saulteaux has a certain well-known range over which he has the exclusive right of trapping and hunting game, known as 'Tahkewin' a word corresponding to home. This, by exception to the general rule of maternal inheritance, descends at his death to his nearest living relative, male or female in order of age. . . . The rules regarding the punishment for violation of the law against hunting on another man's lands are said to have been very strict at one time, but are now lax, although hard feelings and even blows frequently result from transgression."

Quite definitely, indeed, can we interpret the meaning of what Roger Williams wrote of the Narragansett in Rhode Island in 1643 in his quaint style, *Key into the Language of America*, Roger Williams (London, 1643).

P. 189. "Secondly, they hunt by Traps of severall sorts, to which purpose, after they have observed in spring time and summer the haunt of the Deere then about Harvest, they goe ten or twentie together, and sometimes more, and withall build up little hunting houses of burks and rushes. . . . and so each man takes his bounds of two, three or foure miles where he sets thirty, forty or fifty traps and baits his traps with that food the Deere loves and once in two days he walks his round to view his traps."

Further on, he remarks,

P. 193. "Pumpomi: a tribute skin when a Deere is killed in the Water. This skin is carried to the Sachim or Prince within whose territory the Deere was slain."

Also, quoting *Good News from New England*, *Young's Chronicle of Plymouth*, pp. 361-2, cited in footnote in same edition, p. 193, Roger Williams Key, etc.

"Every Sachim knoweth how far the bounds and limits of his own country extendeth; and that is his own proper inheritance. . . . In this circuit whosoever hunteth, if they kill any venison, bring him his fee; which is the fore parts of the same, if it be killed on the land, but if in the water, then the skin thereof."

colonial government. Furthermore, on the assumption that the ethnically related Algonkian inhabiting southward into Virginia were organized similarly, we may have to conclude that all of the Atlantic coast tribes maintained the same institution.

Another feature of economic importance in the institution of the family hunting territory is the conservation of resources practised by the natives. In their own régime this means the conservation of the game. Let us consult, for example, the native regulations governing the treatment of the hunting territories among the northern Ojibwa and the Montagnais of the province of Quebec who are often accused of being improvident as regards the killing of game, notwithstanding the fact that they depend upon it for their living. The Montagnais subsist entirely upon the products of the hunt, trading the furs that they obtain during the winter for the necessities of life at the Hudson's Bay Company's posts. Accompanied by his family, the Montagnais hunter operates through a certain territory, known as his "hunting ground" (*oti'tawin*), the boundaries determined by a certain river, the drainage of some lake, or the alignment of some ridge. This is his family inheritance, handed down from his ancestors. Here in the same district his father hunted before him and here also his children will gain their living. Despite the continued killing in the tract each year the supply is always replenished by the animals allowed to breed there. There is nothing astonishing in this to the mind of the Indian because the killing is definitely regulated so that only the increase is consumed, enough stock being left each season to insure a supply for the succeeding year. In this manner the game is "farmed," so to speak, and the continued killing through centuries does not affect the stock fundamentally. It can readily be seen that the thoughtless slaughter of game in one season would spoil things for the next and soon bring the proprietor to famine.

The Montagnais depend largely upon the beaver, as there are very few moose and caribou in their country. The beaver to them is like the bison to the Plains Indians, or the reindeer to the Arctic tribes. The meat of the beaver is delicious and substantial and replaces pork very advantageously. If the hunter fall sick in the forest far from aid, he finds the castoreum a beneficial remedy. Different from the other beasts the beaver does not wander about and require to be hunted;

he builds his "cabin" in plain sight upon the very path of the hunter, in the river or lake. Instinctively, the hunter understands how to operate with a natural law, which no game commission can improve on, and to maintain the beaver there for his subsistence. He understands, moreover, that he cannot abuse his opportunity. Thus it is that the Indian, obeying a natural law of conservation, which is worth more than any written law to him, never destroys all the members of a beaver family. He knows enough to spare a sufficient number for the continuation of the family and the propagation of the colony. He takes care of the beaver as well as other animals, that live in his family territory, as a farmer does of his breeders. He can, indeed, tell at any time the number of animals which he can dispose of each year in his district without damaging his supply.¹

The testimony of an Ojibwa chief at Lake Temagami, Ontario, is interesting because it gives us a first-hand translation of the actual statements of an Indian authority himself. Accordingly, I offer part of the speech of Chief Aleck Paul.

In the early times the Indians owned this land, where they lived, bounded by the lakes, rivers, and hills, or determined by a certain number of days' journey in this direction or that. Those tracts formed the hunting grounds owned and used by the different families. Wherever they went the Indians took care of the game animals, especially the beaver, just as the Government takes care of the land today. So these families of hunters would never think of damaging the abundance or the source of supply of the game, because that had come to them from their fathers and grandfathers and those behind them. It is, on the other hand, the white man who needs to be watched. He makes the forest fires, he goes through the woods and kills everything he can find, whether he needs its flesh or not, and then when all the animals in one section are killed he takes the train and goes to another where he can do the same.

We Indian families used to hunt in a certain section for beaver. We would only kill the small beaver and leave the old ones to keep breeding. Then when they got too old, they too would be killed, just as a farmer kills his pigs, preserving the stock for his supply of young. The beaver was the Indians' pork; the moose, his beef; the partridge, his chicken; and there was the caribou or red deer, that was his sheep. All these formed the stock on his family hunting ground, which would be parceled out among the sons when the owner died. He said to his sons, "You take this part; take care of this tract; see that it always produces enough." That was what my grandfather told us. His land was divided among two sons, my father and Pishabo (Tea Water), my uncle. We were to own this land so no other Indians could hunt on it. Other Indians could go there and travel through it, but could not go there to kill the beaver. Each family had its own district where it belonged, and owned the game. That was

¹ Quoting a statement prepared by the Montagnais of Lake St John.

each one's stock for food and clothes. If another Indian hunted on our territory we, the owners, could shoot him. This division of the land started in the beginning of time, and always remained unchanged. I remember about twenty years ago some Nipissing Indians came north to hunt on my father's land. He told them not to hunt beaver. "This is our land," he told them; "you can fish but must not touch the fur, as that is all we have to live on." Sometimes an owner would give permission for strangers to hunt for a certain time in a certain tract. This was often done for friends or when neighbors had had a poor season. Later the favor might be returned.

Having already given, in brief abstract form, the contents of some of my detailed reports, it may be well to continue in the same way by presenting condensed material showing the nature of the territorial institution among the various tribes embraced within the area of American and Canadian colonial movements.

TIMISKAMING BAND OF ALGONKIN

On the northern and eastern shores of Lake Timiskaming forming the inter-colonial boundary between Ontario and Quebec, are the Algonkin known as the Timiskaming band. These people seem to be a northern offshoot of the Algonkin of the Ottawa river. Many general features of the hunting territory system are repeated in the material coming from this group. There are seven original families in which the names are handed down by paternal descent. Here, as elsewhere, a common family hunting territory in which all the male members share the right of hunting and fishing, constitutes the main bond of union in the social life of the tribe. Hunting outside of the family territory was often punishable by death. More often, however, trespass was punished by conjuring against the offender's life or health. Each family, it seems, had some shaman in its ranks who could be called upon to work evil against intruders upon such occasions. Permission, nevertheless, was often given to hunt in neighboring territory; especially in times when the game supply might be impoverished, exchanges were made through courtesy. We find here rules for travelers in passing through strange territories. Permission was generally sought at the owner's headquarters before passing through his district and if, by necessity, game had been killed to sustain life the pelts were delivered to

the owners. Economically, these family territories in the Timiskaming band were regulated in a very wise and interesting manner. The game was kept account of quite closely, the proprietors knowing about how abundant each kind of animal was. Hence, they could regulate the killing so as not to deplete the stock. Beaver were made the object of the most careful "farming," an account being kept of the numbers of occupants old and young to each "cabin." In certain districts moose or caribou were protected during one year to give them a chance to increase after a period of hunting.

The totemic organization in the Timiskaming band is too decadent to furnish much material for study. There are the remains of three totems, the kingfisher, rattlesnake, and caribou. There is reason to suppose that these were introduced by intermarriage with the Timagami band. Nevertheless in this case, the family divisions are not primarily concerned with totemism. The main point here is that the hunting territory groups have developed by inheritance from individual proprietors irrespective of totemic groupings. No taboos of diet or killing are found in these family groups. They are purely social and economic. Some of the families forming the Timiskaming band originally came from the Matachewan band of Ojibwa, others have come from the Abittibi country, and others are derived from the Timagami. From our study in this group it is safe to conclude that the pressure on the Timiskaming territory has been constantly from the west, the result of the continuous northward and eastward drift of the Ojibwa from the region of Lake Huron and Superior. This study, besides giving us a definite boundary line for the Algonkin on the west, also provides us with a concrete and presumably accurate illustration of how territorial encroachments occur among the natives, accompanied by intermarriage and interchange of customs.

The Timiskaming people, too, have only in recent years come under the Dominion regulations, their land having been ceded in the usual way so that now only a few families retain the right to hunt at all times in their inherited districts. My investigations among the neighboring bands of Algonkin are not very extensive, but we may presume from the fact that to the southeast the Du-

moine river and Kipawa bands of the same group have the same social system that the whole Algonkin group was characterized by it. I found eight families forming these groups. Their territory extended as far east as Coulonge river which takes us fairly close to the country that is now settled, and where at first appearance one would hardly expect to find traces of aboriginal family claims. It may not be too futile to hope that in the further prosecution of these researches among the diffused remnants of the original owners, we may be able to plot out claims lying further to the south in what has been thickly settled country for some years.

TIMAGAMI BAND

My best opportunity for investigating the social and economic organization was afforded by the Ojibwa of the Timagami band located at the Hudson's Bay Post on Bear island of Lake Timagami. In my survey of the region I followed the line of contact between the Algonkin, Ojibwa, and Cree from Lake Nipissing northward, obtaining data from three or four of the intervening bands. The Timagami people offered a rather attractive opportunity because they had maintained the hunting territory system up to the present, and this, together with the small size of the band, ninety-five souls, enabled me to plan inquiries on a number of points concerning the life of the individual and the social group in a fairly concrete way. The Timagami band is the offshoot of Ojibwa of the Great Lakes. Their present habitat is about Lake Timagami. There are fourteen families that form the group. As might be expected, the family hunting territory is of primary importance here as it is throughout the whole region occupied by the northern Algonkin hunting tribes. We find the general characteristics of this type represented here by family proprietorship in the districts, retaliation against trespass, conservation of animal resources, and certain regulations governing inheritance and marriage among the families. The districts of these family groups are fairly definite, bounded by lakes, rivers, ridges, and often groves of certain trees, being exceedingly well known and respected by all the hunters, under a very strong sense of proprietorship. The Timagami even went so far as to divide

their districts into quarters, each year the family hunting in a different quarter in rotation, leaving a tract in the center as a sort of bank not to be hunted over unless forced to do so by a shortage in the regular tract. These quarters were criss-crossed by blazed trails leading to the temporary camps. The Timagami called one of these territories *nda'k'im*, "my land".

While omitting the detailed discussion of other social phenomena a few words are needed to show how the clan system existed side by side with the hunting territorial system. Here there were four clans, the Loon, Kingfisher, Rattlesnake, and, of recent years, the Beaver, brought in by an immigrant family from Lake Nipissing. In these clans descent is reckoned through the father and the exogamic regulation prevails. They do not believe in descent from the totem, but it is regarded as a mark of identity to the members of the band. There is no association, outwardly, between the clans and the family bands. We infer, however, that the bands have increased by subdivision from the original founders who were members of three migrating clans. An examination of the territory as plotted on the map, which embraces a large area from Lake Nipissing to Height of Land, shows that these people are part of a northern and western movement of Ojibwa-speaking bands spreading from the Great Lakes to the newer hunting grounds which lie further from the territory now being despoiled of their game by encroaching settlements.

Still further information from the Ojibwa of Minnesota shows that essentially the same institution occurs among the bands there. From William Potter, *Pd'tigos*, of the Gull Lake band, I obtained a list of family hunting territories with boundaries marked on a map giving the proprietorships of certain districts on what is now the White Earth reserve. The territories here are relatively small compared to those in Canada, averaging about 100 square miles. The Minnesota family hunting claims include also the exclusive rights to the maple sugar bush and fishing waters lying within the boundaries of the tracts. On large open lakes the fishing is unrestricted. Trespass regulations are here also not at all strict. Courtesy even hardly requires travelers to secure permission from

the owners to hunt on their claims. In this particular part of Minnesota, however, the removal of other bands of Ojibwa since about 1870 to the White Earth reserve has had considerable effect upon the local institution, particularly in necessitating a redistribution in smaller parcels of the territories left among the Indians. An interesting fact is brought out by a comparison of the family territories here, which I learned of quite accidentally, and those of the Ontario Ojibwa. For it seems that many family and individual proprietary names are common to both areas, indicating that certain national family names occur throughout the Ojibwa. The same thing is manifested in the bands of the Algonkin. Comparison based on this class of material, much of which yet remains to be collected, may show whether these names are restricted to certain clans.

South of the St. Lawrence, in the region east of that just dealt with, the country has been in the hands of the white man for many generations, yet some of the most interesting material is alive in the memory of the original Indian inhabitants. The Abenaki of St. Francis, Canada, comprise the amalgamated fragments of the historic Wawenock, Norridgewock, Aroosaguntacook and other bands driven from southern Maine and New Hampshire in the eighteenth century. A visit to this village showed that some of the old family claims in the neighborhood of Moosehead lake, Maine, are still remembered. Although I am not ready to report in detail as yet, the Indians will soon have a map marked out for me showing the former territorial claims of their people.

PENOBSCOT

In regard to the Penobscot who inhabit the Penobscot river valley in Maine, we encounter some interesting social and economic phenomena. In the old days their hunting territories, which are called *Nsi'bum*, "my river", bordered on the east those of the Aroosaguntacook, now the St. Francis Abenaki, just mentioned. Almost all of the traditional twenty-two families of the tribe are still represented by descendants numbering something over four hundred. The usual rules against trespass, the usual habit of

spending the winter in the hunting grounds and gathering for the tribal rendezvous in the spring and fall, and the typical grouping of the family members into bands in which the territories were inherited, are all found here as elsewhere among the northern tribes. Passing from this common phase we find much more in the social aspect that is distinctive to the tribe.

To begin with, the human family groups were believed to be intimately related to certain land and sea animals, the relationship being accounted for by a myth of the transformer cycle of which an abstract will have to be given before proceeding further.

The mythical transformer, *Gluska'be*, "The Deceiver", in the course of his career about the world, encounters a village of his people, as he calls them, who are dying of thirst occasioned by the cupidity of a monster frog-like creature (*Anglebe'mu*, "Guards the water"). "The Deceiver" proceeds to the abode of this monster and orders him to disgorge the water which he is holding back from the world. Upon refusal "The Deceiver" kills the creature and fells a yellow birch tree upon him. The water released from the monster then flows down the branches and trunk of the tree and thenceforth becomes the Penobscot river system. The event that ensues is of importance to us. The people below who are dying of thirst at once rush to the water as it flows by. Some of them are so eager to drink that they plunge into the stream and are forthwith transformed into various fish, batrachians, and marine animals. Those who restrain themselves from the water escape transformation and become the ancestors of the human families. These, however, assume the names and to a certain extent the identity of the particular animal into which their nearest relatives were transformed. Furthermore, they seem to have chosen their habitat near the places inhabited by their animal relatives. So we find those families with marine animal associations occupying hunting territories near the sea. Moreover, these families subsisted largely upon the flesh of the animal with which they are associated. Certain physical peculiarities are also attributed to the mythical relationship between the present day human and animal families. To illustrate this, we find the Lobster and Crab families with territories

restricted to lower Penobscot bay, and the Sculpin and Sturgeon families further up along the river. The former were notable as seafaring people and subsisted chiefly upon sea food. The members of the Whale family are still looked upon as being very large and dark colored people. As regards the rest of the families having land animal associations, their origins are varied too much to be dealt with here. Some claimed descent from an ancestor who had lived with the associated animal, others through some pseudo-historical event concerned with the creature, while some others are thought merely to have taken an animal name from some particular species which abounded in their hunting territory.

Generalizing somewhat from my studies, which are treated in full in a work on the ethnology of the tribe, we find that the Penobscot families all had animal names, with descent in the male line. There were no taboos against killing the associated animal, which to a certain degree was depended upon for food. The term *nlá'tem* "my spouse's parents," or in another sense "my partner of a strange race," was frequently used in reference to the animal, which after all is to be classified in the category of a totem. The family totemic groups included those related by blood, by marriage, or by adoption. But no regular exogamy prevailed, because family identity was rather loose. The direction of marriage was largely arbitrary in the bands.

The following list gives the totemic names of the Penobscot families, in the order of their location from the coast inland: Lobster, Crab, Sculpin, Eel, Bear, Toad, Insect, Fisher, Whale, Beaver, Sturgeon, Wolf, Frog, Squirrel, Raccoon, Wolverine, Water Nymph (a human-like fairy), Otter, Lynx, Rabbit, Yellow Perch, and Raven. Those highest in social rank were the Bear and Squirrel from which the chief of the families having land animal totems was chosen, and the Frog and Sturgeon from which the other side chose their chief. In a certain sense the totems were regarded as family emblems. Pictorial representations of them were used to mark the boundaries of the hunting territories. The families had their totems blazed upon trees along boundary rivers or employed figures cut out of birchbark as line marks.

Resolving our data to what might seem to be a reasonable conclusion, it appears that the usual Algonkian family unit concept has in the case of the Penobscot been developed along some independent lines. Some special influences seem to have caused an emphasis of the economic aspect of totemism, which is here apparently of a secondary nature. A nascent clan organization seems to be in evidence. Nowhere else do we meet with quite the same thing. Finally it hardly seems necessary to add that the social structure of the Penobscot has been obsolete for about fifty years. The territories extended from the coast northward into the interior as far as the St John's river, those in the northern interior being of a much greater size than those nearer Moosehead lake, Penobscot river, and the coast. The latter average about five hundred square miles, while to the northeast they are often twice that extent. We might be tempted to infer from this that the Penobscot migration drifted southeast originally.

Regarding the Passamaquoddy of the eastern coast of Maine, my material, as yet incomplete, only permits me to state that the economic phenomena resemble those of the Penobscot. The Malecite of St John's river had their hunting territories too, but I am not prepared to give them yet. Here, however, we learn that personal nicknames were often derived from the animals most commonly hunted by individuals.

MICMAC

Lastly, as regards the Micmac of the extreme east, inhabiting the maritime provinces of Canada, and Newfoundland, we find the data to be much less complex in character though no less fraught with ethnological importance. While my surveys in this region are as yet by no means complete, they already cover Newfoundland, Cape Breton island, and parts of Nova Scotia. The general characteristics of the family territories of the Micmac are fairly uniform, differing considerably from those of the Penobscot, despite the fact that both tribes belong to the same Algonkian subdivision.

The Micmac term their hunting territories *ntuyd'wâmi*, "hunting area." The districts themselves generally surround lakes, ponds, or

sections of rivers, few being at any distance from water. The bounds do not seem to be as strictly defined as among the Ojibwa, Montagnais, and Algonkin, nor does resentment against trespassing amount to much. In the old days the families ordinarily spent the summer in villages located near the seacoast, and retired in the fall to their proper hunting claims, where they had temporary camps at convenient intervals. There were no clans, no regulations of exogamy, and no group totemism. In this unelaborate social scheme we find even no remembrance of groupings of any kind under names. The immediate members of the family constitute the family group with its inherited hunting territory. These tracts, as a rule, remain intact as long as there are sons, grandsons, or nephews in the male line to hold them. Nevertheless, gradual changes are taking place as the districts may become subdivided in part among male heirs, and, as sometimes happens, they may be augmented by the addition of adjacent lots through intermarriage with other families or inheritance from distant relatives. Parts of territories are, again, occasionally bestowed as rewards upon friends for important services, such as supporting the aged or raising adopted children. The families themselves, as the simplest kind of social units, form villages which seem to have some individual identity under local names. These exist nowadays as reservations, constituting small bands. Related and neighboring smaller bands in turn comprise the larger bands, determined more or less by geographical features, known as the Micmac of Nova Scotia, New Brunswick, Prince Edward island, Cape Breton island, and Newfoundland, respectively. Each village has its chief and each band has its head chief while the whole nation is represented by a hereditary life chief whose headquarters are at Cape Breton.

I mention these political points showing the relationship of the different bands in order to introduce another relatively important problem of migration which our study of Micmac hunting territories throws some light upon. By comparing the size of the family hunting districts in the various divisions of the tribe we discover that the further eastward we go the larger the family tracts are. Those in Newfoundland, where there are thirteen family groups.

average about two thousand square miles to each, while in Cape Breton the sixteen family groups have an average of about four hundred square miles apiece, and in Nova Scotia the average district amounts to only about two hundred square miles. In its ultimate significance this comparison would seem to indicate that, in contiguous regions inhabited by branches of the same tribe, the country where the family territories are the largest is the country most recently occupied in the advancing frontier of the tribe. Hence, Nova Scotia was doubtless the center of distribution of the southern and eastern Micmac whose line of migration has been continuously eastward, reaching Newfoundland within the last two hundred and fifty years by approximate estimate. This inference is also supported by ethnological and historical material, obtained from the bands themselves, which I have treated in a more special article,¹ and from which I have quoted a little here.

CONCLUSION

A still more important conclusion may, I believe, be drawn from this material, incomplete as it is yet. It confirms the idea that the earliest fundamental social unit of the Algonkian was the consanguineous family. In the north and east under fairly isolated conditions the family unit has remained most characteristic, but among the central and southern divisions of the stock a borrowed clan system has been superimposed upon the simpler family grouping. This seems to offer an explanation for the existence of the more complex clan and totemic organization found among the Algonkian adjacent to the Iroquois and other more typically southern phases of culture where the clan system predominates. Moreover the uninterrupted prevalence of the family unit and the corresponding absence of the clan system among most of the tribes inhabiting the lateral zone just north of the Great Lakes and the St Lawrence is a very strong indication favoring the supposition that this general region may conservatively be considered the home of Algonkian institutions whether or not it be an old center of distribution of the stock. The absence of definite clans, the family social group or

¹ "Family Hunting Territories of the Micmac-Montagnais of Newfoundland," *MS. in press, Geological Survey of Canada.*

band, and the lineal system of relationship seem to go together in the same stage of nomadic hunting culture and to be fundamentally typical of an old Algonkian social period, which has survived with fewer modifications among the tribes of the northern and north-eastern group.

I hope later to extend the region covered by my territorial survey so that as many as possible of the contiguous boundaries of all the northern and northeastern tribes may be marked down. Then we shall be able to give actual boundaries not only to tribal groups but to dialects and to the distribution of elements of culture. This material, may, moreover, prove to have some value in the field of Indian administration should it ever be possible to reconstruct the boundaries of the Indian family claims in Ontario and Quebec. It becomes apparent by means of our study how, through misunderstanding between the colonial authorities and the natives, large tracts of land were sold by chiefs or by individuals who, from the Indian standpoint, had absolutely no claim to their ownership nor rights of disposal. We have also found out how this topic of ethnology, recently brought to light as a field of research, may enable us to trace the trend of migration in certain groups of American culture, besides furnishing us with material illustrating the gradation in social complexity from the simplest family kinship group to the totemic clan groups within the same stock. It is to be hoped that in the future ethnologists working in the field will enter this topic upon their programs of investigation.

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SOUTHERN PAIUTE AND NAHUATL—A STUDY IN UTO-AZTEKAN. PART II (CONCLUDED)

By EDWARD SAPIR

Uto-Aztekan kw

UTO-Aztekan *kw* remains as such in Shoshonean and Nahuatl (written *qu* and *cu*), also generally in Sonoran; in Papago, however, it regularly becomes *p* (Uto-Aztekan *p*, as we have seen, becomes *ɾ* or *w* in Papago). This Papago *p* is probably to be understood as *b*, as, according to Dr. Mason, it appears in Tepecano as *b* (intermediate *p* when final). Examples of *kw* initially are:

- N. *quá* "to eat"; Cora *kwa*; Tar. *kua* (probably = *kwa*); Pap. *pah* "to swallow"; Git. *-kwa* "to eat"; Fern. *gwa*; Gabr. *kwa-a*; A. C. *guas*
- N. *quáh-tli* "eagle"; Cora *kuáhreabe* "Adler" (*ku-* < **kwa*-); Tepecano *ba'áa* "eagle"; Hopi *kwa-ha* "eagle"; S. P. *quán'd-nít* "eagle"; Ser. (H.) *qua-i*, *gwau-ti* "condor"; Cahu. *quwa-d* "hawk (sp.)"; Uto-Aztekan **kwa*- or **kwa*-d-
- N. *cui* (i. e. *kwei*) "to take"; Pap. *pút* "to take (sing. object)" (< **kwei*); Tepecano *bí*, preterit *bíí*; S. P. *quii* "to take, pick up (sing. object)" (assimilated from **kwei*).² Compounded with N. *cui* is *cecuí* "avoir, prendre froid," with which is doubtless to be directly compared Pap. *kúhpih* "to become cold" (< **sekui*; **kwei* when used absolutely, **kwei* in compounds)
- N. *culloni* "sodomite"; S. P. *k'ui'á-mp'i* "anus" = *kwiíu*
- N. *culla-ti* "excrement"; Cora *tluita* "Excremento von Menschen und Tieren" (< **kuita*; **kui*- > *tlui*-, cf. **kí*- > *tlí*-); Pap. *píhí* "manure" (< **kuita*); Tepecano *bíí*, preterit *báa* "to defecate"; S. P. *quilla* "to defecate" (< **kuita*-)
- Cora *kwasí* "der Schwanz der Tiere"; Pap. *pahí* "tail" (< **kwas'i*); Tepecano *báí*; S. P. *q'ui'á-ti-phi* "tail" < *kwas'i*-; Cahu. *suwet he-quuwa* "star its-tail, comet"

¹ On Dr. Mason's authority.

² This etymology is certain. My previous comparison of N. *cui* (misunderstood as phonetically *kui*) with S. P. *-qoi-* "to take off" (see p. 395 of Part I) is to be discarded.

In some cases Uto-Aztekan *kua* (*kua*) seems to vary with *ko* (*ku*):

- N. *quāz-tl* "head" (in compounds *quā-*); Cora *kī-pōd* "hair" (lit., "head-hair"; *kī-* < *ku-*); Tep. *kū-pā* "hair"; Pima *kō-pats* "hair"; Tub. *kō'a-* "head"; Git. *-gō-pō* "hair"
- N. *quahui-tl* "wood, tree, stick"; Cora *kīyē(rī)* "Baum, Pfahl" (< **kuye-*; Huich. *kouhie* (= *kuye*) "bâton"; Tep. *kwawi* "wood"; Pima *kwak* (quoted from Kroeber), *kakakj* (given by Russel); Pap. *ku'a* "to get wood"; Tepecano *kua'g* "wood, to gather wood"; Hopi *kō-ho* "wood"; S. P. *g'wa-p'* (= *kuk'wa-*). Pap. *ku'a* and Tepecano *kua'g* make it extremely likely that where *kua-* occurs in these words we are dealing with original Uto-Aztekan **kua-* or **ku'a-*. This is remarkably confirmed by both Nahuatl and Southern Paiute. Original **kwawi-tli* (with accentual scheme ' ' ', see Part I) would have become N. **kwaw^h-tli* (in Spanish orthography **quāuh-tli*, not to be confused with *quāuh-tli* "eagle"); original **kuawi-tli*, **ku'awi-tli* (with accentual scheme ' ' ' '), had to develop to **kuawi-tl* (-a- could not become syncopated before *ti*) whence, *u* losing its vocalic value, *kwawi-tl* (in Spanish orthography *quahui-tl*). Hence N. *quahui-tl* is only apparently opposed to our law of alternating stressed morae (see Part I, p. 419). As for Southern Paiute, original **kwa-* would have reduplicated to **kwak'wa-* (> S. P. **g'wa'qwa-*), while *kuk'wa-* < **kuk'ua-* is perfectly intelligible.

Original *kui* has given rise to *kwi* in both Southern Paiute and Papago (where it further developed to *pī* > *p'*) in:

- Cora *kitsi* "Rauch" (< **kutsi*); Huich. *koutzi* "fumée" (i. e. *kutsi*); Pap. *kups* "smoke" (< **kupis* < **kukwi-ts* < **kuku(h)i-*; see Mono (N. F.) below); Mono (N. F.) *gukukhi-p* "smoke"; Wob. *gugui-p*; S. P. *kwišk'ak'* (< **kui-* < **kuhi-*; note that value of two morae of original disyllabic **kui-* is preserved in S. P. *kwi-* by lengthening *i* to *ī*)

Uto-Aztekan *s*

Both *s* and *š* occur in Nahuatl, but I think it very likely that N. *š* (written *x*), aside from those cases where it can be shown to have developed from unvoiced *y* or *i* or from *s* originally followed by *i*-timbre,² always goes back to original *s*. In Southern Paiute, and other Shoshonean dialects, *s* and *š* are also to be kept apart, but here again I believe it likely that it will be ultimately possible to show them to have developed from one sibilant (in Southern Paiute *s* seems to stand regularly before *i* and *ʔ*; *š* before *ī* and *ə*; both *s*

¹ On Dr. Mason's authority.

² See Part I, pp. 417, 418.

and \int before a , though s seems more typical). It is doubtless significant that N. s (written c , before e and i , and z , ζ) corresponds to both S. P. s and \int and that N. \int (x) may correspond to S. P. s . It is further important to observe that Pap. has h or zero corresponding to both s and \int of Nahuatl and Southern Paiute. All this points to only one Uto-Aztekan sibilant (here assumed to be s) which in various dialects must have developed to \int under appropriate phonetic circumstances.

Examples of Shoshonean initial s corresponding to Nahuatl s are:

- N. *galu-ai* "s'attacher, adhérer à une chose," *galu-ai-ni* "gluant, visqueux"; S. P. *san'd-p'* ("gum")
- N. *golā-ni* "couler avec fracas, en parlant d'un torrent"; S. P. *sū-n'ia-* "to make a sound as of flowing water"
- N. *cequi-tl* "lange"; S. P. *soyo-t* "mud" (with open o ; probably to be understood as *soyo-t*)
- Pap. *hah* "to melt, thaw" (< **sh*); S. P. *šā* "to melt," *ša'at-t'ui* "to cause to melt"
- N. *izta-tl* "salt," *izta-e* "white" (lit. "salt-colored"); Cahu. *seta-xa-t* "salty"
- N. *gaca-tl* "paille, herbe, jonc"; Cahu. *sura-t* "willow"; Ser. (H.) *haka-t* "willow" (in all Serrano dialects Shoshonean s , \int regularly appears as h or x ; cf. Papago)

Examples of Nahuatl (or Sonoran) initial \int corresponding to Shoshonean \int (s) are:

- N. *čan* "only, but"; S. P. *-šampā* "only, except"
- N. *ce*, *ce(n)* "one"; Huich. *che-oui* (i. e. *sh-oi*); Cora *se* (according to Kroeber's data; Preuss gives *sei* "ein," cf. probably also *sen* "sicherlich"); Cahu. *senu*; Tepecano *šimu-t'* (< **šema*); S. P. *šā* "one (perhaps < **šuu* < **šuuu* < **šiuu*; cf. Cah. *senu*); Hopi *syu-xhe*; Mono (N. F.) *šimu*; Mono (In.) *šiwī*; Tüb. *šā-tu* (< **sh* ?); Lulin. *šu-pul*; S. J. C. *se-pul*. Compare also N. *ce(n)* "entièrement"; S. P. *šā* "entirely, well" as verb prefix
- N. *šea*, *šeya*, *šiu* "vouloir"; Tepecano *hšhi* "to desire" (< **šhi*); S. P. *-šiya-*, *-šia-* (probably = *-šiya-*, cf. N. *šeya*) in *-γš-p' U-šiya-γšea-n'oa* compound modal suffix "would that! I wish (he) had (done so and so) or would (do so and so)!" (*-γš-* irrealis; *-p' U-* probably perfective; *-γšea-* probably tense-modal element; *-n'oa-* modal element difficult to define; *-šiya-* is left to be assigned desiderative value)
- N. *šite-tl* "nail" (< **šute*); Cora *šitē*; Cah. *šutu*; Pap. *hūršī* (< **šuti*); S. P. *šitšu* "nail" (< **šitū*); Shik. *-šidu*; Tüb. *šulu*; Gabr. *estšu*; A. C. *-šul'u* (< **šul'u*); Cahu. *šal'u*

* On Dr. Mason's authority.

- N. *ce-tl* "glace," *ce-cui* "avoir, prendre froid," *ceui* "se refroidir"; Cora *sē* "es ist kalt"; Huich. *jē-ri* "froid"; Pap. *hū-* (< **se-*) in *hūhpik* "to become cold," *kūm* "to be cold," *kūm't* "to become cool"; S. P. *ḥi-* in *ḥi-p'a-y'a-* "to feel cold" (lit. "to dm, -y'a-, of cold"; *ḥi-p'a-* probably identical with Pap. *hū-ta-*), *ḥi-p'ura-* "to be cold (e. g. ice)," *ḥi-cu-* "to be cold weather"
- N. *cihuā-tl* "woman" (*çous-tl* is given by Siméon as "forme rate"); S. J. C. *loçwā-tl* "woman"; Luia. *ḥuwa-tl*
- N. *ci-tlalīn* "star," *cihuā-tl* "comet" (perhaps dissimilated from **sūwi-* or **iūwi-*; cf. *cihuā-tl*: *çous-tl* above); Cora *kurnabe, ḥurnabe* "Stern"; Huich. *ḥulawi* "star"; Tepecano *hūna*; Hopi *so-hā* "star"; Tüb. *tu-tl*; Git. *hūn-ŋ* (< **sū-*); Luia. *ḥu-ta*
- Tar. *sula* "heart"; Tep. *kura* (< **sula*); Tüb. *ḥuuna-* "heart"; Git. *-xūn* (< **sūna-*); Fern. *-hūn* (< **iūna-*); A. C. *-ḥun*; Cahu. *-sun*

Examples of postvocalic Uto-Aztekan (Nahuatl) *s*: Shoshonean

-s-, S. P. *-š-*, *-ṣ-* are:

- N. *asi* "atteindre avec la main, parvenir en un lieu"; Cora *as* "ankommen, anhalten," *asi* "angetroffen werden, sich finden"; Pap. *at* (< **ahi* < **asi*) "to reach, overtake, pass"; S. P. **s'isā-* "surface, outer covering" < *as'isā-* (?)
- Cora *kwaš* "der Schwanz der Tiere"; Pap. *pahhi* "tail" (< **kwas'i*); S. P. *q'as'is-ŋ* "tail" (< **kwas'i-pi*)
- Cora *ḥas* "älterer Bruder"; Cahu. *pas* "elder brother" (cf., with *-tš-*, N. *āch-tli* "frère aîné")
- N. *ṣiça-tl* "terre ou poudre blanche," *ṣice-uac, ṣice-clic* "blanc"; Pima *tāhai* "white" (< **tssa-*); Huich. *toja, touca* "blanc"; Cah. *toa-ti*; S. P. *tš'a-* "white"
- N. *tēci* "moudre le maïs ou autre chose sous la pierre"; Cora *tīle* "mahlen"; Pap. *tūt* "to grind" (< **tuh* < **tusi*); S. P. *tuḥ'u-* "to grind seeds"
- N. *nēci* "to appear"; S. P. *naḥ'i-m'i* "to seem, appear"

Examples of N. (Sonoran) *ṣ* corresponding to Shoshonean *s* are:

- N. *sal-tl* "sable, pierre qui se met en poudre"; Cora *se* "sand," *sā-ta* "auf dem Sande, sandiger Ort" (*se* and *sā-* may point to original stem **se-*, cf. Cora *āka* "Wind"; Huich. reduplicated *heheaca* "air"; this **se-* or parallel **sia-* may lie back of N. *sal* < **s'al-*); S. P. *siḡwa-mṣu-* "sand, gravel" (< **sīwa-*); How. Nahuatl-Cora **se-*, **sia-* is related to S. P. **sīwa-* is not clear
- N. *xix-tli* "excrément de l'homme," *ā-xix-tli* "urine" (< **sīš-* < **sīš* < **sisi-*; *ḥi-* may here be due to assimilation of *x-* to *-ṣ-*); Pap. *hi'I* "urine" (< **s'i*); S. P. *s'i-* "to urinate"

¹ On Dr. Mason's authority. Dr. Mason points out that Tep. *sia-sok*, given in Part I as cognate, must be rejected, as Uto-Aztekan *s* > Tep. *h*.

Huich. *achoura* "rouge" (i. e. *sā-re*); Cora *la-ja-ri* "rouge" (Dignet), *la-ša*, *la-ša-ra*, *la-ša-rin* "rot, rot-gelb" (Preuss); Tep. *souhe* "rouge" (i. e. *su-he*); Cahu. *zel-nekil* "red" (Cahu. and A. C. *-nekil*, *-nikil* are suffixes for color terms *se-l-* with suffixed *-l*, cf. A. C. *tu-l-nikiš* "black" and Cahu. *devi-i-nikiš* "white"). Huich. *šu-*, Cora *ša-*, Tep. *su-*, Cahu. *se-* may point to Uto-Aztekan **se-*, **se-* (cf. doubtless also Pap. *hukr* "red face paint" < **se-*)

Uto-Aztekan (or Nahuatl-Sonoran) *s* corresponds to Shoshonean *š* in:

- N. *poča-ua* "s'enfler," *poča-ti* "manger avec excès"; Cora *huša*, *hušai* "gesättigt sein"; S. P. *pu'liša* "to be filled up" = *pu'la-*
 N. *ez-tli* "sang," *eco-tli* "sang de l'himme"; Ser. (H.) *-itš* "blood"; Git. *-odj*. These Serrano forms probably point to Shoshonean **itš(o)-*. It is difficult to separate from Uto-Aztekan **eso-*, **ello-* "blood" certain Luiseno-Cahuilla and Hopi forms: Cahu. *ewa-l* "blood," *-ew* "blood of a person," *ew-i-l* "much blood"; A. C. *-ew* "blood"; S. J. C. *-ou*; Luis. *-ou*; Hopi *ānye*. These forms seem to point to Shoshonean **wo-* or, with voiceless *w*, **wo-*; how this is related to **iso-*, **iša-* is not easy to see.

So far all Southern Paiute reflexes of Uto-Aztekan *s* have been seen to be some form of sibilant (*s-*, *š-*, *-š-*, *-š-*, *-š-*). There are, however, a number of clear cases in which Uto-Aztekan postvocalic *s* is represented in Southern Paiute by ' (glottal stop). We may consider this glottal stop as developed from non-geminated postvocalic *s* (all cases of S. P. postvocalic *s* or *š*, as we have already seen, are geminated). Whether S. P. is here directly equivalent to Pap. zero (which sometimes appears as representative, instead of *h* or *hh*, of Uto-Aztekan postvocalic *s*) is difficult to say at present, though it does not seem likely (cf., e. g., Pap. *tšut* "to grind" < **tusi*; S. P. *tuš'u-* with Pap. *wu* "eye" < **pusi*; S. P. *pu'i-*). Examples of Uto-Aztekan *-s-*; S. P. ' are:

- N. *ix-tli* "œil" (< **isi-* < **pusi-*); Cora *hisi* "eyes" (< **pusi*); Tep. *buy* (i. e. *bui*); Pap. *wu*; Tar. *pusi*; Cah. *pusi*; S. P. *pu'i-φ* "eye"; Shik. *-bui*; Monu *-bui*; Tüb. *pantiš-*; Luis. *-pul*; Hopi *hō'si*. Uto-Aztekan **pusi-*.
 N. *cochi* "to sleep"; Tep. *kosi*; Cora *kutsu*; Pap. *kos*; Tepecano *koc*, preterit *ko'*; S. P. *q'z'i-* "to go to sleep (plur.)" (< **kzsi-*). Uto-Aztekan **kzli-*, **kzsi-*.

¹ On Dr. Mason's authority.

- N. *wetzi* "to fall"; Tepecano *giš* "to fall in the water" (< *wetši, preterit *giš*: S. P. *wi't* "to fall" (< *wisi-, assimilated from *wisi-). Uto-Aztekan *wetši-, *wisi-.
- Pap. *sihha* "penis" (if from Uto-Aztekan *wisa- and not *pisa-): S. P. *wi'd-p'* "penis" (< *wisa- ?)
- N. *xix-tli* "excrement" (< *xiti-); Pap. *hi't* "to urinate" (dissimilated from *hi't- or *hihi- ?); S. P. *xi'i* "to urinate"

Another example of S. P. ' < -s- is afforded within Shoshonean itself:

- Cahu. *gwəši-š* "ash": S. P. *gwə'd-t'ə'ga-* "to smoke" (lit., "to eat *gwə'd-* = ashes ?") (< *kwəša-).

Uto-Aztekan m

Uto-Aztekan *m* appears as such in Nahuatl (where, however, it becomes -*n* when final; also assimilated to *n* before *t*, *tl*, *ch*, *ts* and to *η*, written *n*, before *k* and *kʷ*), Sonoran, and Shoshonean. Examples of initial Uto-Aztekan *m* are:

- N. *mon-tli* "son-in-law"; Cora *mu* "Schwiger (-vater, -mutter, -sohn, tochter)," *muna-ra* "Schwiegervater"; S. P. *mon'a-tsi* "son-in-law"
- N. *metz-tli* "moon"; Huich. *metza* "lune"; Cora *matsa-* (from Kroeber), *mā-kirai* "mond" (Preuss); Tar. *mella*; Pap. *mah-w'r*; Hopi *moya-wo* "moon"; Tüb. *mūya-l*; Git. *mūa-l'*; Fern. *mod-l*; Luis. *moi-la*; Cahu. *meni-l*; S. P. *mūa*; Mono (In.) *mūa-ts*
- N. *mella-tl* "metate"; Huich. *mata*; Pap. *mah'tshuk*; S. P. *marā-ts* "grinding stone"; Luis. *mala-l*
- N. *māi-tl* "hand" (*nō-mā* "my hand," *mā-* verb prefix "with the hand"); Huich. *mama*; Cora *mod-ka* "Hand" (Kroeber quotes *moa-ma*); Tar. *ma-*; Cah. *mama*; Tep. *ma-*; Pima *ma-*; S. P. *mə'z-ə'* "hand," *ma-* verb prefix "with the hand" (*mə'z-* assimilated from **mə'z-*, cf. Cora *moa-* ?); Shik. *moo*; Mono (In.) *-maia*; Hopi *maa-l*; Tüb. *ma-*; Git. *-ma*; Fern. *-ma*; Luis. *-ma*; Cahu. *-mo*. It is not clear how S. P. *mə'z-* is related to S. P. *ma-*
- N. *māca* "to give"; Cah. *maka*; Tep. *maxe*; Pima *maka*; Pap. *maš* (< **maka*); S. P. *ma'ya-* "to give"; Mono (In.) *maki*; Bank. *maha*; Git. *a-mak*; Fern. *maza*; Cahu. *maza*
- N. *mimilaa* "renverser, faire rouler une chose"; S. P. *mīqgəwə-* "(frightened animals) come out in one bunch"
- N. *min-tonli* "arrière-petit-fils, -petite-fille"; S. P. *miə'* "small, tiny"
- Cora *ma, ma-n* "hier, dort," *ma-ka, ma-kan* "dort," *mā-na mā-naka*; Huich. *ma-na* "ici"; S. P. *ma-* demonstrative stem "that (visible)"
- Pap. *mat* "to learn, know"; S. P. *mai-* "to find, discover"
- N. *miec* "much"; Pima *moi* "many"; Luis. *muyuk* "much"

Cora *mā* "Kopf," *mouhou* (Diguët) "tête" (i. e. *ma'u*); Huich. *moko* "tête"; Tar. *mo* "head"; Pima *mo* (from Kroeber), *mā-ka* (Russell); Tep. *mo* (from Kroeber), *mahou* (Diguët) = *ma'u*; Pap. *mo'o*; Tüb. *iso-m'o* "hair." Uto-Aztekan **m'o*?

Postvocalic Uto-Aztekan *m* appears in Southern Paiute either geminated as *-m'* or spirantized as *-mw-* (in Ute *-mw-* generally appears as *-w-* with nasalization of preceding vowel). Examples of elements appearing in both forms are:

- N. *-mā* plural suffix (shortened to *-n* in *i-n* "these"; *o-n* "those"; *-qui-n* "them," plural form of *-o*, *-qui* "him, it"; *-ti-n*, plural suffix); S. P. *-m'u-* = *-m'i-* (< **m'e*), *-mw-* (< **m'e*), animate plural suffixes (e. g. *'i-m'u-* "these," *'u-m'u-* "those," *'aya-m'u-* "turtles"; *niqwu-mw-* "persons")
- N. *amo-* "your (plur.)," *amē-huān(tin)* "you (plur.)," *an-* "you (plur.)," as proclitic to verb form (< **ame-*); Tepecano *am-* "your (plur.); you (plur. obj.)"; S. P. *m'um'i-* "you (plur.)" as absolute form (< **m'i-* suffixed element, cf. *nī-m'i-* "we exclusive"; *m'u-*, with its peculiar labialized *m*, doubtless goes back to **im'i*, as shown also by cognate forms in other Shoshonean dialects), *'...mwum'i-*, *'...qum'i-* "your, you (plur.)" possessive and objective suffix, *'...mw-* "you (plur.)" subjective suffix (< **m'e*); Git. *ūmū* "you (plur.)"; Ser. (H.) *ūma-m*; Cah. *eme-m*; Luis. *umo-m*; Hopi *ōmaa*.

Examples of S. P. geminated *-m'* are:

- N. *mo-* "thy," *mī-tē* "thee, to thee"; Cora *māa* "du"; S. P. *'...m'i-* "thy, thee" possessive and objective suffix, *im'i-* "thou" as absolute form (< **im'i-*, cf. Ute *im'i-*); Tüb. *-ŋ* "thy," *umbi* "thou"; Ser. (H.) *mō-* "thy"; Fern. *mu-, mō-* "thy," *umū* "thou"; Luis. *om* "thou"; Hopi *ōm* "thou." How these Shoshonean forms with nasal are related to forms without nasal (S. J. C. *o* "thy"; A. C. *o'o* "thou"; Cah. *e'e-* "thy," *ε* "thou"; Mono (N. F.) *ū* "thou"; Shik. *u*) is not clear. Apparently Shoshonean possessed two etymologically distinct elements: **mo-* "thy" (cf. N. *mō-*), **mī-* or **m'i* "thy; thee" (cf. N. *mī-tē*); and **i-* or **i'i-* "thou" (morphologically, not etymologically, parallel to N. *tī-* "thou"). Forms like Luis. *om*, S. P. *im'i-*, Git. *ūmū*, used as absolute forms for "thou," would then be compounded of subjective **i-* and possessive-objective **mī-*.
- N. *tama* "to loosen, untie, open, deliver, set free"; S. P. *tu'am'a-* "to pick up several things," *tāqta-* "to pick up what has been rejected" (< **tōmai-*) (?)

Examples of S. P. spirantized *-mw-* < *-m-* are:

- N. *llaŋ-ti* "tooth" (< **llame-*); Huich. *tame*; Cora *tame*; Tar. *teme-*; Cah. *tami*; Tep. *tamo*; S. P. *laqwa-mp'* "tooth" (< **tama-*); Mono

¹ Quoted on Dr. Mason's authority.

- (In.) -*tawā* {-w- < -m-, as in S. P.}; Shik. -*dawu*; Tüb. *dama-*; Git. -*dama*; Fern. -*tama*; Luis. -*tma* "mouth"; Hopi *tama* "tooth"
- N. *tema* "mettre, déposer quelque chose en un lieu, remplir une chose de semence ou de terre": S. P. *tiwa-* "to cover up, close up (hole)" (< **tima-*)
- N. *nemi* "to live": S. P. *niqat-* "person" (< **nimi-*); Ute *nuwi-* (< **nimi-*); Mono (N. F.) *nām*; Shoshone *n** (i. e. *nite*)
- N. *nema* "pied à pied, pas à pas": S. P. *naqwa-* "track" (< **nama-*)
- N. *miqui* "to die": S. P. *ila-qawik'i-* "to die off" (< **mik'i-*)
- Huich. *tamejh* "nous"; Cora *itan* "we" (-n < -m-); Tar. *tame* "we"; Cah. *itam*; Tep. *atem*; S. P. *taqwa-* "we" (< **tama-*); Shik. *ūdiqwa*; Git. *itsam*; Luis. *itam*; Cahu. *teme-m*; Hopi *itamō*
- Cora *hemi*, *hemi-n* "vor, bei, in, zwischen, unter" (< **pemi* ?) post-positive element: S. P. -*vaqwi-* "in" (< **pami-*)

Uto-Aztekan *n*

Uto-Aztekan *n* is normally represented as such in Nahuatl (assimilated to *ñ*, written *n*, before *k* and *kw*), Sonoran, and Shoshonean. Examples of initial Uto-Aztekan *n* are:

- N. *nē(huātl)* "I"; Cora *ne*, *nī*, *na*, *nu* "ich"; Huich. *ne*; S. P. *nī* "I"; Mono (N. F.) *nā*; Tüb. *nā-gi*; Git. *nā*; Fern. *nu-mā*; Luis. *no*; Cahu. *ne*; Hopi *no*
- N. *nene-pilli* "tongue"; Cora *nana*; Huich. *nene*; Tar. *neni-*; Cah. *nini*; Tep. *nana*; Git. -*nāni*; Gabr. -*noñi*; Cahu. -*nañ*. This *n* appears dissimilated to *l* in Hopi *leñi*; Tüb. *lala-*
- N. *nañi* "to appear": S. P. *nañ-i-m'i-* "to seem, appear"
- N. *nama* "pas à pas": S. P. *naqwa-* "track"
- N. *nemi* "to live": S. P. *niqat-* "person," *niqat'u-a-* "body"
- N. *n-* reflexive prefix: S. P. *na-* reflexive prefix. This element is probably identical with reciprocal *na-* (of quasi-dual significance) in N. *na-hui* "four"; Huich. *na-n-ka* (from Kroeber), *na-o-ba* (Dignet); Tar. *na-kwa*; Cah. *na-ki*; Hopi *na-leñi* "four" (cf. *leñi* "two"; similarly N. -*hui*, i. e. -*wei*, and Huich. -*w-*, -*o-* are etymologically identical with N. *o-* of *o-me* "two," S. P. *wā*, Tüb. *wā*, Cahu. *wā*), *na-nañ* "six" (cf. *pahio* "three"), *na-nañ* "eight" (cf. *naleñi* "four"); S. P. *na-nañ* "six" (cf. *pai-* "three")
- N. *nacat-ñi* "ear": S. P. *naqat-ñi* "ear"
- N. *nolou* "plier, courber une chose"; Pap. *noh* "to bend"; S. P. *naqat-m'i-* "to bend"
- N. *non-qua* "à part"; S. P. *nan'-ṣ'-u-* "by oneself"
- N. *noguia* "répandre une chose," *noqui-ñi* "couler (en parlant d'un liquide)": S. P. *nuq'i-* "to stream, run"

Postvocalic Uto-Aztekan *n* appears in Southern Paiute either as

geminated *-n-* or, when originally ungeminated, disappears entirely (cf. *-s-* and *-l-* as postvocalic forms of Uto-Aztekan *-s-*). Doubtless *-n-* first left its trace as nasalization of preceding vowel, this nasalization itself later disappearing (Uto-Aztekan *-ana-* > *-ga-* > *-aa-* is quite parallel in development to *-ama-* > *-aŋwa-* > *-awa-*, e. g., Hopi *dama* "tooth"; S. P. *taŋwa-*; Ute *tawa-*; Mono *-tawa*).

Examples of geminated *-n-* are:

- N. *mon-ili* "son-in-law"; Cora *muna-ra* "Schwiegervater"; S. P. *mon'its* "son-in-law"
 N. *pani* "en haut, au sommet"; S. P. *pa'a-n'i-* "to be high," *pa'ani'*¹ "high"
 N. *-pan* "upon"; Cora *ka-pou(n)* "auf, in, über"; S. P. *-pa'an'* "on, upon"
 N. *-nal-co* "de l'autre côté"; S. P. *-n aŋwa-* "from (beyond)"
 N. *ni-, n-* "I," *no-* "my"; S. P. *-n'i-* "I; my, me;" Tüb. *-n* "my"; Cahu. *ne-*; Fern. *ne-, ni-*
 Cora *vene* "schlagen" (cf. *ve* "schlagen, werfen, schiessen, treffen"); S. P. *wun'ai-* "to throw down"
 Pap. *nūhxi* "to fly up, fly away (plur)"; Cora *ēni-te* "fliegen, flattern"; S. P. *nontsi-* "to fly" (syncopated and palatalized from **nun'i-ti-*); Ser. (H.) *hinyi-k*

Examples of S. P. zero developed from intervocalic Uto-Aztekan *-n-* are:

- N. *-ton-ili* "suffixe marquant la petitesse, le mépris" (< **tona-*); S. P. *tua-* "child, son," *-t'ua-*, *-rua-*, *-ntua-* "small, young of" (< **tuna-*)
 N. *min-toulli* "arrière-petit-fils, -petite-fille" (< **mina-*); S. P. *mia'* "tiny" (< **mina'*)
 N. *cen-ili* "tige, épi de maïs sec," *a-cecenlli* "mauvaise herbe" (< **sene-* ?); Tepicano *hun* "corn"¹ (< **suni-* ?); S. P. *šii-* "squaw-bush stem used in basketry" (< **šini-*). This etymology assumes that Uto-Aztek **sene-* meant "stalk, stem" originally and that "corn" developed as secondary meaning
 N. *ce(n)* "one"; Tar. *šine-*; Cah. *senu*; Cora *sen* "sicherlich"; S. P. *šū-* "one" (< **šuu-* < **šunu-* < **šinu-* ?)
 N. *-hūn* "in company with"; S. P. *-w'ai-* "in company with" (< **w'ani-*)
 Cahu. *meni-š* "moon"; S. P. *mitš-š* "moon" (< **mina-* ?); Mono (In.) *mūa-š*; Shik. *mō'a-š*; Git. *mūa-š*; Fern. *mō-š*; Luis. *mōi-la*; Hopi *mōya-wo*; Tüb. *mūya-š*. How Shoshonean **mina-*, **mia-*, **miya-* is related to Nahuatl-Sonoran **mešā-* is not clear
 N. *paina* "courir vite"; Pap. *wōhrū* "to run (plur.)"; S. P. *pāya-* "to run about" (< **paina-*)

¹On Dr. Mason's authority.

- N. *pípina* "manger, sucer des cannes à sucre," *pípina* "s'humecter, s'imprégner d'humidité, en parlant d'un objet"; S. P. *piyá-ø* "sap, juice" (< **pina-*; -y- is glide between *i* and *a*)

Another example of S. P. zero < -n-, as indicated within Shoshonean itself, may be:

- Mono (In.) *tohina* "deer" (< **tina*); Ban. *tina* "antelope" (= *tina*); Luis. *ton-la*; A. C. *doni-l* (< **tina-*); Cahu. *teni-l*; S. P. *tiya-* "deer" (< **tina-*; -y- is glide), *paria-* "elk" = "water-deer" (< **pa-tina-*)

It is possible that intervocalic -n- sometimes disappears also in Papago. An example pointing to this is:

- Pap. *tiúti* "to say" (< **tini-t*); S. P. *tiñ'ta-* "to tell"

Uto-Aztekan *ŋ*

In Nahuatl and Sonoran *ŋ* is not found, except insofar as *m* and *n* are in Nahuatl assimilated before *k* and *kw* to *ŋ*; this *ŋ*, however, as being purely secondary in origin, does not interest us here. In Southern Paiute and other Shoshonean dialects, however, *ŋ* not only occurs directly before *k*-sounds (in which case it need not be original but may go back to *m* or *n*), but also freely after vowels. In such cases Nahuatl-Sonoran regularly has *n*. This -*ŋ*- does not always occur in all Shoshonean dialects, but is replaced by -*m*- or -*n*- in some. Where Nahuatl-Sonoran *n* corresponds to intervocalic Shoshonean *ŋ* or *m*, I assume, for the present, that we are dealing with Uto-Aztekan *ŋ*, inasmuch as no phonetic circumstances can be defined under which Uto-Aztekan *n* becomes Shoshonean *ŋ* or *m*. It seems plausible to suppose that original *ŋ* would in different dialects shift to *n* or *m*. Uto-Aztekan *ŋ* is parallel to *n* insofar as it appears in Southern Paiute either as *ŋ* (sometimes *m*?) or zero. It may therefore be assumed that we have original geminated *ŋ** (S. P. -*ŋ**- or -*ŋ**) and spirantized *ŋ*, which disappears. Examples of Uto-Aztekan *ŋ* preserved in Southern Paiute are:

- N. *tlanguai-tl* "knee"; Cora *tuná*; Pap. *tohnú*; S. P. *taña-* "knee"; Mono (In.) -*taŋ*; Shik. -*daŋa*; Tüb. *toŋa*; Mono (N. F.) -*rana-*; Hopi *dami* (perhaps -*am-* < **əŋ-*, original > labializing *ŋ* to *m*); Git. -*tama*; A. C. -*tami*; Cahu. -*tam'i*. Uto-Aztekan **ilŋe-*, **laŋe-*?
- N. *ten-tli* "lips, mouth"; Huich. *teni*; Cora *tèni*; Pap. *tiñnti*; Fera. -*təŋi-* "mouth"; S. P. *tiŋpa-* "mouth" (-*m-* assimilated to following *p*)

(from η). In Shoshone *-dip*, Ban. *-tipá*, Mono (In.) *-lôpi*, *-p-* is to be understood as *-p-* < *-mp-* (cf. Uncompahgre Ute *-p-* < *-mp-*). Uto-Aztekan **teqi-*?

Pap. *a'ay* "wings," *anwu-kí* "to flap the wings"; S. P. *andvu-ø* "arm and shoulder" (assimilated from **aqi-*?). Uto-Aztekan **aqe-*?

Cora *kin* "der Gatte," *kina* "einen zum Gatten nehmen"; Pap. *kux* "husband"; S. P. *gum'a* "husband" (< **guy'a*, *u* labializing η to *m*?). Uto-Aztekan **koga-*?

Without cognate in Southern Paiute, so far as at present known, is:

N. *can-tli* "joue"; Huich. *kana* "front"; Pap. *kux* "cheek" (why *-m-*?). Tüb. *gaya* "beard"; Git. *-qaya*; Mono (N. F.) *-yan*; Wob. *-gan*. Uto-Aztekan **kaga-*?

An example of Uto-Aztekan η corresponding to S. P. zero is:

Huich. *ana* "salt"; Cora *sina*; Cal. *ona*; Pap. *ox*; S. P. *ad-ø* "salt" (< **ona-*); Wob. *uma-bi* (*-m-* perhaps labialized from *-n-* because of originally preceding *ɔ*); Shik. *oya-bi*; Tüb. *uqa-i*; Fern. *aqo-r* (metathesis from **oqa-r*); Luis. *eq-la*; Cahu. *eqi-i* (< **oqa-i*); Hopi *laqa*. Uto-Aztekan **ona-*?

Examples of S. P. zero < *-n-*, based on Shoshonean evidence alone, are:

Gabr. *mama-r* "grass" (assimilated from *maqa-*? Kroeber analyzes it as reduplicated *ma-mur*); S. P. *mau-rr* "bush, plant; clothes; thing" ("bush, plant" is probably its primary meaning, as *-rr-* is regularly employed as suffix with plant nouns). Shoshonean **maqa-*?

Hopi *moqi* "chief" (< **meni*, *w* being perhaps due to preceding *e*); S. P. *moi-* "to lead, act as chief" (< **meni*, which would explain why *moi-* nasalizes following consonants). Shoshonean **meni*?

Uto-Aztekan *l*.

Uto-Aztekan *l* is not preserved as such in Shoshonean. Where *l* occurs in Shoshonean, as in Tübatulabal, Hopi, and Luiseño-Cahuilla, it is either spirantized from Shoshonean *l* or dissimilated from *n*. Uto-Aztekan *l* and *n* fell together in Shoshonean into *n*; original *l*, which seems nearly always to have been postvocalic, appears regularly in Southern Paiute in geminated form as *-n'*, only doubtfully in spirantized form as zero. Inasmuch as there is nothing to show that Nahuatl *l* and *n* vary according to purely

phonetic circumstances and as, furthermore, Nahuatl *l* has Sonoran reflexes distinct from those of Nahuatl *n* (Cora *r*; Tarahumare *l*; Cahita *r*; Tepehuane-Tepecano *r*), it seems justifiable to consider Uto-Aztekan *l* as primary and not merely derived from *n*.

Examples of Uto-Aztekan *-l-* corresponding to S. P. (Shoshonean) *-n'-* are:

- N. *coloa* (< **koli-wa*) "doubler, plier une chose; faire des circuits, aller quelque part par des détours," *coli-ai* "pencher, se renverser, se courber, en parlant d'un mur"; Cora *kure-yi* "kreisen (von Vögeln)," *kuri-pin* "sich auf dem Boden wälzen," *kuri-pua* "einen umherwälzen"; S. P. *gōn'-i* "to return, come back by same road," Uto-Aztekan **koli-*?
- N. *cal-li* "house" (< **kali-*); Tar. *kali-*; Cah. *kari*; S. P. *qan'-i* "house"; Tüb. *hanl-l*
- N. *col-li* "aïeul, aïeule"; S. P. *qun'u-* "great-grandfather"; Ute *gōn'a-* "paternal grandfather," Uto-Aztekan **kalo-*?
- N. *çali-ai* "adhérer à une chose," *çali-ni-ni* "gluant, visqueux"; S. P. *yan'ō-p'*¹ "gum"
- N. *-li-li* (< **li-li*) suffix making abstract nouns from verb and adjective stems (e. g. *tona-li-li* "ardeur du soleil" < *tona*, *quā-sta-li-li* "blancheur de la tête" < *ita-ε* "blanc"), *-li-ε-li* suffix making verbal nouns; S. P. *-n'a-* suffix making verbal nouns
- Cora *kudreabe* "Adler" (*kudrea-* < Uto-Aztekan *kwalet-* ?); S. P. *quān'd-nis'* "eagle." Without *l*-suffix are N. *quānūh-li* "eagle"; Cahu. *quau-l* "hawk (sp.)"; Hopi *kwa-hō* "eagle"
- Tar. *zula* "heart"; Tep. *hura*; Tepecano *hur'*; Tüb. *inuna-* "heart"; Git. *-xūn*; Fern. *-hūn*; Luis. *-sun*

If the vowel originally following *l* (*n'*) is syncopated in Southern Paiute, *-n'-* appears as that nasal (*m*, *n*, or *ŋ*) which is homorganic with the following consonant; in other words, a nasalized consonant results. Examples are:

- N. *mimilōa* (< **mili-wa*) (refl.) "se rebueca como una bestia" (Carochi); S. P. *minquā-* " (frightened cattle) come out in one bunch" (< **min'-i*)
- N. *anai-co* "de l'autre côté"; S. P. *n'angwa-* "from beyond" (< **n'an'* + unknown vowel, as it is syncopated in both Nahuatl and Southern Paiute)
- N. *li-* "to, for" in *li-a* "to, for," *li-lhuia* "to, for," *li-tia* causative suffix; S. P. *-ŋi-* "to, for" (< Uto-Aztekan **li-ke*, Shoshonean **n'i-ki*)
- N. *xal-li* "sable, pierre qui se met en poudre"; S. P. *siŋwa-mpe-* "sand, gravel" (< **siŋcan'* + unknown vowel, syncopated in both Nahuatl and Southern Paiute)

¹ On Dr. Mason's authority.

- N. *uapal-li, uapali-li* "planche, petit pontre, bois": S. P. *we-* + nasalized consonant (< **pini-*).

I have only one example of Uto-Aztekan *-l-* corresponding to S. P. zero:

- N. *zold-ni* "couler avec fracas, en parlant d'un cours d'eau": S. P. *ṣā-n'ia-* "to make a noise as of flowing water." Uto-Aztekan **sla-*?

Under unknown conditions Uto-Aztekan *-l-* appears as Shoshonean *-l-* (S. P. geminated *-l'-* or spirantized *-r-*). This fact, while it cannot at present be satisfactorily explained, indicates that the treatment of Uto-Aztekan *-l-* was not entirely analogous in Shoshonean to that of *-n-*. Examples are:

- N. *cuilo-ni* "sodomite": S. P. *kwit'u-mpi-* "anus" (nasalized form of suffix perhaps due to earlier form **kwit'u-* < **kwilu-*).
 Cora *hure, -xure* "eine Kugel, einen Ball machen" (< **pure* < **pole*): S. P. *poṭṭ-g'wa-* "to be round" (< **pōṭṭi-*). Uto-Aztekan **pole-*?
 N. *-la* passive and impersonal: S. P. *-l'ua-* impersonal suffix
 N. *piloa* "pendre quelqu'un, suspendre" (< **pili-wa*; transitive meaning due to transitive suffix *-wa*): S. P. *puri-ri-* "to hang on to (intr.)" (< **pili-ri-*). Uto-Aztekan **peli-*?
 N. *pil-li* "child, son, daughter" (< **pili-*): Cora *pēri, pāri* "Sohn, Tochter, Kind (vom Vater gesagt)": A. C. *pulyi-ni-i* "baby" (i. e., *pul'i-* < **puti-*; A. C. *-l-* is naturally not directly comparable to N. *-l-*). Uto-Aztekan **peli-*, **puli-*?

Uto-Aztekan *w*

Uto-Aztekan *w* generally appears as such in Nahuatl, Sonoran, and Shoshonean. In Nahuatl (where it is written *u* or *hu*) it appears before all vowels but *o* (doubtless original *wə* has become N. *o*). In Cora Uto-Aztekan *w* regularly appears as *v*. Examples of Uto-Aztekan *w* initially are:

- N. *uitzilin* "petit oiseau qui bourdonne": S. P. *witil-ti-* "bird"; Ser. (H.) *wiṣi-i*
 N. *ui-* verb prefix referring to long objects: S. P. *wi-* verb prefix "with the edge of a long object"
 N. *uillallo-il* "espèce d'oiseau très-allongé, volant peu, mais courant extrêmement vite": S. P. *wit'fo-* "roadrunner"
 N. *uēuē* "vieux, ancien," plur. *uēuē-quē*: S. P. *wi-t'u-t'u-* "long ago"; Ser. (H.) *-wuṭ'* "old (man, woman)"; Hopi *wōx-daka* "old man"
 N. *uei* "big"; Cora *re* "gross, gross sein"; Tepecano *gi* "big, great"; Fern. *wē* "all," *wūpā* "much"; Git. *wūr* "much"; Ser. (H.) *wōr* "much"

- N. *o-me* "two," *o-ppa* "twice" (< **wo-*, *na-hui* "four" (i. e. "duality of twos"; *-wi* "two"); Cora *wā-po* "two"; Tep. *gok-* (< **wo-*); Tepecano *gok*;⁴ Tar. *wo-ka*; Cah. *wai*; S. P. *wā-* "two"; Mono (N. F.) *waka-t*; Tüb. *wo*; Git. *wo*; Luis. *wē*; Cahu. *wi*
- N. *wetzi* "to fall"; Cora *wē fallen*"; Pap. *kūt* "to fall" (read *gūt*); Tepecano *gīl* "to fall in the water"¹ (< **wilfi*), preterit *gīl*; S. P. *wī'i* "to fall"
- N. *uul* "vers ici, par ici"; S. P. *wag-i-* "hither"
- Cora *vāte* (sing.), *vāteme* (plur.) "dastehen, vorhanden sein"; S. P. *wāw-i-* "to stand (plur.)" (< **wāmi-* ?)
- Cora *wē* "dastehen, vorhanden sein"; Pap. *kūh* "to stand" (read *gūh*); Tepecano *gīgu(k)* "to stop, remain" (plur.);² S. P. *wun-i-* "to stand (sing.)" (*-win-i-*); S. P. sing. *wi-n-i-*; plur. *wā-wi-* < **wā-mi-* agrees strikingly with Cora sing. *wē* (< **wē*); plur. *vā-te-me* (< **wā-*, . . . *-me*)
- Cora *wē* "schlagen, werfen, schiessen, treffen," *wēne* "schlagen"; Pap. *kūkū* "to whip" (read *gūkū*); Tepecano *gīē* "to hit with the tail"; S. P. *wun'ai-* "to throw down"

Postvocalic Uto-Aztekan *w* regularly becomes S. P. *-ŋw-*, Ute *-w-* with nasalization of preceding vowel. From Southern Paiute alone one cannot always tell whether *-ŋw-* goes back to *-m-* or *-w-*. Examples of S. P. *-ŋw-* < *-w-* are:

- N. *-huan* "in company with"; S. P. *-ŋw'at-* "in company with"
- N. *caui-d* "temps"; Tepecano *ta-k'auw* "yesterday"³ (< **kawi?*); S. P. *gīaw-i-* "yesterday" (< **kīuwi-*)
- Cora *tevi* "der Mensch, die Person"; Pima *tiwo-t* "man"; Pap. *tiwo-rōt* "man, male" (< **tiwa-*); S. P. *taŋ'wa-* "man" (< **ta'wa-* < **ti'wa-*); Tüb. *datwo-t*
- Cora *hiwe* "nach einem schreien, brüllen" (< **puwe*); S. P. *puŋ'wi-* "to make a peeping rat-like noise" (< **pu'wi-*)
- Cora *ŋiye* "regnen, regnen lassen," *ŋiyan-ta* "der Ort des Regens," *ŋi-te* "Regengötter"; S. P. *ŋŋwa-* "to rain" (< **ŋwa-* < **wiwa-* ?); Mono (In.) *ŋwa-t* "rain"; Shik. *ŋwa-dā* (*ŋwa-* = *iwa-*, perhaps dissimilated from *wiwa-*); Cahu. *wewa-t*, *wewi-nyi-t*. How Shoshonean **wiwa-* is related to Cora *ŋiye*, *ŋiyan*, is not quite clear. Probably Huich. *pou-houye* "pleuvrer," *ka-onyé* "il pleuvra" belongs to these forms. Cora *ŋiye*, *ŋiyan* and Huich. *-ŋye* seem to point to original **weye-*, **weya-* (Huich. *w-* < **wē-*; Cora *-ey-* palatalized to *-iy-* ?), which, if dissimilated from **weme-*, **wewa-*, agrees remarkably with Shoshonean **wiwa-*
- Cora *ta-wé* "aufhängen," *ewir* "aufgehängt sein" (< **wē*, *wiwi-*); S. P. *ŋŋwai-* "to hang" (< **wai-*)

¹ On Dr. Mason's authority.

Without known cognate in Southern Paiute is:

Huich. *tagui, tahoui* "poitrine" (i. e. *tawi*): Cora *tabi* (Diguët; = *tavi* < **tawi*):
Cahu. *-tau¹, -law¹* "breast." Uto-Aztekan **tawi*

In one case that was noted Uto-Aztekan *-w-* corresponds to Luiseño-Cahuilla *-ŋ-, -ŋw-*:

N. *cihuā-ŋ, ʔo(u)ā-ŋ* "woman"; Luis. *huna-i* "woman"; S. J. C. *laŋwā-i*

In Papago and Tepecano original *w* became stopped to *g* (Dolores writes *k*; this *k* sound is, however, evidently phonetically distinct from, more nearly sonant than, original *k*, as indicated by Kroeber's remarks prefaced to Dolores' *Papago Verb Stems* and by its appearance finally as *-g*, whereas original *k* appears finally as *-hɛ*), which, in Tepecano at least, appears as intermediate *-c* when final. For some of my examples I am indebted to Dr Mason. Examples appear above (see N. *uei, o-me, uetzi*, Cora *te* "dastehen," *te* "schlagen"). Further examples are:

Tepecano *ga* "that" (*< *wa < *u-a*): Huich. *kua-na* "là" (read *wa-na* "that-at", *wa-* being derived from demonstrative stem *u-*, see under Uto-Aztekan *u* in Part I; *-na* is found as suffixed element in several other local adverbs given by Diguët, e. g. *ma-na* "ici," *cha-na* "là," and in Cora *ma-na* "dort"); S. P. *wa-, ua-* (compounded of demonstrative *u-* "that yonder" and element *-a-*) in various local adverbs (e. g. *uā-n^a*, *uā-n^a* "there," *uā-i-i* "being there," *uā-ŋuywa-* "to yon place, through there"), cf. *i(y)ā-, i(y)e-* (e. g. *iye-n^a* "here, present") from demonstrative *i-* "this here" and *-a-*

Tepecano *gisā-r* "pithaya, organ cactus" (*< Uto-Aztekan *witsō-*): N. *uizā-ŋi* "épine," *uizā* "épineux"

Tepecano *gigū* "to tremble (generally with cold)" (*< Uto-Aztekan *wētzi-*): Pap. *kikiñw* "to tremble"; N. *uizā-ca* "trembler de froid"

Tepecano *kua'a* "wood, to gather wood" (*< Uto-Aztekan *ku'a-wi-*): N. *quahui-ŋ* "wood"; Tep. *kwanī*. With Tepecano *-a* cf. *-h, -ki* (read probably *-a, -gi*) of Pima *kwa-h, kaka-ki* "wood"

Tepecano *a'āa* "horn" (reduplicated from **āa < Uto-Aztekan *āwa-*): Cora *awa* "ein Geweih habend"

Tepecano *ba'da* "eagle" (*< Uto-Aztekan *kwa'dwa-*): N. *quāuh-ŋi* "eagle" (*< *kwa'dw-*)

¹ On Dr Mason's authority.

² Diguët, *op. cit.* (see Part I), pp. 29, 30.

Uto-Aztekan *y*

Examples of initial Uto-Aztekan *y* are:

- N. *yaca*-*il* "nose, point"; Tar. *yaxka*; Cah. *yeka*; Pap. *tāhəŭ*; Tepecano *dāh*;¹ Hopi *yaka* "nose"; S. P. *yayā*- "end"
 N. *yecoa* "avoir des rapports charnels avec quelqu'un"; possibly also Pap. *tōr* "to copulate"; Tepecano *dam*, preterit *doŋ* (probably to be understood as *dov*, as Tepecano aspirated -*t* regularly corresponds to Pap. -*ht*, Tepecano intermediate -*v* to Pap. -*ʔ*; reduplicated preterit from **da-* < Uto-Aztekan **y-*); S. P. *yeyə*- "to copulate"
 N. *yua* "envoyer une personne quelque part, conduire quelqu'un, envoyer un message"; Pima *yua-ka* "to bring"; S. P. *yā'a-* "to carry more than one object"
 Cora *yəiri*, *yiri* "es ist ein Zugang, Aufstieg da"; S. P. *yī-* "doorway"

Examples of postvocalic Uto-Aztekan *y* are:

- N. *ayo-il* "tortoise"; S. P. *ʔaya-* "turtle"; Cahu. *ayi-ŋ*
 N. *ceya*, *cea*, *cia* "vouloir, consentir, accorder"; Tepecano *həhi* "to desire"
 (< **ʔhi* < **ʔyi* ?); S. P. *-jaya-* (probably to be understood as *-liya-*), *-jia-* desiderative suffix (see under Uto-Aztekan *i*)
 N. *-ya* suffix denoting imperfect tense; Tepecano *-daŋ* imperfect tense;² S. P. *-yi-* suffix denoting present tense (occurs also in narrative past of impersonal: *-pʔva-yai-tua-yi-*). If this etymology is correct, Uto-Aztekan **-ya*, **-ye* might be understood as having originally had durative significance, without true reference to tense.

Original **yuya-* > palatalized **yuyi-* is perhaps dissimilated in Huichol to **uyi-* > **uvi-* in:

- Huich. *onhoui* (i. e. *uui*) "glace"; Calm. *yuya-t* "snow, ice," *yuyi-t*; A. C. *ayuyi'a*, *yūi-t* "snow"; Luis. *yuyi-t*; Fern. *yua-t*³; Git. *yua-t* (Fern. and Git. *yua-* probably dissimilated from *yuya*)

In Papago, Tepehuane, and Tepecano original *y* became stopped to *d* (Dolores writes *t*, which becomes *tc* before *i*, *u*, and *u*; this *t—tc* sound is, however, evidently phonetically distinct from, more nearly sonant than, original *t—tc*, as indicated by Kroeber's remarks prefaced to Dolores' *Papago Verb Stems* and by its appearance finally as *-t*, *-t̃*, whereas original *t—tc* appears finally as *-ht*, *-ht̃*), which, in Tepecano at least, appears as intermediate *-d*

¹ On Dr. Mason's authority.

when final. For this phonetic law and for some of my examples I am indebted to Dr Mason. Examples appear above (see N. *yaca-tl*, *yecoa*, and *-ya*). Further examples are:

- Pap. *tah* "to fly, to jump" (singular): S. P. *yāš'i* "flock flies." This holds only if *t* of Pap. *tah* is to be read as *d*.
- Pap. *tsu'aumuh* "to punch with a stick or with the fingers": S. P. *ma-yum'u-k'wi-ngt* "to nudge with the finger" (*ma* "with the hand, finger"). This holds only if *t* < *i* of Pap. *tsu'aumuh* goes back to *d*.
- Pap. *teuh* "to do" (< **du*); Tepecano *dun*, preterit *du* "to make," *do'da* "to do thus": N. *yucaya* "fabriquer"
- Pap. *tsū'rsi* "to smoke tobacco" (< **dū-di*); Tepecano *din*, preterit *dīd* (doubtless to be understood as *dīd*, reduplicated preterit from **dī* < Uto-Aztekan **yē*); N. *ye-il* "fumée odoriférante, parfum, tabac"
- Tepecano *dūn* "black ant": N. *yoyoli* "insecte," *yolcu-il* "insecte, ver." Uto-Aztekan **yoli* (for Tepecano *z*: N. I see Uto-Aztekan *l*)
- Tepecano *dāim*, *a-dim*, preterit *ā-dī* "to run, to follow"; Cora *ḡ ḡi(me)* "gehen, wandern" (sing.)

Uto-Aztekan h

This sound is found in neither Nahuatl nor Southern Paiute (though some Southern Paiute forms beginning with pure vowels, that is, not preceded by ' , have at times been heard pronounced with weak breath-attack; e. g., *aya-* was sometimes heard as *'aγa-*). It seems clear, however, from comparative Shoshonean evidence that *h* must be credited to the original consonantic system of Shoshonean. Such Shoshonean examples are:

- Hopi *hexta* "back"; Cahu. *-huxa*
- Hopi *honawen* "bear"; Git. *hunat*; Fern. *hūnū-r*; Luis. *hunwo-t*; Cahu. *hunu-t*; Tūb. *uno-l* (Tūbatulabal *h* seems always to go back to Shoshonean *h*, while Shoshonean *h* disappears)

Moreover, Shoshonean *h* corresponds in a number of cases to Sonoran *h* (Pima, Huichol, Cora, Cahita; this Cora *h* is of course etymologically distinct from Cora *h* < *p*). There is, therefore, good reason to ascribe *h* not only to original Shoshonean but also to original Uto-Aztekan.

Examples of initial Uto-Aztekan *h* are:

- N. *itta*, *itua* "voir quelqu'un, découvrir" (< **ite-wa* ?); Pima *hiḡv* "to

¹ On Dr Mason's authority.

- see" (< *hiñ): Gabr. *hula-a* "to see"; Fern. *hūtu*; Git. *-hu*. Uto-Aztekan *hite-, *hote-?
- N. *agui* "qui?" *acā* "quelqu'un"; Cora *hāi-ki* "was, wie"; Cahu. *haxi* "who?" Fern. *haki*; Wob. *hake*; Shik. *hāya-dā*; Hopi *hak'i*; S. P. *a-ya* "where? how?" Uto-Aztekan *haki, *haka
- N. *oco-tl* "pinus tenuifolia"; Cora *hukú* "Kiefer"; Tepecano *huk* "pine";¹ S. P. *oγo-mpu-* "fir" (with open *o*; probably *ɔγo-*). Uto-Aztekan *hɔkɔ-?
- N. *āca-tl* "vent, air"; Cora *āka(r)* "Wind"; Huich. *heheaco* "air"; Tüb. *āxka-wa-t* "wind"; Mono (N. F.) *hig-wa-p*; Gabr. *a-hika-γ*. Uto-Aztekan *heaka-?
- N. *i* "to drink"; Cora *i*; Tep. *i*; Tepecano *ī*;¹ Pap. *ih*; Tar. *pahi* "to drink" (probably to be analyzed as *pa-* "water" + *-hi* "to drink"; S. P. *iri-* "to drink"; Mono (N. F.) *hibi-*; Shik. *hici*; Hopi *hii-koo*; Tüb. *ii*. Uto-Aztekan *hi-, *hie-, *hipi-
- Huich. *houca* "jambes"; Cora *houca* (Diguët), *ika* "der Fuss, das Bein, der Knochen" (Preuss); Cah. *huoki*; Hopi *hokya* "leg"; Mono (N. F.) *-huk*; Wob. *-huk*. Uto-Aztekan *hoka-
- Huich. *hou-row* "flèche"; Cora *i-rī* "Pfeil"; Pap. *u'uh* "war-arrows" (reduplicated form); S. P. *ō'* "arrow"; Hopi *hō-hū*; Luis. *hu-la*; A. C. *hu-l*. Uto-Aztekan *hō-
- Tep. *houum* "jaune"; Pima *oam* "yellow"; S. P. *u-q'a-* "to be yellow." Uto-Aztekan *hwa-?

Examples of Uto-Aztekan postvocalic *h* are far from numerous:

- N. *yei, ye* "three" (< *hei < *pai < *pahi?); Cora *wāi-ka*; Tar. *bai-ka*; Cah. *baki*; Pima *vai*; S. P. *pai-* "three"; Mono (N. F.) *pahi*; Shik. *pahi-t*; Git. *baki*; Fern. *pahai*; Luis. *pahai*; Tüb. *pai*; Hopi *pahio*. Uto-Aztekan *pahi-
- Huich. *-houjia-na* "devant" (i. e., *-hukia-*); S. P. *-u(w)ā'-mi-* "in front of" (*-w-* is glide), *-u(w)ī-t'uγwa-* "moving in front of" (**-husa-* > **-u'a-* > *-uā'-*?)
- Huich. *touhou* "braise"; Ser. (H.) *tun-* "coal"; Fern. *duu-t*; Cahu. *du-t* is probably not to be interpreted as from Uto-Aztekan *toho-, as intervocalic *h* would be expected to remain in Southern Californian Shoshonean. Huichol *-h-* may have been secondarily introduced (< Uto-Aztekan *too-*?) to break up the hiatus; or Diguët's *-h-* may be of merely orthographic, not phonetic, significance (cf. Diguët's Cora *mouhou* "head," where Preuss' orthography indicates that *mu'u* is meant)

Uto-Aztekan *

Quite a number of Uto-Aztekan languages, including Nahuatl and Southern Paiute, possess ¹ (glottal stop) as a definite consonant.

¹ On Dr. Mason's authority.

It is somewhat doubtful, however, if there are any true cases of Sonoran or Nahuatl ¹ corresponding directly to Shoshonean ¹; in other words, the assumption of ¹ as an original Uto-Aztekan sound must be considered at present as not capable of being completely justified, though indications are not lacking of the soundness of this view. In a large number of cases ¹ can be shown to be the resultant of some other Uto-Aztekan sound (as in S. P. ¹ < *s*; N. saltillo < *-t* or *-k*, see below); such cases must, of course, be eliminated here. A small but convincing number of examples shows that widely distant Shoshonean dialects may agree in the use of the glottal stop (e. g., S. P. *'ayī-* "good," often heard as **'ayī-*; Ser (H.) *a'aiye-*; S. P. *'i-*, *'i-* "this"; A. C. *i'i*).

Examples of initial Shoshonean ¹ in Uto-Aztekan words, where, as far as available material can be relied on, there is no ¹ to correspond in Nahuatl or Sonoran, are:

- Huich. *aihotzo* "bien": S. P. *'ayī-* "good"; Ser. (H.) *a'aiye-tš*
 N. *i* "ceci"; Cora *i*, *hi* "dieser"; Pima *hítv* "this"; Tepecano *hidi*²; S. P. *'i-* "this" (*išš* "this" as absolute inanimate demonstrative < **išt-*); Shik. *idú* "this"; A. C. *i'i*; Luis. *ivi*. Uto-Aztekan **i(i)* or **hi(i)*?
 N. *ayo-il* "tortoise": S. P. *'aya-* "turtle"; Cahu. *ayi-i*

Similar examples of Shoshonean postvocalic or postconsonantal ¹ are:

- Cora *hiwe* "nach einem schreien, brüllen" (< **puwe*); S. P. *puq'wi-* "to make a peeping sound" (< **pu'wi-*)
 N. *-c-pac* "sur, au-dessus, en haut"; S. P. *-v'á'yi-* "over" (< **-p'áki-*)
 N. *-pan* "upon"; S. P. *-v'an'* "on, upon"
 N. *pani* "en haut, au sommet"; S. P. *pa'an'i-* "to be high"
 Cora *tevi* "der Mensch, die Person," Plur. *idite*; Pima *tiwo-t* "man"; S. P. *taq'wa-* "man" (< **to'wa-*); Tüb. *datwa-t* (perhaps *-tw-* is misheard for *-w-*)
 N. *-lia* causative suffix; Cora *-te-*; S. P. *-t'ui-* causative suffix

Nahuatl ¹ (saltillo) can be clearly shown to be developed in certain cases from syllabically final *-t* or *-k*, though I am unable to suggest at present under what circumstances this reduction takes place. Examples of N. *-t* < *-t* are:

¹ On Dr Mason's authority.

- N. *cā* (= *ka'*), *cat-qui* "to be in a place, *cat-yan* "place, *aiēge*, " *catē* present plural of *cā*; Pima *kallu* "lay" (< **kali*); S. P. *qari*- "to sit, dwell" (< **kali*-).
 N. *uēuē* (= *wēwe'*) "vieux, ancien," plural *uēuē-quē*, *no-uēuē-cauē* "mon vieux": Ser. (H.) *-wut'* "old" (< **witi*).
 N. *-mē* (= *-me'*) plural noun suffix: Pipil *-mēt* (e. g. N. *matini-mē* plur. "wise": Pipil *matini-mēt*)¹.
 N. *-quē* (= *-ke'*) plural noun and verb suffix: Pipil *-quēt* (e. g. N. *chē-knaz-quē* "they will make": Pipil *chēknaz-quēt*)².
 N. *-'* plural noun and verb suffix: Pipil *-t* (e. g. N. *cihuā = zinu-* "women": Pipil reduplicated *cixcihuā-t-quēt*, with double plural suffix *-t-quēt*; N. *nemī = nemi-* "they live": Pipil *nemi-t*)³.

It is clear from this last example that N. *-mē*, *-quē*, Pipil *-mēt*, *-quēt* are compound plural suffixes, the plural suffixes **-me*, **-ke* (cf. Southern Paiute *-mē-*, *-q'a-*) being further pluralized by means of *-'*, *-t*; doubtless the analogy of such plural forms as *cihuā* and *nemī*, *nemī* had much to do with the development of **-me*, **-ke* to *-mē* (*-mēt*), *-quē* (*-quēt*).

There is at least one clear example of N. *-'* < *-k*:

- N. *-uē* (= *-wa'*), *-ē*, *-ō* "having" (e. g. *atla-uē* "having an *atlāl*," *mitē* "having a field," *eqō* "having blood," *uētō* "having thorns" (forms in *-ē* and *-ō* are doubtless to be analyzed as originally final stem vowels *-e*, *-o* + *-'* "having"; this is indicated by such forms as *eqō-t* alongside of *eq-tli* "blood," *-e* spread by analogy from such forms as *cenē* "having *centli* < **senē*, cf. S. P. *lii-* < **iini-*, in which *-e-* was etymologically justified), *calpole-c* "having a *calpolli*;" older N. *-que-tli* "having" (e. g. *atla-ua-que-tli* "having an *atlāl*");⁴ Cora *-ke* "to have" (e. g. *pērike* "ein Kind haben"); Pap. *'kah* "to have or claim": S. P. *-g'ā-*, *-yā-*, *-ngat-* "to have," *-g'ā-nli-*, *-yā-nli-*, *-ngā-nli-* "having".

Another group of examples of Nahuatl saltillo seems to have arisen as the reflex of a syncopated vowel following immediately upon another vowel. Examples are:

- N. *ēca-tl* "vent, air" (< **eaka-*); Cora *āka-ri* "Wind" (*ā* contracted from original *ea* ?); Huich. reduplicated *hēheaca* "air": Tüb. *āka-wa-l* "wind" (*āka-* is perhaps to be understood as *ā'ka-* < **ā'ka-* < **āka-*;

¹ See W. Lehmann, "Ergebnisse einer Forschungsreise in Mittelamerika und México 1907-1909," *Zeitschrift für Ethnologie*, 1910, p. 730.

² Ibid., pp. 730, 731.

³ Ibid., p. 731.

in S. P., -*q*- often is heard as -*q̃*-; Gahr, *ahika-q̃* "wind" (metathesis for **hiaka*-, or is *a*- prefix ?)

- N. *ō-lli* "path, road" (< **oe*- or **oi*- < **hoe*- or **hoi*- < **poe*- or **poi*-); Cora *huyé* "Weg" (< **p̃oye*-); Tepecano *rei* "road," plur. *top'oi*,¹ Pap. *wō-kū* "road, trail" (contracted from **wōi*- or **wōe* < **p̃oi*- or **p̃oe*-); S. P. *p̃ō*- "trail" (contracted from **p̃ō*- < **p̃oi*- or **p̃oe*-; Shoshone *poe*, *po'*; Luis. *pe-i*; Cahu. *pi-i* (contracted from **p̃oi*- or less likely **p̃oi*-); Hopi *pl-hū* (i is long open i; contracted from **p̃oi*- or less likely **p̃oi*-); Bank. *po'-t* (< **p̃oi*- or **p̃oi*-). Tepecano, Shoshone, Luiseño-Cahuilla, and Hopi point rather to Uto-Aztekan **p̃oi*- than **p̃oe*- (Cora *huyé* may be **p̃oi*- + *e*, rather than < **p̃oe*). It is not improbable that Uto-Aztekan **p̃oina* "to run" (N. *paina* "courir vite"; S. P. *p̃ōya*-) is a denominative verb in -*na* from **p̃oi*- "trail"; in N. *paina*, original *o* has apparently been assimilated to *a* of the suffix, while *i* has had to be retained before *n* (all feeling of connection between N. *ō-lli* and *pai-na* is, of course, gone)
- N. *pl-lli* "elder sister" (< **p̃ia*-); S. P. *pia*- "mother, female" perhaps also in *yōp'ia*- "younger sister"; S. J. C. *-pī-i* "younger sister" (< **p̃ia-i*; if final vowel of stem were originally *i*, we would expect -*i*, not -*i*, as suffix)

This explanation of N. ' may apply also to:

- N. *l̃l̃eco* "monter"; S. P. *l̃* "up" (N. *l̃*- and S. P. -*l̃* both seem to point to Uto-Aztekan *e* + some vowel which has become syncopated in N. and contracted with *i* in S. P.)

In Papago there are numerous examples of ' (e. g., *to't* "to bet"; *tō'pu* "to twist"; *ha'ah* "jar"; *vā'oh* "wooden tongs for gathering cactus fruit"), but unfortunately in the great majority of cases I do not at present know of Nahuatl or Southern Paiute cognates. In at least two cases Papago has ' where Southern Paiute has none:

Pap. *wa'xū* "hole"; S. P. *ə-p'ag'i*. "hole"

Pap. *-kah* "to have"; S. P. *-q'ai-*, *-yai-*, *-qai-*. "to have"

Cases of Sonoran or Nahuatl ' corresponding to Shoshonean ' are scanty. The best examples so far noted are:

Huich. *moho* "tête" (i. e. *mo'o*); Cora *mū* "Kopf" (i. e. *mu'u*), Tep. *mahou* "tête" (i. e. *ma'u*); Pima *mā-āka* "head"; Pap. *mo'o*: Tüb. *to-m'o*- "hair." Uto-Aztekan *m'o*-

Cora *k̃i* "fressen (von fester Nahrung)" (= *k̃i'i*, assimilated from **ke'i*); Pap. *kūi* "to bite, sting"; S. P. *q̃i-i*- "to bite"

Pap. *teu'amuh* "to punch with a stick or with the fingers" (< Uto-Aztekan **zu'amu*-); S. P. *ma-yum'u-k'wi-q̃i-* "to nudge with the finger"

¹ On Dr Mason's authority.

- Pap. *ʃu't* "hanging (like clothes on line, on brush)": S. P. *ʃa'i-* "to catch," *te'a'i-k'ʔa'i-* "to hold"
- Tepecano *bu'ʃo* "eagle"¹ (< Uto-Aztekan **kwa'a-w-*): Cahu. *gwa-a-j* "hawk sp." (read *gwa'a-ʔ*); Ser. (H.) *gwa-a-le* "condor" (read *gwa'a-ʔ*). If we assume Uto-Aztekan **kwa'a-w-* instead of **kwa-w-*, we can explain N. *qudāh-īli* "eagle," which otherwise offers difficulty. Original **kwa-wa-īli* (-a- is here purely schematic, standing for any vowel, as I have no evidence to show what vowel was syncretized) would have had to develop (with its accentual scheme ' ' ') to **kwa-wa-īli* (in Spanish orthography **qudāh-īli*). Original **kwa'a-wa-īli*, however, would develop (with its accentual scheme ' ' ' ') to **kwa'a-w-īli* >, by later loss of ' and contraction of -aā- to -d-, *kwa-w-īli* (in Spanish orthography *qudāh-īli*)

Another example of this type would seem to be:

Pap. *hi't* "urine": S. P. *si'i-* "to urinate,"

though it is not obvious how this correspondence is to be reconciled with S. P. *si'i-* < **sisi-* (cf. N. *xix-īli* "excrement" < **sisi-*; see under Uto-Aztekan *s*), as there is nothing to show that Uto-Aztekan *s* ever becomes ' in Papago.

An example of S. P. ' corresponding to Nahuatl saltillo seems to be:

- N. *nē, nēhuātl, nēhua* (= *ne'*) "I, me": S. P. *ni'* "I" (contrast with this absolute form N. *ni-* "I" as verbal prefix; S. P. -n'i- "I" as verbal suffix)

There is one class of occurrences of ' which seems to be common to all Uto-Aztekan languages and which probably goes back to original Uto-Aztekan. This is comprised by reduplicated noun plurals and reduplicated frequentative verb forms, which in varying degree tend to take a glottal stop after the reduplicating syllable. According to Carochi, the reduplicating syllable of Nahuatl reduplicated noun plurals does not end in a saltillo, but in a long vowel (e. g., *māmaçā*, plural of *maçatl* "deer"; *teōtl*, plural of *teōtl* "god"). In Pipil, however, the old saltillo of the reduplicating syllable is preserved as a palatal spirant (Lehmann's *χ*); examples are *tāχtāgāmēt* "persons," *laχlāmātquēt* "old women." In Papago and Southern Paiute such reduplicated noun plurals with glottal

¹ On Dr. Mason's authority.

stop are found formed from stems beginning with vowels. Papago examples are: *a'an* "wings"; *u'uh* "war arrows"; *a'ohr* "sand" (cf. S. P. unreduplicated *at'a-* "sand"); *u'uhhi'kü* "birds." A Southern Paiute example is *a'áip'atsiŋ'* "boys," plural of *áip'ats'*.

Many intensives and frequentatives in Nahuatl have a saltillo after the reduplicating syllable, e. g., *ní-pàpāquí* "estoy muy alegre" (*ní-pāquí* "estoy alegre"); *cācahuāntiuh* "en todas partes resuena (fama)."¹ Analogous Southern Paiute examples are: *i'ip'i-* "to sip, drink iteratively" (*ivi-* "to drink"); *a'ampaq'a-* "to talk repeatedly" (*ampaqa-* "to talk"); *a'ap'vi-* "to sleep repeatedly" (*ap'vi-* "to sleep"); *qag'a'a-* "to sing repeatedly" (*qā-* "to sing").

GEOLOGICAL SURVEY OF CANADA
OTTAWA, ONTARIO

¹ See Carochi, pp. 473, 474.

REVIEWS

METHODS AND PRINCIPLES

Kinship and Social Organisation. By W. H. R. RIVERS, M.D., F.R.S. London: Constable & Co., Ltd., 1914. Pp. vii, 96.

The three lectures embodied in Dr Rivers's booklet form so valuable a contribution to the subject and raise so many moot points on which mutual understanding is essential, that a detailed consideration of his argument by as many of his fellow-students as possible seems a desideratum.

In Lecture I the author begins with a provisional definition of the classificatory system of kinship. In his earlier paper "On the Origin of the Classificatory System of Relationships"¹ this system was described as ranging in the same category large groups of people differently related according to our conceptions and, on the other hand, distinguishing between relatives designated by a common term among civilized peoples. In the present essay Dr Rivers meets the argument, that our systems are also "classificatory" in regard to the use of such terms as "brother" or "uncle," by insisting that the classificatory systems proper classify far more extensively and sometimes even more consistently. While in our system there are six terms, viz., husband, wife, father, mother, father-in-law, and mother-in-law, that can refer only to a single person, the classificatory system in a perfect form contains no term that does not apply to a *class* of persons. This obviously establishes only a difference in degree not of kind, but it is only fair to Dr Rivers to say that a genuinely logical differentiation appears later on as a result of his investigation (p. 70 et seq.).

In a brief historical survey the author pays a generous tribute to Lewis H. Morgan's services. These have undoubtedly been very much underrated by some critics. On the other hand, I cannot believe with Dr Rivers that the vast bulk of Morgan's material had anything to do with his lack of recognition. If any external factor of this sort played a part, it was rather Morgan's intolerable diffuseness, the pages and pages of irrelevant data, and the unsatisfactory tabulation by which relationships according to our system are translated into native languages, so

¹ *Anthropological Essays presented to Edward Burnett Tylor*, 1907, p. 310.

that the connotation of any one native term can only be learned by a complete re-arrangement of the information as presented. Dr Rivers himself thinks that the chief cause of Morgan's underestimation lies in his deriving the origin of the kinship system from forms of social organization for which the direct evidence is lacking. Here, again, I must dissent. The chief intrinsic deficiency in Morgan's work, I think, is his lack of clearness and logical rigor. Thus, it is difficult to gather from various statements in *Ancient Society* and elsewhere, what part in social evolution Morgan ascribed to conscious reformatory movements. Sometimes he speaks of an unconscious reformatory innovation effected through natural selection; at other times of intermarriage in the "gens" [exogamous group] "prohibited to secure the benefits of marrying out with unrelated persons." Again, Morgan in a way forestalled the theory of Tylor, Frazer, and Rivers as to a connection between the classificatory system and exogamy. Indeed, he accounts for every difference between the Turanian-Ganowanian and the Malayan form of that system by the institution of exogamy. Yet he calmly announces that the Turanian-Ganowanian system and the "gentile" [exogamous] organization, while usually found together, are *not* mutually dependent! Considering in addition to this lack of logic Morgan's naive evolutionism, we have a sufficient reason for his unwarrantable neglect by a more critical age. He was the typical incarnation of the "comprehensive and weak mind" (*esprit ample et faible*) in Duhem's classification of intellects; as soon as research became intensive and rigorous, it was natural that he should become the object of unhistorical contempt.

Passing from Morgan to McLennan, Dr Rivers points out the significant fact that while McLennan rejected Morgan's sociological explanation of the classificatory system, he did not bar *all* sociological explanation, but on the contrary derived the system from a change in the form of polyandry as outlined in his scheme of social evolution. Thus, as regards the broadest possible grouping of writers, McLennan stands on the side of his old antagonist Morgan, as against Professor Kroeber, who explicitly denies that relationship terminology has a sociological foundation, substituting instead purely psychologico-linguistic factors. It is against this view that Dr Rivers's lectures are primarily directed: he seeks to establish the necessity for assuming a sociological interpretation, and then to propound a specific form of sociological explanation. Although the latter is not developed before the third lecture, it will add clearness to the comments on some of Dr Rivers's points to state at the outset that his special theory coincides in principle with that expressed

in the previous article of the Tylor anniversary volume. That is to say, he holds with Tylor that exogamy and the classificatory system are aspects of a single phenomenon, kinship being reckoned according to alignment in exogamous groups; and like Tylor and Frazer, Dr Rivers thinks of exogamy primarily as developed in a dual organization of society.

McLennan, while giving a sociological interpretation of the classificatory system, belittled its social significance, boldly denying that any rights or duties were affected by the relationships comprised in it. This view has become untenable through more recent information from Australia and elsewhere, and Dr Rivers is able to prove quite satisfactorily from Oceanian data that "there is a very close correlation between the presence of a special term . . . and the presence of special functions attached to the relationship." The classificatory system is thus composed of elements that are far more than *merely* "terms of address and modes of mutual salutation," as McLennan and his followers assumed. While the author does not insist that the correlation is an absolute one it would have been worth his while to explain that even between relatives not distinguished in language by distinct kinship terms the natives often clearly differentiate in thought and social usage. This has been pointed out for Western Australia by Mr A. R. Brown. In other parts of Australia we find such things as the custom of allotting to a man a woman from a group including his own mother, but never allotting his own mother.¹ Among the Hidatsa of North America we have the case of a boy buying certain ceremonial privileges from his own father exclusively, though all father's clansmen are included in the same term as his actual father; while among the Crow Indians regulations applying to brothers-in-law in a classificatory sense assume a specialized form with regard to the wife's own brother. In short, we must recollect that social usages are not necessarily reflected in language.

In setting out to controvert Kroeber's view Dr Rivers begins by deriving specific variations in the classificatory system from specific social institutions. The first variation dealt with is derived from the social usage by which a man regularly marries his mother's brother's or his father's sister's daughter,—the custom which Tylor labeled "cross-cousin marriage." Dr Rivers shows that where this institution is established the mother's brother, father's sister's husband, and father-in-law are combined in one and the same person, and similarly the father's sister, mother's brother's wife, and mother-in-law coincide. In Fiji, the southern New Hebrides, and Guadalcanar—the only parts of Melan-

¹ Spencer, *Native Tribes of the Northern Territory of Australia*, p. 47.

esia where Dr Rivers found cross-cousin marriages—the kinship systems show exactly those features theoretically deducible from this institution, that is to say, the relationships that are combined in a single person are designated by a single term. Hence Dr Rivers infers that these features are conditioned by the social practice. I regard this conclusion as convincing, especially when taken in conjunction with the impotence of any purely psychological interpretation. Why, as Dr Rivers asks, should the mother's brother be considered more similar to the father-in-law than the father's brother, etc., unless he becomes so through the social institution under discussion?

In Lecture II Dr Rivers turns to other special features of classificatory systems. In the Banks Islands he finds that "cross-cousins apply to one another terms of relationship which are otherwise used between parents and children." He rightly points out that from a purely psychological point of view it is impossible to understand why one kind of cousin should be classed with the father, and another kind of cousin with a son or daughter. Casting about for a sociological explanation he finds mythological and other support for the former practice of handing over one wife to the sister's son; this naturally raises the sister's son to the status of his maternal uncle, whose children become thereby the "children" of their mother's new husband. In this way he finds an adequate interpretation of the confusion of generations in the kinship nomenclature. But while it is true that the form of marriage described, if reflected in terminology, would produce the observed features of the system, an alternative interpretation is suggested by corresponding North American data. As Dr Rivers points out in another connection (p. 54) the Tewa Indians denote all male members of the father's clan, regardless of age, by a single term. This feature occurs also among the Crow and Hidatsa, where there turn up likewise the precise features that arouse Dr Rivers's interest in the Banks Islands. By these tribes the mother's brother is classed with the elder brother, hence his children, being a "brother's" children, are classed with the children and address their male cross-cousin as "father." But, given maternal descent, the mother's brother is a clansman, i. e., clan brother; and the father's sister's son is a father's clan brother. Hence, the Banks Island classification of relatives may be merely a result of the alignment of kindred according to their clan affiliations. The confusion of generations is still explained on sociological grounds, but on different grounds from those suggested by Dr Rivers. Instead of having recourse to a special form of marriage, we fall back upon the general principle of exogamy, supposing that in Melanesia, as

demonstrably among several Siouan tribes, it has occasionally overridden the principle that different generations shall be separated by distinct terms.

In Pentecost the author encountered a feature still more remarkable than the confusion of contiguous generations: here persons *two* generations apart were classed together. Some evidence indicating that a man formerly married his brother's granddaughter (i. e., his "granddaughter," classificatorily speaking) suggested that this practice was the cause of the Pentecost anomalies. As a matter of fact, various peculiarities of the kinship system in question would follow from such an institution. But again I am tempted to ask whether there is not an alternative hypothesis. The most striking anomalies cited by Dr Rivers (pp. 31 f., 36) are the classing together of the mother's mother and elder sister; of the wife's mother and the daughter; of the wife's brother and the daughter's son. Now, given maternal descent and an exogamous organization, my mother's mother and my elder sister are both my clan sisters; my wife's mother and my daughter must both belong to the same exogamous group; and my wife's brother and my daughter's son are necessarily fellow-clansmen. The additional fact that we are dealing with a *dual* exogamous organization accounts for the cases of my daughter's husband and my wife's father, both of whom must be members of my own moiety; and of the husband's brother and the mother's father. A grouping of relatives according to exogamous divisions thus again obviates the necessity for deriving variations of the classificatory system from special forms of marriage.

In the instances hitherto cited features of the kinship nomenclature are derived from social practices actually found together with them. Dr Rivers now turns to the important methodological inquiry, whether a social practice may safely be inferred from a feature logically deducible therefrom. His first case is the Viti Levu classification of the father's father with the elder brother, and of the son's wife with the mother. Since the confusion of generations here roughly corresponds to the Pentecost anomaly, Dr Rivers at first looked for an explanation in the same direction, vainly seeking to correlate the differences between the Pentecost and Viti Levu systems with the observed difference in descent, which is patrilineal in Viti Levu. This line of thought he abandoned when the system of Buin, where maternal descent obtains, turned out to resemble the Viti Levu nomenclature in classing together the father's father and the elder brother. He was thus led to conceive as the common cause of the Buin and Viti Levu feature the practice of marrying a wife

of the father's father, for which there is no evidence, but which explains certain additional elements of the Buin system.

I believe that Dr Rivers's original idea of correlating Pentecost and Viti Levu differences with corresponding rules of descent was correct. Given paternal descent, and a dual organization, my father's father is my elder clan brother, and my son's wife must belong to my mother's moiety. For the Buin features I am not able to give a thoroughly satisfactory explanation. The choice lies between my hypothesis, which furnishes a common explanation of the Pentecost and Viti Levu data, and Dr Rivers's hypothesis, which derives the Viti Levu and Buin data from a common social institution of purely hypothetical character. On the abstract principle that hypothetical causes shall not be multiplied, I think the preference should be given to my own suggestion, especially as something may be offered to account for the Buin features. If we assume that the Buin formerly had paternal descent, the feature they share with the Viti Levu people is explained, and so is the grouping together of the elder brother's wife with the wife of the father's father. What remains unaccounted for is why these two relatives should be classed with the elder sister, who cannot possibly belong to their moiety. On the other hand, unflinching reflection of sociological conditions in terminology should not be expected in every tribe. Thus, we have in North America the case of the Crow system, otherwise typically classificatory, where in direct address the father's sister is classed with the mother. All this is avowedly not a satisfactory explanation of the last-named Buin peculiarity, and even as regards other traits of this nomenclature I have assumed, quite gratuitously, a former period of patrilineal descent. Nevertheless, all the factors suggested, whether applicable in the present instance or not, have demonstrable existence and should be relied upon in preference to a condition never observed anywhere and with so slight an *a priori* claim on our credulity as the practice of a man's marrying a grandfather's wife.

Dr Rivers is fully aware that as a matter of scientific method we must consider the possibility that some of the classifications found may have other causes than those he suggests (p. 42). Indeed, to some of his general comments on the method of interpretation to be pursued when terminological features that are logically deducible from certain social usages and often occur in association with them are found without the usages, most ethnologists will heartily assent. First of all, Dr Rivers shows that some of the features deducible from cross-cousin marriage may also be the result of another form of marriage, observed in the

Torres Straits,—hence it is only the distinctive elements of the cross-cousin marriage terminology that permit a safe inference as to a former practice of cross-cousin marriage. Secondly, he rightly argues that the one-time reality of this institution becomes far more probable if found among culturally related peoples. This principle is well exemplified by some Melanesian instances. Turning to South India, Dr. Rivers finds in three of the chief languages of that area precisely the nomenclature that would follow from a cross-cousin marriage. The Todas not only share this terminology but also have the usage to the present day, and there is other evidence for its former prevalence in India. Dr. Rivers may therefore be quite right in treating the terminology, even where now unconnected with cross-cousin marriage, as a survival of this institution. But I cannot agree to the proposition that "even if there were no evidence, the terminology of relationship is so exactly such as would follow from the cross-cousin marriage that we can be certain that this form of marriage was once the habitual custom of the people of South India" (p. 49). Apart from the fact that the terminology may be deducible from other social practices, as Dr. Rivers himself points out, he seems to me to ignore a rather important aspect of the problem. It has been shown in North America that features of kinship terminology may be borrowed; the geographical distribution of certain traits and categories in Kroeber's sense is indeed unintelligible on any other hypothesis. When, therefore, we find a terminology that reflects cross-cousin marriage but no such form of marriage associated with it, the terminology may indeed conceivably be a survival of that institution, but it may also have been borrowed from a tribe in which the relationship terms do rest on a sociological foundation.

Considerations of the type already adduced will make Americanists even more skeptical than is Dr. Rivers himself as regards the interpretation he suggests of the corresponding North American data. Since cross-cousin marriage is, so far as we now know, so narrowly confined to the Northwest coast, it seems premature to infer its one-time prevalence among such remote and culturally distinct tribes as the Cree and Dakota on the ground that their nomenclature partly coincides with that of Fiji and the New Hebrides. There is a series of American data that Dr. Rivers connects with the Banks Islands custom of marrying a maternal uncle's wife (pp. 52-54). But (granting the basic theory that exogamy has moulded the classificatory system) it is much simpler to interpret the Melanesian data through those from America, which, as Dr. Rivers admits, are intelligible as the result of the exogamous principle over-

riding the generation factor. I do not understand his difficulty with the Pawnee instance of the wife being classed together with the mother's brother's wife. Given a dual exogamous organization and maternal descent,¹ my mother's brother belongs to my moiety, hence our wives both belong to the complementary moiety, and thus may very readily be grouped under a single designation. Thus a swish of Occam's razor again lops off an unnecessary auxiliary hypothesis.

In Lecture III the author sets out to show that marriage is not the only social institution that has moulded relationship nomenclature. In some cases it may be rather "an attitude toward social regulations connected with marriage." In Merlav, for example, the wife's sister and the wife of a man's brother are classed with the sister, and the husband's brother and a woman's sister's husband are classed with the brother, while other types of brother-in-law and sister-in-law (in our sense) are ranged in other categories. Dr Rivers points out, quite properly it seems to me, that no psychological reason can be given for this differentiation. On the other hand, he finds a sociological reason in the attempt to emphasize the fact that a form of marriage once allowed (with the wife's sister) is now tabooed; and this can be done most effectively by grouping the wife's sister with the sister. The author's attitude towards psychological and sociological causation, respectively, appears rather clearly in his treatment of a special Melanesian feature. In addressing a wife's sister the Melanesian uses not the term he himself applies to a sister, but that employed by a woman to denote her sister, *i. e.*, the one applied by his wife. Dr Rivers plausibly suggests that the husband simply used a term familiar to him from the mouth of his wife.

The process is one in which psychological factors evidently play an important part, but those psychological factors are themselves the outcome of a social process, *viz.*, the change from a condition of sexual communism to one in which sexual relations are restricted to the partners of a marriage. Such psychological factors as come into action are only intermediate links in a chain of causation in which the two ends are definitely social processes or events, or, perhaps, more correctly, psychological concomitants of intermediate links which are themselves social events. We should be shutting our eyes to obvious features of these Melanesian customs if we refused to recognise that the terminology of relationship here "reflects" sociology.

This is very well if the hypothetical change from sexual communism

¹ This type of organization has not been established for the Pawnee; for the sake of the argument I am assuming the correctness of Dr Rivers's basic hypothesis that this organization was a general condition among tribes with a classificatory system.

to the present form of marriage corresponds to reality. But, what if it does not? Is it not simpler to eliminate the hypothesis and suppose that the husband calls his sister-in-law "sister" because she, a relative stranger to him, is so called by his wife?

Having hitherto dealt with minor variations of the classificatory system, Dr Rivers at last attacks his central problem. Morgan distinguished the Malayan (or rather, as we should now say, Hawaiian) and the Turanian-Ganowanian form of this system. The characteristic of the former is the paucity of its terms, no distinction being made between the uncles or aunts of the father's and of the mother's side, nor between cousins who are children of *Geschwister* of the opposite sex and cousins descended from *Geschwister* of the same sex. Are these differences between the Hawaiian and the Turanian forms correlated with differences in social organization? Dr Rivers replies by showing that "there are two main varieties of social organization in Oceania," with an infinite number of intermediate conditions. In one variety marriage is regulated by some kind of clan-exogamy, including under the term 'clan' the moieties of a dual organization; in the other variety marriage is regulated by kinship or genealogical relationship" (p. 67). Where the clan system is absent, Dr Rivers finds, the kinship terminology conforms to the Hawaiian pattern; where the clan dominates marriage the terminology is characteristically Turanian; where marriage is regulated by both the clan and the genealogical factor, the terminology is also intermediate. From this the author infers that the kinship nomenclature of Oceania has undergone a partial process of simplification: clan exogamy with the Turanian-Ganowanian form of terminology represents the prior condition, which has been partly superseded by a clanless organization of society with the Hawaiian form of terminology. Thus, Morgan's chronology is inverted in accordance with the suggestions made by Dr Rivers in his previous essay on the subject, and the "classificatory" system of kinship is designated as simply the "clan" system.

In this theory certain elements should be considered independently of one another. The graduated scale of social organizations in Oceania with its corresponding series of kinship terminologies, indicates a correlation between kinship and social organization, but does not by itself prove in what direction a change has taken place. The view that the clan organization came first in Oceania is supported by the fact that the distinctive features of the more usual form of classificatory system are at once summed up by the statement that members of the same exogamous unit are classed together. Barring Morgan's unsatisfactory

interpretation of the origin of the Hawaiian system in a purely hypothetical condition of society, we have no way of accounting for it at all as a form out of which the Turanian system might have developed. On the other hand, a simplification of the Turanian terminology leading to that of the Hawaiian model is not only abstractly intelligible but is supported by direct historical evidence. For this, it is true, the author refers us to his forthcoming book on *The History of Melanesian Society*, but he has already given us some positive data in the Tylor anniversary volume (p. 312). For example, among some of the Torres Straits Islanders the distinction between the father's sister and the mother's sister is becoming obsolescent. In other words, there is historical evidence for the process of simplification, which Dr Rivers assures us will be greatly multiplied in his new publication. I am therefore, speaking as a mere layman in Oceanian ethnology, very strongly impressed with the author's argument as to the sequence of kinship systems in this area. On the other hand, I am not nearly so confident about the legitimacy of inferring a pristine clan organization in parts of Polynesia where it has never been observed, for, as stated above, it seems possible to me that a clanless tribe should have borrowed part of its nomenclature from a neighboring people divided into clans.

A fault of omission, in my opinion, lies in the absence of any clear and succinct definition of precisely what features of the "classificatory" systems require a theory to become intelligible. I believe it is the merging of collateral and lineal lines of relatives that most strongly impressed Morgan himself and that distinguishes all Turanian-Ganowanian systems from non-classificatory terminologies. The wide distribution of this feature certainly calls for an explanation, and Dr Rivers accomplishes this task admirably by falling back on so general a social phenomenon as exogamy. As I have tried to show above, this principle, especially in the form of a dual exogamous organization, is indeed rather more effective than Dr Rivers himself is aware since it dispenses with the necessity of several of his auxiliary hypotheses.

If exogamous kin groups produce the classificatory kinship terminology, what are the correlates of non-classificatory terminologies? In several pages of highly suggestive though avowedly sketchy matter the author develops the view that our own nomenclature reflects the family that forms the unit of our social organization, while the systems of certain European and Northeast African languages have for their foundation the extended patriarchal family or *Grossfamilie*. He rejects Morgan's designation of our own system as "descriptive," reserving this term for

the properly descriptive terminologies of the last-mentioned type. Instead of Morgan's two varieties, the classificatory and the descriptive systems, Dr Rivers thus proposes a division into three varieties,—the clan, family, and "kindred" systems. Entirely satisfied with Dr Rivers's separation of his second and third group, we are tempted to ask whether even his triple division exhausts the variety of existing terminologies. In North America we find for example a wide swath of territory where the kinship nomenclature is not classificatory but shows a marked development of reciprocal terms. Similarly, we find that certain of Professor Kroeber's categories sometimes accompany and sometimes do not accompany the confusion of lineal and collateral relatives. Hence, a definite enumeration of possible types seems premature. At the same time we have thrust upon us the query, what may be the *social* causes of the additional varieties noted. And here sociological causation, often enough, seems excluded. On what *social* grounds does a Crow address his grandson as his "son," but speak of him non-vocatively as "grandson"? Why do so many tribes employ distinct terms in addressing and in speaking *of* one and the same relative? The psycholinguistic explanation is, I sadly admit, no explanation from psychological principles. It is a confession of ignorance, a recognition of the capriciousness of human mentality. Wherever possible, I should like to have determined a social basis for a given terminological feature. Nevertheless, when this cannot be done, we must admit that some features simply *will* not be reduced to law.

To sum up. Dr Rivers has definitely refuted Professor Kroeber's universal negative as to the sociological causation of kinship terminology. He has proved, at least to my satisfaction, that in regions of Melanesia the nomenclature has been partly moulded by the custom of cross-cousin marriages. He has developed the theory, dimly divined by Morgan and clearly formulated by Tylor, that exogamy and the classificatory system are only aspects of a single phenomenon. In the place of Morgan's view that the Hawaiian system represents the earliest kinship terminology known, he has made it highly probable that it is a later simplification of the Turanian form. On the other hand, Dr Rivers errs, I venture to believe, in holding that all of kinship terminology is sociologically determined. The human mind is not a wax tablet on which objective reality is automatically registered; hence certain sociological facts may fail to impress it sufficiently to lead to expression in language. On the other hand, facts of a very different order may lead to the grouping together of relatives whom we regard as distinct. The historical signi-

ificance of Professor Kroeber's paper lies not in his rash denial of sociological causation, but in his recognition of the various categories in which primitive man ranges his relatives and of the fact that these categories may be used to define the individuality of a given system and even of a group of geographically contiguous systems. This profound thought marks one of the most notable achievements in the history of the subject and deserves somewhat warmer recognition than it has yet received at the hands of such writers as Herr Cunow and Dr Rivers. There is another gap in Dr Rivers's treatment. The clan or gentile organization may be primeval in Oceania; but in North America all those who have been especially interested in the subject, such as Dr Swanton, Dr Goldenweiser and the present writer, have come to the conclusion that the exogamous kin group is a relatively late phenomenon, the earlier organization being that of the "loosely" organized tribes of California and the Plateau region. The kinship nomenclature of these peoples finds no place in Dr Rivers's scheme, although as I have tried to show elsewhere¹ they strongly corroborate his general theory since a clanless organization seems to go hand in hand with the distinction of collateral from lineal relatives.

It must be clear from the foregoing account that Dr Rivers has rendered to ethnology the inestimable service of opening many lines of investigation. In the first place, it is to be hoped that carefully prepared records of kinship nomenclature will begin to come in from all parts of the world, especially from such regions as Africa, regarding which our present ignorance is lamentable. The correlation of these terminologies with concomitant social customs and organization will henceforth become a duty. We may further hope that a study of the categories employed may lead to a definite knowledge of the geographical distribution of distinctive features of terminology and at the same time result in a more adequate classification of existing terminologies than Morgan's bifurcation or even Dr Rivers's tripartite scheme. Finally, the intensive consideration of particular systems must bring to light many points of psychological interest, while comparison with the systems of culturally and linguistically related tribes will show what differences in nomenclature persist where differences in social organization are eliminated and linguistic differences minimized.

ROBERT H. LOWIE

¹ "Exogamy and the Classificatory System of Relationship," pp. 223-239 above.

Notes and Queries on Anthropology. Edited for the British Association for the Advancement of Science. By BARBARA FREIRE-MARRECO and JOHN LINTON MYRES. London, 1912. 4th ed. (Price 5s.)

On the subject of technology this volume leaves little to be desired. The questionnaire is very comprehensive, and the field-worker following its directions must inevitably produce results of lasting value. The contents of this section cover every phase of material culture, as may be observed by the appended partial list of sub-headings: Personal Enhancement, Deformations, Painting, Staining, Tattoo, and Cicatrization, Personal Ornaments, Clothing, Habitations, Earthworks, Stone Monuments, Waterworks, Fire, Food, Cannibalism, Drugs, Collection of Foodstuffs, Hunting, Fishing, Domestication of Animals, Agriculture, Weapons, Leatherwork, Basketry, Weaving, Dyeing and Painting, Woodwork, Pottery, Stone, Bone, etc., Mining and Quarrying, Metal-working, Machinery, Travel and Transport.

On Sociology, the handbook is equally complete, but what is exceedingly suggestive is "A General Account of Method," contributed by W. H. R. Rivers, embodying much excellent advice for the beginner derived from the field experience of seasoned workers. This, and the "General Note on the Collection of Specimens," by Miss Freire-Marreco in the preceding section on Technology are the most suggestive and instructive passages in the sections under consideration. The part on Arts and Sciences is fully as good as the foregoing, and the reviewer is especially pleased with the remarks on terminology. Whether or not Linguistics should be included under the heading of Arts and Sciences may be a matter of discussion.

What the reviewer considers a serious defect in this otherwise satisfactory book, is the lack of a comprehensive reference bibliography. The list of works given is all too brief, especially under the head of "Special Studies of Regions or People," where it would have been well to enumerate twenty to forty works instead of ten. With especial reference to America, the linguistic selections are good, though the *Handbook of American Indian Languages* is ignored. But in all other matters, in this list, and in the body of the book itself, the peculiar insular predilection for writers of the American school of mysticism to the exclusion of such solid contributors to our knowledge as J. O. Dorsey, Wissler, Dixon, and a host of others, continues to impress the reviewer with the fact that the English worker seems to have a preconceived idea of what the ethnology of the "Red Indian" should be, and governs his working library accordingly.

ALANSON SKINNER

In the treatment of physical anthropology the authors have based their explanations on those contained in the report of the "Committee on Anthropometric Investigations" (Proc. Brit. Ass., Dublin, 1908, p. 351 ff.). The observations on the structure of the body are divided into two classes: descriptive characters and measurements. As the book is meant to be placed in the hands of the traveler and non-anthropologist (see Preface, pp. III-IV: "To promote accurate anthropological observations on the part of the travelers, and enable those who are not anthropologists themselves to supply the information which is wanted for the scientific study at home"), it must be stated that in general the instructions of this chapter leave much to be desired in order to be of extensive use for the untrained traveler and the science of physical anthropology. Although the authors point to the "essentiality of elementary training" (p. 9), this is felt as a sort of contradiction to the statement just quoted. Still, even those who have enjoyed elementary training will do far better to utilize the Report of the above-named Committee, recommended at the end of this section (p. 12).

What I miss most are explanatory figures, which could be of quite a simple sort and the lack of which would fully justify another edition. Little can be accomplished scientifically by mere description of types of hair as curly, frizzy and woolly without reference to an illustration or specimen. The like holds true for the determination of colors. There are sets of tinted artificial hair specimens and eyes prepared for anthropological investigation which should have been mentioned and recommended here. The untrained observer moreover can derive little benefit from sole explanation of measurements. Figures of the human body, such as are contained for instance in the "Report" noted above, are much more useful and simpler, as well as perhaps greater space-savers in the determination of measuring-points than explanations.

A most necessary advice for securing accurate results is also wanting, namely the indication of anatomical measuring-points with pencil or crayon on the human body. The selection of measurements is quite sufficient. But in English textbooks, especially, stress should be laid on the application of the metric system in order to assure comparable results. This is done by the authors before entering upon the description of skull and skeletal measurements. Why not in somatometry also?

It may be hoped that all these points will be considered in a new edition. The probably most important chapter of this otherwise useful book would thus be easily brought up to date.

BRUNO OETTINGER

If space could not be given to a fairly adequate alphabet it would perhaps have been better to have advised the users of the book to confine their attention to the transcription of proper names and untranslatable native terms. Certainly no American language could be written with the limited number of characters recommended. If the two sounds represented in English by *th* are encountered, two symbols are of course required for their recording. In English, to be sure, we get along fairly well, because English is not phonetically written. It seems hardly necessary to provide for the writing of combinations of either *ks* or *gs* by *x* when the two letters give a more exact rendering. No provision is made for glottal stops, glottalized series of consonants, and many other extremely important sounds. It may well be that even a fairly adequate system for recording languages could not be given in such a book. That hardly excuses the inclusion of a system so nearly useless as the one employed.

The "Notes on Learning a New Language" by J. P. Harrington are excellent. Although each individual will of necessity make some adjustments to his own personality, the general method advocated can hardly be improved upon.

P. E. GODDARD

Fear and Conventionality. By ELSIE CLEWS PARSONS. New York and London: G. P. Putnam's Sons, 1914. Pp. xviii, 239.

This most recent book by Dr Parsons is only incidentally of the sort ordinarily reviewed in this publication. But for two or three considerations it might be dismissed with other books of similar purpose, intended to bring about changes in present-day society. Anthropology poses as a pure science, investigating, analyzing, and comparing human societies. It is not concerned with values and has no conscious desire to make practical applications of the ascertained facts. In America, at least, it is inclined to ignore all people who can read and write as too sophisticated for its attention.

It will surprise all of us and please some of us to observe with what effect the facts of ethnology can be used in the solution of present-day problems. These customs of past and passing peoples are not merely interesting and curious facts. Properly arranged, they teach the popular readers for whom the book is written that the ways of the so-called barbarous peoples are not so very different from our own. The ethnological readers of the book, too, will be surprised to find that the customs of New York and Washington after all are not radically different from those of Australia.

As to the method employed by Dr Parsons in the use of ethnological material, it may as well be conceded that certain acts of mankind are everywhere to be found and to be expected because they are the results of the physiological and psychological equipment common to man. We in America refuse to be particularly interested in such universal human traits because we have chosen to narrow our field to those phases of culture which are sufficiently independent of such causes as to be subject to social transmission. We are in fact primarily interested at present in that one matter alone—transmission.

Some time in the future Dr Parsons's book may be a source of ethnological information concerning the inhabitants of the United States of the twentieth century. She is by no means an indifferent observer.

P. E. GODDARD

NORTH AMERICA

The Double-Curve Motive in Northeastern Algonkian Art. By FRANK G. SPECK. (Memoir 42, Geological Survey of Canada, Ottawa, 1914.) V, 17 pp., 25 figs., 18 pls.

This paper, dealing with a fundamental motive in Algonkian art, is a pioneer work in a region where motives often attain a highly intricate and modified character.

The motive itself is what may be termed the "double-curve," consisting of two opposed incurves as a foundation element, with embellishments more or less elaborate modifying the enclosed space, and with variations in the shape and proportions of the whole. This simple double-curve appears as a sort of unit, capable of being subjected to such a variety of augments, not infrequently distortive, as to become scarcely recognizable at first or second sight.

While this definition cannot be rigorously applied to some of the Iroquoian types of this motive, Dr Speck does well to consider them merely as modified forms, since they, too, consist of two curved elements arranged in the symmetrical manner common to decorative designs.

In referring to the distribution of this motive, Dr Speck seems to have made a faulty inference. He finds it as the primary unit of design among the northeastern Algonkin, and also occurring among the Iroquois, Delaware, Central Algonkin tribes, Blackfoot, and Plains-Cree. Elsewhere he states:

The motive in this region is so strong that it has been conveyed to Oklahoma by the central Algonkian tribes who have moved there, and it is now to be seen in the art of the Osage, Kansa, and other southern Plains tribes (p. 14).

We may well ask why this trait is found only among the Siouan tribes, the Winnebago, Iowa, Osage, and Kansa, as Dr Speck notes, and some Mississippi Siouan, who have been in contact with the Central Algonkin in their historical habitat, and not among other and non-Siouan southern Plains tribes, such as the Kiowa and Comanche? It can only be that this is but one of the many cultural traits that these Siouan tribes have borrowed from the Central Algonkin; a proceeding that has been carried to such a high degree that they may be called "Algonkinoid-Siouans."

Dr Speck has found an areal differentiation of the double-curve motive. The areas may be briefly characterized as follows: Naskapi area, a distinctive type, with the curves sweeping down and outward, with a cross-bar at their point of origin, and also quite generally the trilobed figure at this point; Micmac area, a rectangular form of the motive; Northwestern area, the double-curve subordinated to floral designs; Central Algonkin area, a broadened form of the double-curve; and the Iroquoian area, with a curved figure somewhat resembling the double-curve, but with the curves often turned outward instead of inward. In interpreting this differentiation the author offers two hypotheses.

What the origin and history of the double-curve design may have been it seems unsafe to say. It occurs most abundantly and is most characteristic among the extreme northern and eastern Algonkian tribes. Since it is restricted to them as a fundamental motive, it may be regarded from two points of view: it may have originated in the northeast and drifted westward, or it may have been derived from an original old American design element that became remodelled and specialized to its present form among some of these tribes and was subsequently adopted by their neighbors in general. The latter supposition seems a little more plausible (p. 2).

However, the fixity of the motive in the northeastern Algonkin area, and the many variations occurring on the borders of this area lend a high degree of probability to the first alternative. Indeed, the author's final statement is as follows:

In conclusion it seems reasonable to suggest from the material at hand that we have, in the double-curve motive, an originally non-symbolic decorative element, a presumably indefinite plant or floral figure, common to all the members of the northeastern Algonkian group both north and south of the St. Lawrence. Passing from this primary area, the motive has been borrowed by other tribes westward, mostly Algonkian, and subjected to local modification (p. 17).

We have still left on our hands a further problem: that of the rela-

tion of this motive to the *whole* art of the Woodlands area. We have among the Algonkin two art centers, that of the northeastern Algonkian tribes, already characterized, and that of the Central Algonkin, where highly developed floral motives hold the field. Further, in both of these areas we find two design techniques, on textiles executed by women, and on bark by men. These bark designs are highly realistic in both areas, and it has been suggested that the birchbark realistic art of the Central Algonkin has been carried over into the realm of textiles with a consequent effect on the designs used in that technique. As Dr Speck has collected some exceedingly interesting data on the birchbark designs among the northeastern Algonkin, we await with interest his interpretation of their influence on textile design in that area.

LESLIE SPIER

On the Shell Heaps of Maine. By F. B. LOOMIS and D. B. YOUNG. (*American Journal of Science*, IV, Vol. XXXIV: No. 199, July, 1912, pp. 17-42.)

This paper deals with the remains found by excavation of shell heaps on the Maine coast, "one half of the time being devoted to a careful survey of one heap on Sawyer's Island, near Boothbay, the second month being spent in a more rapid investigation of several heaps for comparison."

After stating that shell heaps are found along the coast from Maine to New York City (and to Florida and beyond, the authors might have added) we are given an account of the careful study of the Sawyer's island shell heap. "Finds" are defined for us in a discriminating manner (p. 19), and the careful record of their occurrence is given in tabular and graphic form. Six layers, alternately of ashes and shells are shown in the typical sections of the shell heaps. The authors deduce from the rather inconclusive evidence of the occurrence of the lowest layer as "clear ashes," that "those camp sites were used for a long time before the habit of eating molluscs was acquired." But this deduction is open to doubt until an explanation is forthcoming as to the *raison d'être* of similar ash layers between strata of shells. In this connection, the diagram of a section of the Sawyer's Island heap (p. 21) showing the distributing finds would be improved by the addition of lines indicating the position of the several layers, that their relation to the strata of relatively abundant remains might be made clear. From a general consideration of the remains in the heaps, particularly the number and types of bone implements, it would appear that the camps were occupied for hunting and fishing, the occupation seasonal, and the use of particular food-animals

being dependent on their availability only. The heaps were evidently completed before the advent of the whites.

A large part of this paper is given to an enumeration of the food-animals used by the inhabitants of these camp-sites. The authors point out the interesting feature that all but one of the deer crania belonged to individuals which had recently shed their antlers: that is, they had been killed in the spring. With regard to the skeletal remains of the dog, we are told that, "the peculiar build and constant differences in size have led us to designate them as three breeds, which we believe date back a long period of time for their origin, and then from some of the wolves" (p. 25).

More than half of the varieties of tools discovered were of bone: harpoon points, fish-hooks, awls, etc. The absence of the bone arrow-point is noted. The types of stone implements are few, arrow-heads, knives, celts, scrapers, pestles and hammer-stones, the shell heaps lacking many typical New England Algonkian forms. All of them contained potsherds: "the pots were of the tall round-bottomed type, characteristic of the New England Algonquins." While the type of pot shown in Fig. 11 is undeniably typically Algonkian, one could hardly characterize it as being "round-bottomed." These were built up by superimposing tier on tier of clay, a peculiar method if actually so. They were ornamented, in all cases, with stamped impressions.

It would appear that the chief interest of the authors lay in the relation of the aborigines to the food-animals: a relation which they have admirably determined. The fault in this paper, however, lies, not in the work accomplished, but in the presentation of results. Without doubt, the sweeping conclusions reached by the authors are due to a lack of proper correlation of these with other New England Algonkin data.

LESLIE SPIER

Notes on Chasta Costa Phonology and Morphology. By EDWARD SAPIR. (University of Pennsylvania, The University Museum Anthropological Publications, Vol. 11, No. 2, pp. 265-340.) Philadelphia, 1914.

Dr E. Sapir achieved lately what the French could not help calling a veritable *tour de force*. Enlarging upon linguistic material incidentally derived from an Indian, mere bits of an aboriginal language which would not fill one common-sized page, he managed to write in explanation of the same no fewer than sixty-seven pages of first-class philological literature. His *Notes on the Chasta Costa Phonology and Morphology*, are perfectly illuminating, and betray not only a very keen ear but a

quite creditable analytic acumen. After thirty-two-years' study of the Déné group of languages, to which his "Chasta Costa" belongs, I am tempted to pronounce Dr Sapir's essay one of the most satisfactory monographs of its kind ever issued on any of the southern Déné languages.

The work does not pretend to be more than mere notes, and so far as completeness is concerned it could not compare with more elaborate productions already published on the Hupa and Navajo dialects. Some might also object to the graphic signs the author has resorted to in transcribing his texts and disapprove of the strange appearance which sometimes results therefrom. His own language might furthermore have been simpler and less Hellenic or Latin in complexion. But I maintain that, with few unimportant exceptions, he has grasped and faithfully rendered not only the phonetics but the morphology of an idiom whose intricacies must be above the average, unless it be not Déné.

I note with special satisfaction in his paper those particular sounds, such as the aspirated *t*'s and *k*'s, as well as the lingual and glottal explosions, which I had always thought, and sometimes asserted, must exist in the southern Déné languages, in spite of the inability of former students to perceive them or of their carelessness in noting down their texts—a presumption for which I was even taken to task.

These are as many essential points of the Déné phonetics, so very essential, indeed, that I felt they could not possibly be missing in any dialect claiming relationship to the Déné languages of the North. In Déné the vowels are the flesh of the body: they vary according to the dialect in the same way as the flesh is different in quantity or texture according to the individuals. The consonants are the bones of its make-up, therefore much more important, homogeneous, and persistent, while the grammar may be compared to the arteries, without which blood, that is life, could not circulate therein. But the "clicks" which affect letters or groups of letters are the very nerves which alone enable the Déné body to stand.

I have so often insisted on this point that this simple remark must suffice. I may nevertheless be pardoned for confessing a feeling of satisfaction at seeing my contention of former years borne out by the researches of the latest investigator in the southern field.

Only a very few hiatuses seem to have escaped the notice of Dr Sapir, and I am all the more free to call his attention to this point, as throughout his paper he seems animated by that sense of diffidence which behooves a genuine scholar who enters a new field with the knowledge that he is more of a philologist than of a linguist. Moreover, a mere passing

acquaintance with a language cannot, of course, shield one against possible oversights.

I shall therefore make bold to remark that in Déné the desinential radicals of the verbs of vision (*-i*, *-in*, *-en*) are immediately preceded by a stop, or hiatus, which prevents them from being merged into the consonantal element of the pronoun. Thus I do not think I am mistaken when I observe that in *nêi*(l), "you are looking at him" (*nê'en* in Carrier), the desinence *-i* must be separated from the preceding *l* by a hiatus, which should be shown on paper as prominently as it is expressed by the native speaker.

The same remark applies to *yiŋu* (Carrier *yi'en*), *at*, 'wife' (Carrier and Chilcotin *'at*), as well as to the verb *ΔAz*, 'he sneezes,' which, barring the medial *l* and final *z*, is the exact equivalent of the Carrier *af'as* (same signification).

This hiatus plays a double rôle in the North. While at times it merely cuts asunder, as it were, articulations which would otherwise coalesce into one sound (*nê'en*, i. e., *nêl + en*, not *nê-len*), or is prefixed to monosyllables often expressive of distance, remoteness, or even repulsion (*'an*, Chasta Costa *Δn*); it also denotes the disappearance of a weak vowel through contact with a stronger one. Thus the indicative present of the verb "to work" is *as en* in Carrier, and, normally, its pronominal element *as* should be developed into *asas* in the negative. But the *e* of the negative particle *le* is stronger than the initial *a* of *asas*; hence the negative of *aslen* is merely *le'aslen*, the hiatus (') standing here for the vanished *a*.

The same happens even when a stronger desinential vowel of a word comes in contact with a weaker initial vowel of another. Example: *xpa' hutqa huni*, 'I am lucky indeed' (for *xpa' ahutqa huni*, literally, *me-for it-has-happened it-is-so*).

The consonant *q* reminds me of Dr Sapir's *dj*. If my own letter represents the same sound which that gentleman has in mind when he uses his double consonant, I must be allowed to object to the latter as misleading. Pronounce it as you will, you are bound to have a double operation of the tongue and mouth when you utter the sound *dja*, the dental one being always distinct from that caused by the fricative *j*, whilst in pronouncing the sound I render by *q* but one operation is needed.

Were one bent on ultra-criticism, he might remark that in Déné all such parts of the body as are naturally twofold are normally dual in meaning, the singular being formed by suffixing a syllable which is

generally synonymous of our word 'half' (*i. e.*, half of two = one). According to this rule Dr Sapir's *kwé* must not mean foot, but feet, in the same way as his *la* should be translated hands, not hand.

Dr Sapir's analysis of the short text which closes his essay is simply admirable, and betrays an insight into the morphology of his material which one is at a loss to know where, or how, it was acquired. Scarcely more than one criticism have I to offer on this part of his paper. The last syllable of the compound *dō-at-ti* is not a "noun suffix," as he believes (30). It is a regular verb, or rather a verbal stem, since the pronominal element of the same has disappeared through the process of word formation. *Dō* is the Carrier negation *au*, the Babine *so'*, Chilcotin *ila*, Sekanais *ussé*, Nahanaïs *etâ*. These particles or words can, in the North, conveniently be omitted in many cases. They are the equivalents of the French *ne . . . pas*. *At*, as we have seen, means "wife": *-ti* is the root of the verb *atî*, "he has."

This is about the sum total of the criticisms I have to make on that author's rendering and interpreting of the southern dialect he introduces to the philological world.

ADRIAN G. MORICE

ASIA

Some Fundamental Ideas of Chinese Culture. By BERTHOLD LAUFER, Ph.D., Associate Curator of Asiatic Ethnology, Field Museum, Chicago. (Reprinted from *The Journal of Race Development*, Vol. 5, No. 2, October, 1914, pp. 160-174.)

It is a matter of great regret that Dr Laufer's writings are so little known among Americanists and ethnologists generally. However specialized researches into the civilization of nations possessing a written literature may have become, there is surely no difference in principle between studying the culture of primitive and of civilized populations, and the ethnologist might reasonably expect valuable suggestions from the historian, the Egyptologist, the sinologue, *et al.* The sources of information of these scholars appear of higher authenticity than the oral traditions recorded in the course of ethnological field-work, and at all events promise a better chronological insight into the actual growth of cultures. Unfortunately we are often disappointed in these hopes through the fact that the student of higher cultures is not imbued with the anthropological point of view: too often he naively assumes "theories that are now gracing only the refuse heaps of the modern anthropologist's laboratory"; too often he remains ignorant of avenues of approach successfully trodden by modern ethnologists. As a striking illustration

we may cite the lack of criticism with which speculative afterthoughts are frequently taken at their face value,—as trustworthy accounts of the actual origin of institutions. The distinctive value of Dr Laufer's work lies in the fact that he combines the erudition of the Orientalist with the spirit of latter-day ethnology, which he applies with originality, rare judgment, and unusual psychological insight to the problems of his chosen field. Readers of the *American Anthropologist* need only be reminded here of Dr Laufer's independent "Theory of the Origin of Chinese Writing" that appeared in this Journal in 1907 (pp. 487-492); of the pregnant general remarks scattered through the monograph on *Jade* (Chicago, 1912); and the interesting discussion of convergence in his *Dokumente der indischen Kunst*, I (Leipzig, 1913).

In the paper now under consideration Dr Laufer briefly outlines the general characteristics of Chinese culture. It would be difficult to compress more solid and suggestive information within the narrow compass of fifteen pages. Dr Laufer, dismissing the "Monroe doctrine" of sinologues, that Chinese culture is a purely indigenous product, establishes its relations with other cultures. He clearly distinguishes a northern and a southern culture area. The former is characterized by the use of the plough and ox in the cultivation of wheat, barley, and millet, while the southern farmer plants rice with the aid of the hoe and water-buffalo characteristic of southeastern Asia. In the north there are highways, and travel is by two-wheeled carts drawn by mules, while the horse, donkey, and camel are found as pack-animals and for transportation; in the south there are rivers and canals, and travel is by boat and sedan-chairs. The northern populations show cultural contact with Tungus and Turkish tribes, while the south was influenced by the Indian and Malayan cultures. It is the northern Chinese culture that shares traits of the greatest significance with the early Sumero-Babylonian and Indo-Iranian cultures. The common possession of certain cereals, of the plough and the ox, of wheeled vehicles, of the composite bow, and of the potter's wheel, indicates "that in an undefinable pre-historic age a great universal and uniform culture-type must have existed in the northern or central hemisphere of the Old World, in strong contrast with the cultures of all primitive tribes which we encounter in the rest of Asia, in Africa, and in America" (p. 164). This, the author hastens to assure us, does not imply that primeval Chinese culture was simply a wholesale importation from the West, but does prove that it cannot be considered "the product of an isolated seclusion." On the other hand, there is strong evidence that "as early

as prehistoric times the Chinese must have undergone a development during several thousands of years entirely independent of any Western influence" (p. 167). In this connection Dr Laufer emphasizes a negative trait,—the fact that the Chinese, like the Koreans, Japanese, Indo-Chinese, and Malaysians, do not use animal milk for food, which constitutes a significant difference from the Semites, the ancient Scythians, the Indo-Europeans, Turks, Mongols, and Tibetans (pp. 167-169). Another significant negative feature consists in the non-utilization of sheep and goat wool for clothing, this being an art taught to the Chinese in historical times by the nomadic peoples of inner Asia. A curious adhesion, in Tylor's sense of the term, is that of epic poetry and milk-consumption, those tribes abstaining from milk being likewise deficient in epic literature (p. 170).

However, it is impossible to cite all the interesting data in Dr Laufer's paper without quoting or paraphrasing it in its entirety.

ROBERT H. LOWIE

Aberglaube und Volksmedizin im Lande der Bibel. By T. CANAAN. Hamburg: L. Friederichsen & Co., 1914, pp. xii, 153, large 8°. With 6 plates and 50 text figures. (Abhandlungen des Hamburgischen Kolonialinstitutes, vol. xx.) Price 6 m.

The author of this work is a physician of Jerusalem who was born and lived among the people whose beliefs, modes of thought and practices he depicts. At the same time he is fully abreast of Western science and familiar with modern methods of observation and analysis, having received his education in Europe. He had therefore the equipment and opportunities of studying the habits of the natives and penetrating the innermost recesses of their motives and thoughts rarely, if ever, granted to an outsider.

After an introductory chapter which briefly describes the domestic conditions of the peasants (fellahins) and their utter disregard of hygienic rules, the views of the natives on the causes of sickness and its handling are treated in eight chapters under the heads of etiology; diagnosis; prognosis; the healers; prophylaxis; vows, and the treatment of disease. The three principal causes of sickness are: (1) Spirits or demons who are everywhere, in fact they fill out the space between heaven and earth and are organized in several hierarchies with princes at their head; (2) the evil eye, which again lurks everywhere, as its baneful potency is due to a poisonous substance inherent in all men which emanates through the eye, working its mischief unwittingly and unconsciously, even animals not being

immune from its destructive effects; (3) the evil soul, secretions of dangerous influences from one's soul which pass through the breath of evil-minded people. Secondary causes are the four temperaments in conjunction with the four elements, the planets and the constellations of the zodiac. Then there are malformations, due to the ungratified appetites of the pregnant women, congenital defects, and the harmful supernatural potencies and influences of a woman during the monthly period and in childbirth. The diagnosis and prognosis is established by means of a sort of lots and kylico-mantic and through dreams. Thus the appearance of a snake in dream heralds recovery because of the resemblance, in Arabic, of the name for snake (*haye*) with the word for life (*haye*). For the same reason silver in dream is of good omen (*fiddha*, silver, and *fadha*, light), while the vision of gold, having yellow color of death, forebodes the approach of sickness or of death. The healers are accordingly in the first place holy persons—sheikhs, dervishes and priests, and then "experienced" persons—barbers, old women, midwives, snake conjurers, and in the prophylaxis and therapeutics amulets and talismans of all kinds play the principal part.

The limits of space prohibit a detailed discussion of the contents of the monograph of Dr Canaan, but even the few hints given above will suffice to show that the inhabitants of Palestine—and this holds good for the entire Orient, as Professor C. H. Becker of Bonn states in his introduction—are still under the sway of primitive animism, demonology and magic, and their theism, whether it be that of Judaism, Christianity or Islam, is merely a thin veneer superimposed upon an animistic and astral pantheism. At the same time they may convey an idea of the valuable work done by Dr Canaan. The 153 pages of his monograph are from beginning to end packed with data and information which are of interest not only to the physician but also to the anthropologist, folklorist and student of the history of religion. A full index of subjects and names and one to the Biblical passages quoted in the book enhance the use of this little thesaurus for reference.

I. M. CASANOWICZ

AFRICA AND AUSTRALIA

Die Mazigk-völker, Ethnographische Notizen aus Süd-Tunesien. By DR F. STUHLMANN. Hamburg: L. Friederichsen & Co., 1914. pp. 59, large 8°. With 10 plates (2 colored) and 18 text figures. Price 5 m.

Dr Stuhlmann's 'notes' are the fruit of his observations during a trip through southern Tunis in 1913, and are supplemental to a larger

work of his on the Aures, which appeared in vol. x of the same series. Mazigh is the indigenous name of the people otherwise known as Berbers who are settled in Tripolitania as far as the extreme west of Morocco and south to the confines of the Tuaregs. Their language, which has been largely supplanted by Arabic, is called Tamazight. Ethnologically and culturally they represent a homogeneous people, though politically they have never been united. The observations of Dr Stuhlmann extended over the agricultural implements; bakeries; the production of oil; waterworks; distilling of perfumes; the potteries; smithing; weaving of cloth, sieves and mats; dress and ornaments, including tattooing, and habitations. Some of these industries, as for instance the manufacture of pottery and textiles, are discussed in great detail.

The typographical features of these monographs, both as regards the illustrations and the letter press are unsurpassed, worthy of the Kolonialinstitut and a credit to the publishers.

I. M. CASANOWICZ

Native Tribes of the Northern Territory of Australia. By BALUWIN SPENCER. Macmillan and Co., Limited: London (The Macmillan Co., New York), 1914. 516 pp., 92 figs., 36 pls. (8 colored), 1 map.

Professor Spencer's latest book is a worthy successor to his and Mr Gillen's volumes on Central and Northern Australia, which indeed it surpasses in point of make-up, the reproductions of photographs on special paper being much more effective than those on the former system of running them in the text. Much of the field research of which the results are embodied in this publication belongs to the category of what Dr Rivers has called "survey work." Professor Spencer had to deal with no less than forty-odd distinct tribes and naturally he has been able to acquire only a passing acquaintance with the majority of them. Under these circumstances he has wisely chosen to emphasize the geographical distribution of various cultural elements, such as types of social organization and of initiation ceremonies. A longer stay enabled him to gain a deeper insight into the life of the Kakadu and the natives of Bathurst and Melville islands. His discussion of these cultures is especially interesting because of their strikingly anomalous character. Thus, the decorative art of the Islanders differs so markedly from that of the mainland as to suggest contact with non-Australian populations (p. 407 f.), and the rock and bark drawings of the Kakadu and kindred aborigines represent the high-water mark of autochthonous artistic effort (p. 439). In another field of culture the Islanders present a

curious departure from Australian custom in not barring women and children from participation in initiation ceremonies; and the bull-roarer that usually accompanies the rites tabooed to the uninitiated seems to be wholly lacking (pp. 91-92). It is very interesting to find that among the Waduman the totem name descends in the maternal line, while the class name is inherited through the father (p. 195); this double arrangement recalls such classical instances as the Herero of South Africa and the Yuchi of North America.

It is of course impossible to allude here to all the important new data recorded in so extensive and valuable a descriptive account. From the point of view of arrangement little can be suggested by way of improvement since the great number of tribes discussed renders necessary a topical, synoptic treatment. Probably most readers, however, would prefer to see Totemic Systems dealt with, either in connection with, or directly following, Social Organization.

There is only one criticism that must be made from a theoretical point of view. Professor Spencer, like Dr Frazer, confounds primitive man's tendency to speculate about existing institutions with the power of speculation to create new social institutions (p. 62 f.). No one among modern ethnologists doubts that explanations of all sorts develop among the more metaphysically minded members of primitive tribes; hence there is no skepticism as to the ability of an Australian philosopher to deliberate on his own eight class-system or to compare it with alien systems. What practically every thinking anthropologist denies is that the system *originated* in the ratiocinations of a thinker or group of thinkers, because the evidence hitherto adduced for such a process is pathetically irrelevant.

ROBERT H. LOWIE

SOME NEW PUBLICATIONS

Abreu, C. de. *rã-txa hu-ni-ku-i*, Grammatica, Textos e Vocabulário Caxinauã. Rio de Janeiro: Lenzinger, 1914. Pp. 630.

Carolidis, P. Bemerkungen zu den alten kleinasiatischen Sprachen und Mythen. C. F. Schmidt: Strassburg, i. E., 1913. 8°, 216 pp.

Charpentier, Jarl. Kleine Beiträge zur indoiranischen Mythologie. (Uppsala Universitets Arsskrift 1911). Pp. 87.

Finsch, Prof. Dr. O. Südseearbeiten; Gewerk- und Kunstfleiss, Tauschmittel und "Geld" der Eingeborenen auf Grundlage der Rohstoffe und der geographischen Verbreitung. (Abhandlungen des Hamburgischen Kolonialinstitutes, Band XIV.) Price M. 20, cloth M. 25. Hamburg: L. Friederichsen & Co., 1914. Gr. 8°. xii, 605 pp. 584 ills. on 30 pls., 2 colored.

Goddard, Pliny Earle. *Dancing Societies of the Sarsi Indians*. (Anthropological Papers of the American Museum of Natural History. Vol. XI, Part V, pp. 461-474.) New York, 1914.

Grubauer, Albert. *Unter Koptjägern in Central-Celebes*. Voigtländers Verlag, 1913. Pp. xi, 608. 322 ill., 16 pls., 2 maps.

Hatt, Gudmund. *Arktiske Skinddragter i Eurasien og Amerika*. En Ethnografisk Studie. Copenhagen: J. H. Schultz, 1914. Pp. 255, 16 pls.

Hüsing, G. *Beiträge zur Rostahmsage (Saijid Battal)*. Mythologische Bibliothek, v. 3. Hinrichs: 1913. Pp. xv, 69. (Price M 3.)

Joyce, Thomas A., M.A. *Mexican Archaeology*. An Introduction to the Archaeology of the Mexican and Mayan Civilizations of Pre-Spanish America With many illustrations and a map. London: Philip Lee Warner (7 Grafton Street W.), 1914. Pp. xvi, 384. (Price 12s. 6d. net).

Kläsi, Ed. *Der malaiische Reineke Fuchs und anderes aus Sage und Dichtung der Malaier*. Frauenfeld, 1912. 8°, pp. xiv, 193.

Saintyves, P. *La force magique. Du mana des primitifs au dynamisme scientifique*. Paris: Emile Nourry (62 Rue des Ecoles), 1914. Pp. 136.

Skinner, Alanson. *Political Organization, Cults, and Ceremonies of the Plains-Ojibway and Plains-Cree Indians*. (Anthropological Papers of the American Museum of Natural History. Vol. XI, Part VI, pp. 475-542, 10 figs.) New York, 1914.

Smith, Harlan I. *The Archaeological Collection from the Southern Interior of British Columbia*. (Museum of the Geological Survey, Canada: Archaeology.) Ottawa: Govt. Printing Bureau, 1913. iv, 40 pp., 3 figs., 16 pls.

Wilson, Gilbert L. *Goodbird the Indian. His story, told by himself*. Illustrated by Frederick N. Wilson. (Issued under the direction of the Council of Women for Home Missions.) New York, Chicago, Toronto: Fleming H. Revell Co., 1914. 80 pp.

von Zeltner, Fr. *Contes du Sénégal et du Niger*. Paris: Leroux, 1913. (Collection de contes et chansons populaires, tome 40.) Pp. iv, 252.

PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL
ASSOCIATION FOR 1914

By ROBERT H. LOWIE¹

The annual meeting of the American Anthropological Association was held at the University Museum, Philadelphia, December 28-31, 1914, in affiliation with the American Folk-Lore Society and Section H of the American Association for the Advancement of Science. On the first two days Professor Roland B. Dixon presided; the morning session of December 30 was held under the auspices of the Folk-Lore Society, with Dr P. E. Goddard in the chair, while the afternoon meeting was conducted by Section H under the vice-presidency of Professor Pillsbury; on December 31 Dr George B. Gordon, as vice-president of the Association, took the chair in the absence of Professor Dixon. The Association had the pleasure of welcoming Geheimrat Professor Felix von Luschan of the University of Berlin, who delivered a lecture on *Convergence*.

The address of the retiring vice-president of Section H, Professor Pillsbury, on "The Function and Test of Definition and Method in Psychology" was published in *Science* March 12, 1915; Dr Goddard's presidential address before the Folk-Lore Society on "The Relation of Folk-Lore to Anthropology" will appear in *The Journal of American Folk-Lore*.

The following additional papers were presented: E. Sapir, † "The Nadene Languages"; A. A. Goldenweiser, * "The Knowledge of Primitive Man," and † "Sociological Terminology in Ethnology"; N. C. Nelson, † "Chronological Data on the Rio Grande Pueblos"; R. H. Lowie, * "Exogamy and the Classificatory System." James R. Nies, "Anthropological Evidence contained in some Cuneiform Signs"; Charles Peabody, "Notes on Prehistoric Palestine and Syria"; Byron Cummings, * "Kivas of the Cliff Dwellers in the San Juan Drainage"; George G. Heye and George H. Pepper, "The Exploration

¹ Acting Secretary in place of Professor George Grant MacCurdy, whose illness prevented his attendance.

* Titles preceded by (*) will be found printed in full in this number; those marked (†) will appear later in this volume.

of a Delaware Burial Place near Montague, N. J."; Stansbury Hagar, † "The Maya Day Sign, Manik"; R. B. Dixon, "Statistics Relating to the Vitality and Fecundity of the American Indian Obtained by the Last Census"; A. B. Lewis, "Prepared Human Heads from New Guinea" and "Some Native Industries from New Guinea"; A. M. Tozzer, "The Excavation of a Pre-Aztec Site in the Valley of Mexico"; *id.*, * "The Work of the International School of Archeology and Ethnology in Mexico for 1913-1914"; Hiram Bingham, * "Types of Machu Picchu Pottery"; *id.*, "Problematical Stone Objects found at Machu Picchu"; *id.*, "Results of Investigations Concerning the History of Machu Picchu"; Marshall H. Saville, "Preliminary Account of Archeological Researches along the Pacific Coast of Colombia"; Adela C. Breton, "Some Pages from the Memorial de Tepetlaostoc and the Painted Map from Metlaltoyuca in the British Museum"; F. Boas, "Demonstration of a Map showing the Dialects of the Salish Languages"; George Hemphill, "The Origin of European Alphabetic Writing"; H. J. Spinden, † "Nahua Influence in Salvador and Costa Rica"; Stith Thompson, "European Tales Among the North American Indians"; Phillips Barry, "The Magic Boat"; C. H. Hawes, "Dartmouth College Ethnological Collection"; F. G. Speck, † "The Eastern Algonkin Wabanaki Confederacy"; F. W. Waugh, "Some Comparative Notes on Iroquois Medicine"; T. Michelson, "Notes on the Stockbridge Indians"; *id.*, "Problems in Algonkian Ethnology."

The following papers were read by title: Robert B. Bean, † "The Growth of the Head and Face in American (White), German-American, and Filipino Children"; *id.*, † "Some Ears and Types of Men"; G. G. MacCurdy, "The Passing of a Connecticut Rock-Shelter"; W. J. Wintemberg, "An Iroquoian Site in Eastern Ontario"; Robert Gorham Fuller, "Observations on a Series of Crania from the Stone Graves of Tennessee"; A. L. Kroeber, * "Eighteen Professions"; William H. Holmes, "The Place of Archeology in Human History"; C. Wissler, "The Diffusion of Modern Ceremonies in the Plains Area"; *id.*, "Types of Clothing and their Distribution in the Plains Area"; Reed Smith, "1914 Additions to the Traditional Ballads in the United States"; C. M. Barbeau, "Huron-Wyandot Mythology"; Middleton Smith, "The Psychology of Humor, Wit and Ridicule"; Charles W. Furlong, "The Tribes of the Fuegian Archipelago"; A. B. Skinner, "Ethnology of the Eastern Dakota"; J. R. Swanton, "The Creek Clans and the Square Ground"; P. Radin, "On the Relationship of the Languages of Mexico"; *id.*, "Literary Aspects of North American Mythology."

REPORT OF THE SECRETARY

No meeting of the Association has been held since the last annual meeting in New York City, the report of which was published in the *American Anthropologist* for January-March, 1914. The Executive Committee, however, has taken action on an important matter by voting to discontinue the publication of *Current Anthropological Literature* after the appearance of No. 4, Vol. 2, of the series.

The question of distributing a provisional program in advance of the Philadelphia meeting was submitted to members of the Committee on Program, also to President Dixon, Dr Wissler, Vice-President of Section H, and Mr Hyde, Treasurer of the Association. With but one opposing vote it was decided not to invest in a provisional program and leave the final program to be incorporated in the general program issued by the American Association for the Advancement of Science without expense to our Association.

During the year losses in membership through death have been serious indeed: Alexander F. Chamberlain, Professor of Anthropology in Clark University; Robert C. Hall of Pittsburgh, and Professor N. H. Winchell of St Paul. A sketch of the life and works of Chamberlain appeared in the *American Anthropologist* for April-June, 1914.

Once more the Secretary appeals to all members of the Association to coöperate in offsetting the losses due to death and other sources by proposing new names for membership. Applications,¹ thirteen in number, are herewith submitted for election as follows:

A. H. Dewey, Rev. G. P. Donohoo, R. G. Fuller, C. W. Furlong, Dr G. Hatt, L. Havemeyer, M. C. Keith, Marian Vera Knight, G. Landstrom, P. A. Means, Mrs M. L. La Moreaux, Dr Joe. S. Wooten, Dr Paul Radin.

The Secretary has represented the Association at the annual meeting of the American Year Book Corporation as a member of the Supervisory Board, also as a contributor to *The International Year Book* (D. Appleton & Co.) for 1914.

COUNCIL MEETINGS

Two council meetings were held, on the afternoons of December 29 and 31, respectively. Those present Dec. 29 were: R. B. Dixon, H. J. Spinden, A. A. Goldenweiser, T. Michelson, P. E. Goddard, A. M. Tozzer, F. Boas, J. W. Fewkes, Marshall H. Saville, C. H. Hawes, W. D. Wallis, J. R. Swanton, F. G. Speck, E. Sapir, R. H. Lowie. The meeting

¹ Full addresses are given in the list of members printed elsewhere in this issue.

of December 31 was attended by G. B. Gordon, F. Boas, P. E. Goddard, T. Michelson, E. Sapir, A. A. Goldenweiser, F. G. Speck, H. J. Spinden, W. D. Wallis, C. Peabody, R. H. Lowie.

December 29. After the roll call Professor Boas moved that the Council ratify the Secretary's recommendation, that Dr R. H. Lowie be delegated to act as Secretary for the time of the meeting. Passed. The Acting Secretary then read the Secretary's Report which was accepted, all the candidates for membership being elected by acclamation.

In the absence of the Treasurer's Report it was moved that the Chair appoint a committee for the purpose of communicating with the Treasurer and reporting on the subject to the Council. This was passed, and President Dixon appointed F. Boas, P. E. Goddard and A. A. Goldenweiser to serve on this committee. (It appeared later that the Treasurer's Report had been sent to Philadelphia, but had miscarried owing to wrong directions.)

There was no report from the Editor, the Associate Editors, or any of the standing committees.

The Chair then appointed the following committee on nominations to report at the next meeting of the Council: F. Boas, J. R. Swanton, P. E. Goddard. As Dr Swanton was obliged to leave for Washington, A. M. Tozzer was subsequently appointed to take his place.

The Acting Secretary submitted a letter from Professor A. L. Kroeber relating to the proposed special meeting of the Anthropological Association on the Pacific coast. F. Boas moved, and it was passed, that such a meeting be held in San Francisco, Aug. 2-7, in affiliation with Section H of the American Association for the Advancement of Science.

Under the heading of new business, the Secretary of the Committee on Phonetics, Dr E. Sapir presented an abstract of the Committee's report. On motion of F. Boas it was decided to instruct the Committee to print the report in full in whatever place or manner seemed to its members most appropriate.

It was moved and carried that the Secretary be instructed hereafter to print the program for the meetings of the Association and distribute it among the members prior to the meeting.

Professor Hiram Bingham moved that a Committee of three be appointed to outline a fixed terminology for pottery forms. This was carried, and Professor Dixon appointed Messrs Peabody, Bingham, and Fewkes.

December 31. After the roll call the minutes of the previous meeting were read and adopted. The Acting Secretary read from a letter from

the Secretary proposing for membership the name of Professor Fehlandt of Ripon, Wisconsin. Professor Fehlandt, having been duly indorsed, was unanimously elected to membership.

In reponse to a letter from Professor Kroeber, his action in organizing the program for the San Francisco meeting was formally approved by the Council.

The report of the Nominating Committee was then read by the Acting Secretary. In order to make the Committee's recommendation legal, F. Boas proposed that the number of councilors in each class be increased from nine to eleven, the object being to permit all active anthropologists to participate in the deliberations of the Council. This was passed.

The Committee on Nominations presented the following candidates, for all of whom the Acting Secretary was instructed to cast a single ballot:

President: F. W. Hodge, Bureau of American Ethnology.

Vice-President, 1915: Clark Wissler, American Museum of Natural History.

Vice-President, 1916: A. L. Kroeber, University of California.

Vice-President, 1917: George B. Gordon, University of Pennsylvania.

Vice-President, 1918: Berthold Laufer, Field Museum of Natural History.

Secretary: George Grant MacCurdy, Yale University.

Treasurer: B. T. B. Hyde, New York.

Editor: Pliny E. Goddard, American Museum of Natural History.

Associate Editors: J. R. Swanton, R. H. Lowie.

Executive Committee: (In addition to the President, Secretary, Treasurer, and Editor, *ex-officio*), A. M. Tozzer, E. Sapir, J. W. Fewkes.

Council: F. W. Putnam, F. Boas, W. H. Holmes, J. W. Fewkes, R. B. Dixon, F. W. Hodge, Clark Wissler, A. L. Kroeber, George B. Gordon, B. Laufer, G. G. MacCurdy, B. T. B. Hyde, P. E. Goddard (*ex-officio*); A. E. Jenks, S. A. Barrett, W. Hough, A. Hrdlička, A. M. Tozzer, F. G. Speck, A. A. Goldenweiser, E. A. Hooton, A. V. Kidder, F. C. Cole (1915); Byron Cummings, G. H. Pepper, W. C. Farabee, J. R. Swanton, G. G. Heye, H. J. Spinden, T. T. Waterman, C. M. Barbeau, W. D. Wallis, A. B. Lewis, Stansbury Hagar (1916); W. C. Mills, H. Montgomery, C. B. Moore, W. K. Moorehead, C. Peabody, C. C. Willoughby, T. Michelson, A. B. Skinner, M. H. Saville (1917); Alice C. Fletcher, C. P. Bowditch, S. Culin, R. H. Lowie, C. H. Hawes, E. Sapir, N. C. Nelson, H. Bingham, J. A. Mason, G. A. Dorsey, E. W. Gifford (1918).

Since the meeting the incoming President, Mr F. W. Hodge, has appointed the following committees:

Committee on Program: George Grant MacCurdy (chairman), Roland B. Dixon, Alice C. Fletcher, Aleš Hrdlička, Albert E. Jenks, A. L. Kroeber, Berthold Laufer, Clark Wissler.

Committee on Finance: B. T. B. Hyde (chairman), Edward E. Ayer, Charles P. Bowditch, William H. Furness, George G. Heye, Clarence B. Moore, Charles Peabody, Homer E. Sargent.

Committee on Policy: F. W. Putnam (chairman), Franz Boas, Roland B. Dixon, J. Walter Fewkes, W. H. Holmes, Robert H. Lowie.

Committee on Publication: F. W. Hodge (chairman *ex officio*), Hiram Bingham, Stewart Culin, P. E. Goddard (Secretary *ex officio*), A. A. Goldenweiser, G. B. Gordon, Walter Hough, A. L. Kroeber, Berthold Laufer, E. Sapir, M. H. Saville, John R. Swanton, A. M. Tozzer.

F. Boas offered a resolution, unanimously adopted, that a Committee be appointed by the chair to express the recognition by the Association of Mr F. W. Hodge's services. The Chair appointed Drs Boas, Goldenweiser, and Lowie.

P. E. Goddard moved that a telegram, to be signed by the Chairman and Acting Secretary, be sent to Dr George Grant MacCurdy, for the purpose of expressing the regret of the members at his illness. Passed.

On suggestion of P. E. Goddard it was moved and carried that a rising vote of thanks be extended to Dr G. B. Gordon and the University Museum for their hospitality to the Anthropological Association during the period of the meeting.

It was moved and carried that the place of the next meeting be referred to the Executive Committee with power to act.

AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK

REPORT OF THE TREASURER

RECEIPTS AND DISBURSEMENTS, 1ST JANUARY, 1914, TO 28TH FEBRUARY, 1915

Receipts

Anthropological Society of Washington: <i>American Anthropologist</i> , Vol. xv, No. 3.....	\$ 57.40
American Ethnological Society, New York: <i>American Anthropologist</i> , Vol. xv, No. 3.....	34.00
American Folk-Lore Society, Boston: <i>Current Anthropological Literature</i> :	
Vol. II, No. 2.....	\$191.77
No. 3.....	195.54
No. 4.....	168.55
	<u>555.86</u>
Seven Twelfths proportion of above.....	324.25
	\$ 435.65

Brought forward.....	\$435.65	
Dues and Subscriptions:		
On account of 1913.....		4.30
1914.....	988.75	
Less Commissions.....	4.00	984.75
1915.....	428.25	
Less Commissions.....	29.00	399.25
Miscellaneous Collections.....		410.46
Total receipts for the period.....		2,234.61
Balance from 1913.....		467.06
Total funds available for the year.....		2,701.67

Expenditures

For Printing, Binding, and Mailing *American Anthropologist*:

Vol. xv, No. 3.....	\$567.22	
Vol. xv, No. 4.....	498.06	
Vol. xvi, No. 1.....	409.50	\$1,474.78
Less printing bill unpaid.....	267.88	\$1,206.90

For printing, binding, and mailing *Current Anthropological Literature*:

Vol. 2, Nos. 2, 3, 4.....		555.86
Illustrations for <i>American Anthropologist</i>		273.42
Treasurer's Expenses.....		93.55
Secretary's Expenses.....		147.25
Editor's Expenses.....	184.70	
Less bill of Tuttle, Morehouse, and Taylor (unpaid).....	5.00	179.70
Subscription Expense.....		32.45
Exchange.....		5.40
Total expended.....		\$2,492.53
Balance of cash on hand 28th February, 1915.....		209.14
		\$2,701.67

B. T. BARRITT HYDE,

Treasurer.

Examined and found correct.

ROBERT H. LOWIE,

P. E. GODDARD,

Auditors.

PROCEEDINGS OF THE AMERICAN ETHNOLOGICAL SOCIETY

The last meeting reported in this journal (*American Anthropologist*, 1902, p. 361 *et seq.*) dates back to December, 1901. During the eight years' interval between that period and the election of the present secretary the customary monthly meetings were held from October until April. Among the distinguished guests who delivered lectures during this period may be mentioned Dr W. Bogoras of the Riabouschinsky expedition and Professor A. C. Haddon (Cambridge). The following are the proceedings of the Society during the incumbency of the present Secretary.

Meeting of January 24, 1910

A meeting of the Executive Committee was followed by the annual meeting of the Society, both held at the American Museum of Natural History, with General Wilson in the chair. Upon recommendation by the Executive Committee, the following officers were elected by acclamation: President, James Grant Wilson; First Vice-President, Franz Boas; Second Vice-President, Marshall H. Saville; Recording Secretary, Robert H. Lowie; Corresponding Secretary, Frederick S. Dellenbaugh; Treasurer, Harlan I. Smith; Librarian, Ralph W. Tower; Executive Committee, the above officers, and Stansbury Hagar.

Professor Franz Boas then delivered a public lecture, illustrated by diagrams, summarizing his recent investigations on "The Changes in the Physical Characteristics of the Immigrants to the United States."

The paper was discussed by Professor Giddings, Dr Tenney, and Dr Fishberg.

Meeting of February 9, 1910

A meeting of the Society was held at the American Museum of Natural History, with Professor Saville in the chair. Professor George Grant MacCurdy, of Yale University, delivered a public lecture, illustrated by lantern slides, on "Some Recent Discoveries bearing on the Antiquity of Man." The lecture was discussed by Professor Saville and Dr Lowie.

Meeting of March 28, 1910

A joint meeting of the Society and the Section of Anthropology and Psychology of the New York Academy of Sciences was held at the

American Museum of Natural History. Mr Paul Radin gave an exposition of "Some Problems of Winnebago Ethnology," on the basis of his field experiences. This was followed by a paper by Mr A. A. Goldenweiser on "Australian Clan Exogamy," embodying the views subsequently published in his "Totemism, an Analytical Study," *Journal of American Folk-Lore*, vol. XXIII, pp. 237-243.

Meeting of April 27, 1910

A meeting of the Society was held at the American Museum of Natural History. Under the title "The Fundamentals of Algonkian Grammar," Dr Truman Michelson presented the results of his study of the late Dr William Jones' linguistic material. (See Michelson, "Preliminary Report on the Linguistic Classification of Algonquian Tribes" in the 28th *Ann. Rept. Bur. Amer. Ethnol.*, also his "Contributions to Algonquian Grammar," *American Anthropologist*, 1913, pp. 470 *et seq.*)

Meeting of October 24, 1910

A joint meeting of the Society and the Section of Anthropology and Psychology of the New York Academy of Sciences was held at the American Museum of Natural History. A paper was read by Dr Robert H. Lowie, who summarized in part his summer's investigations of the "Ceremonial Organizations of the Crow Indians." These the speaker divided into two main groups,—the societies of a more or less sacred character, viz. the Tobacco, Medicine Pipe, and Horse Dance societies; and the military organizations and modern clubs. Initiation into the former involves heavy payments of property, while entrance into the societies of the second class is free. The modern clubs practise the Omaha or Grass Dance, which the Crow call "Hot Dance."

After the paper communications by Drs Frachtenberg, Sapir, and Michelson were presented on their respective researches in Oregon, among the Nootka, and into Algonkin linguistics. A report was also read on the activities of the International School of American Archeology in Mexico.

Meeting of November 22, 1910

A meeting was held at the American Museum of Natural History. Mr Paul Radin presented a paper on "Ceremonial Organizations of the Winnebago Indians." This was followed by the reading of communications from the field by Messrs Teit and Chapman on the interior tribes of British Columbia and the Anvik Athapascans respectively.

Meeting of January 30, 1911

After a meeting of the Executive Committee, the annual meeting of the Society was held in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. A report of the Executive Committee, recommending the re-election of last year's officers, was unanimously accepted. Dr Pliny E. Goddard then presented notes on "Distribution and Relationship of the Apache."

Meeting of February 27, 1911

A meeting was held in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. Dr Robert H. Lowie read a paper on "Women's Societies of the Missouri Village Tribes." The speaker enumerated the graded women's organizations of the Hidatsa and Mandan, and pointed out that while the corresponding series of men's societies was characterized by essentially social and military rather than strictly religious features, the women's organizations were in part of a more sacred character. This applied particularly to the Buffalo Women, whose dance was supposed to entice buffalo to camp, and to the Goose Women, who were associated with corn-growing.

Meeting of March 27, 1911

A meeting was held in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. Dr Paul R. Radosavljevich read a paper on "Cephalic Indices in Relation to Sex, Age, and Social Conditions." The paper was discussed by Drs Boas and Fishberg. Professor Franz Boas then presented "Notes on the Indian Tribes of Mexico."

Meeting of April 26, 1911

Dr Carl Lumholtz delivered a public lecture, illustrated by lantern slides, on his travels "In the Sonoran Desert," outlining the geographical, and to some extent the ethnographical, characteristics of the region recently traversed by him.

Meeting of October 30, 1911

A meeting of the Society was held jointly with the Section of Anthropology and Psychology of the New York Academy of Sciences. Professor Marshall H. Saville delivered a public lecture, illustrated by slides, on "Travels in the Lake Region of Northern Ecuador."

Meeting of November 29, 1911

A meeting of the Society was held at the American Museum of Natural History. Dr A. A. Goldenweiser briefly reported on the Portsmouth meeting of the British Association for the Advancement of Science, at which he had represented the Society and presented a paper on totemism. Dr Robert H. Lowie then spoke on "The Sun Dance of the Crow Indians." He called attention to the objective points of similarity with the Sun Dance of other tribes, while the subjective feeling or theoretical interpretation is quite different, the Crow pledging a performance exclusively in mourning the death of a relative in war and in order to compass the death of an enemy from the guilty tribe.

Meeting of January 29, 1912

At a joint meeting with the Section of Anthropology and Psychology of the New York Academy of Sciences, a business meeting was held and the officers were re-elected.

Dr Goddard then presented "Notes on the Jicarilla Apache." The Jicarilla Apache were from the point of view of material culture, a buffalo-hunting plains people dwelling in skin-covered tipis. Their social organization differs from that of the Navajo and neighboring Pueblo tribes in lacking exogamous clans, there being two geographical divisions with ceremonial and political, but not marriage-regulating, functions. Among the ceremonies the speaker mentioned an annual feast celebrated on the 15th of September and probably connected with the corresponding celebration at Taos, the conspicuous feature of both consisting in a relay race. A ceremony resembling the bear dance of the Southern Ute, is performed in cases of illness and is characterized among other things, by sleight-of-hand performances of masked dancers. The girls' puberty celebration is very prominent; a distinctive feature of the Jicarilla form of this ceremony seems to be the association of a young man with the adolescent girl. Among the myths of the Jicarilla that of the twin heroes stands out prominently.

In the course of the discussion Dr Goddard stated that he had been unable to discover myths definitely connecting the mythology of the Jicarilla with that of their linguistic congeners in California and the Far North. In reply to another query he expressed his belief that owing to the linguistic differentiation of the Apache, this tribe must have occupied its southwestern habitat a considerable period before the first historical notice of it.

Meeting of February 28, 1912

Dr Goldenweiser presented "Notes on the Iroquois" based on the results of his recent trip to the Grand River Reserve, Ontario. The unit of the Iroquois social system is the exogamous clan. Each clan has the exclusive right to use a set of individual names, which, however, bear no reference to the animal from which the clan derives *its* name. In several instances, two clans of one tribe derive their clan names from one and the same animal, e. g., The Big Snipe and the Little Snipe clans of the Onondaga. The question arises, whether these "twin" clans arose from a bifurcation of one original clan or whether they have always been distinct. From the fact that in all such cases the two clans share the same set of individual names it is obvious that we are dealing with an actual subdivision of what were once single clans. Although most of the clans appear in all of the Five Tribes, and though Morgan is right in saying that there is a feeling of kinship between say a Wolf man of the Mohawk and a Wolf man of the Oneida tribe, the *tribal* clan must be considered the social unit. This is shown by the fact that the set of individual names is distinctive of the clan of one tribe and may not be appropriated by its namesake in other tribes. The clans of each tribe are grouped into two phratries which, among the Iroquois, seem never to have had any names. The clans of one phratry are "brothers" to each other, and "cousins" to the clans of the opposite phratry. The phratry no longer exercises marriage-regulating functions although the dual division always appears at ceremonies, feasts, games, burials, etc. On the other hand, the phratry seems to have had nothing to do with war and peace and other administrative business. In deliberations of such affairs there was rather a tripartite division, two of the divisions deliberating and the third casting the deciding vote. This system was also followed in councils of the League, the representatives of the Mohawk and Seneca forming one division, the Oneida and Cayuga the other, while the Onondaga, who were seated between these two groups and in front of the fire, cast the deciding vote.

Dr Goldenweiser also enumerated and briefly characterized the yearly harvesting feasts and the secret societies of the Iroquois.

In reply to a question by General Wilson as to the present numerical proportions of the Iroquois tribes, the lecturer explained that the Mohawk, while not so numerous at Grand River as the Onondaga and Cayuga, were the most influential, and that a large number of individuals in all tribes could speak the Mohawk language.

In answering a query by Dr Lowie, the speaker expressed his con-

viction that the phratries had formerly been exogamous, as represented by earlier writers.

Meeting of March 25, 1912

At a joint meeting of the Society and the Section of Anthropology and Psychology of the New York Academy of Sciences, Dr Robert H. Lowie presented a paper on "Dr. Radosavljevich's Critique of Professor Boas," the gist of which has since been published in *Science* (N. S. xxxv, 1912, p. 537 *et seq.*). In the course of the discussion, Dr Goldenweiser, who had taken part in the measurements made by Professor Boas, outlined the methods pursued.

Meeting of April 29, 1912

A meeting was held at the American Museum of Natural History. Dr A. A. Goldenweiser presented notes on "Barter in Aboriginal Australia."

Evidence from various districts of Australia discloses the existence of an extensive and at times highly regulated system of barter. In Central Australia, according to Spencer and Gillen, the natives of distinct localities have the reputation of high proficiency in the manufacture of this or that implement or weapon. This fact is not exclusively correlated with the presence in the particular district of the materials necessary for the production of a given object. Howitt records similar facts about Victoria and New South Wales, where the barter in objects thus localized in their productions usually takes place at tribal ceremonies and special "markets," at which natives from often very distant localities congregate. The Dieri send out two yearly expeditions, one to northern Queensland, for *pitcheri*, another, to the south, for ochre. The expeditions are undertaken by a detachment of able-bodied men who are forced to fight their way through tribal territories of hostile natives. On their way back, they exchange weapons for clothing and decorations supplied by the tribes with whom they came in contact. The *pitcheri* and ochre are obtained in enormous quantities and bartered over a vast stretch of country. W. E. Roth's data, referring to Queensland, are even more suggestive. He has succeeded in tracing a number of routes followed by bartering individuals and groups. He also speaks of smoke signals, messengers, and messenger sticks which lend to this system of intra- and inter-tribal barter definiteness and precision. Data with reference to messengers announcing the holding of "markets," are also not lacking from Central and Southeastern Australia.

Although most of the work in connection with a more thorough

knowledge of facts such as the above, remains to be done, enough is known to show the bearing of the data as to barter and specialization of production, on important phases of ethnological work in Australia. If an object found in one locality may be the product of a native living in a locality 100 to 200 miles distant, this fact must be taken into consideration, if one wants to understand the distribution of cultures in Australia. What is true of material objects, applies also to ceremonies, songs, myths, dances, names, which travel from district to district, and from tribe to tribe. Thus it becomes obvious that an intensive study of Australian cultural areas *per se* and their interrelations must precede any more ambitious attempts at cultural classification and stratification in the vast Oceanian area.

Meeting of October 7, 1912

At a meeting of the Executive Committee attended by Boas, Saville, Wissler, Hyde, Goddard, and Lowie it was decided to arrange an exhibit of archeological material collected in 1911-12 by the International School of American Archeology and Ethnology in Mexico City.

The exhibit, arranged under the joint auspices of the Society and the Department of Anthropology of Columbia University, was open to the public from November 4th till November 9th.

Meeting of October 28, 1912

After a business meeting, Professor Franz Boas delivered a lecture, illustrated by slides, entitled, "A Year in Mexico." Attendance, 110. Besides exhibiting pictures of interest, the speaker called attention to certain interesting features of Mexican folklore.

Meeting of November 27, 1912

At a meeting of the Society Mr Alanson Skinner summarized some of his recent field-work in a paper on "The Social Organization of the Menomini." (See "Social Life and Ceremonial Bundles of the Menomini Indians," *Anthrop. Papers Amer. Mus. Nat. Hist.*, XIII, part 1.)

Meeting of January 27, 1913

With the consent of the Council of the New York Academy of Sciences, the American Ethnological Society invited Professors MacCurdy, Keller, Bishop, Huntington, and Bowman, all of Yale University, to attend a joint meeting of the Society and the Section of Anthropology and Psychology for the purpose of exchanging views on the problem of the

influence of geographical environment on human culture. Owing to the number of papers offered, an afternoon meeting was arranged for in addition to the customary evening session, General James Grant Wilson presiding at the former, and Professor Boas at the latter. Professor A. G. Keller read a paper on "The Natural Sciences as the Basis of the Social Sciences," which was followed by a lecture, illustrated with lantern slides, on "Pre-neolithic Environment in Europe" by Professor George Grant MacCurdy. After a recess for dinner the annual business session was held, resulting in the re-election of officers. Then the discussion was resumed by Professor Bishop, who read a paper on "Race Characteristics vs. Natural Environment in Commercial Success," while Professor Ellsworth Huntington presented his views on "Climatic Influences in Human Activity," and Professor Isaiah Bowman spoke on "The Physiographic Environment of the Machiganga Indians of Peru." Finally, Dr Clark Wissler, as representative of the American Ethnological Society, dealt with the subject of "Culture and Environment." Though the meeting was protracted beyond the customary hour, there remained unfortunately too little time for discussion, and in February the gentlemen from Yale invited several New York ethnologists to come to New Haven for a second meeting to be devoted to the same subject. Accordingly, Professor Franz Boas, Dr A. A. Goldenweiser, and Mr Carl W. Bishop of Columbia University, Drs Clark Wissler, H. J. Spinden, and Robert H. Lowie of the American Museum of Natural History, and Mr Stansbury Hagar went to New Haven on February 19th. After an informal dinner the discussion was taken up at the Anthropology Club, with Professor A. G. Keller in the chair. Dr A. A. Goldenweiser spoke on "Some Theoretical aspects of the Culture-Environment Problem," Dr Spinden read a paper on "Geographical Environment and the Southwestern Culture Area," Dr Lowie treated "Geographical Environment and the Plains Indians," and Professor Boas presented his views on "Arctic Environment and Arctic Culture." Professors Huntington and Bowman then expounded, with reference to the ethnological papers, the point of view assumed by modern geographers.

Meeting of February 25, 1913

At a meeting of the Society Dr A. A. Goldenweiser demonstrated "Some Uses of the Genealogical Method," illustrating mainly by examples culled from his field experience. He showed that the objective data presented by genealogical records in some instances form a valuable complement to the generalizing statements furnished by native informants.

Meeting of March 29, 1913

At a joint meeting of the Society, the Section of Anthropology and Psychology, and the American Folk-Lore Society (New York Branch), Dr Herbert J. Spinden read a paper on "Characteristics of Tewa Mythology." According to the speaker, the myths of the Tewa Indians of the Rio Grande region fall into these groups: first, cosmogonic and culture hero myths; secondly, animal tales, witch stories, etc., of lesser religious significance. The myths have a truly literary quality with many fine touches of human nature and a clear characterization of many individuals, such as certain of the Okhuwa or Cloud People. The myths are closely correlated with the highly specialized religion and are very valuable for the sidelights which they throw upon questions of ceremonial usage and ritual. Witch stories are highly developed. Practically no myths from this group of people have hitherto been published.

Dr Spinden's lecture was followed by Mr N. C. Nelson's paper on "The Galisteo Pueblos." Mr Nelson read a preliminary account of the past season's archeological work on behalf of the American Museum among the ruined pueblos of the Rio Grande, New Mexico. It was pointed out that the village Indians for centuries were confined to the upper portions of the drainage, owing possibly in part to the lack of water for irrigation in the lower reaches and in part also to the proximity of the marauding Apache. In addition, it was learned from extensive excavations, conducted mainly in the Galisteo basin country, south of Santa Fe, that a considerable change in the Indian mode of life was effected during the first century of Spanish occupation.

Finally, Mr Alanson Skinner presented "Notes on Menomini Folklore," discussing the cosmological concepts of that people with reference to their bearing on mythology, dwelling on the ritualistic myths of the Medicine Lodge, and the manner of their acquisition by candidates. Mr Skinner touched upon the main divisions of Menomini folklore, and recounted the taboos and other customs associated with story-telling.

Meeting of April 30, 1913

At a meeting of the Society, Dr Paul Radin lectured on "The Peyote Cult of the Winnebago Indians." Though this cult is of recent introduction among the Winnebago, it has risen to an important position within the tribe, rending it into two antagonistic factions. The phenomena connected with its appearance and spread thus shed light on the psychological processes of diffusion that form the center of so much ethnological discussion today.

Meeting of October 29, 1913

At a joint session of the Society and the Section of Anthropology and Psychology of the New York Academy of Sciences Dr Robert H. Lowie presented "Field Notes among the Hidatsa and Crow Indians." The speaker discussed principally the kinship systems of the Crow and Hidatsa, of which a valuable summary, though incorrect in certain points, was published by Lewis H. Morgan in his *Systems of Consanguinity and Affinity*, pp. 188 f. Morgan had noted as peculiarities of the Crow and Hidatsa systems that a mother's brother and an elder brother were addressed by the same term; and that a father's sister's son was addressed as "father," while a father's sister's daughter was addressed as "mother." Dr Lowie was able to state that the second peculiarity recorded by Morgan is carried out to an even greater extent,—father's sister, father's sister's daughter, father's sister's daughter's daughter, as well as all succeeding female descendants in the female line being included under a common kinship designation. The explanation of this disregard of generations in both of the cases that struck Morgan's attention seems to lie in the influence of the *clan* concept. As there is maternal descent among the Crow and Hidatsa, my mother's elder brother and my own elder brother are both my fellow-clansmen; and as fellow-clansmen are considered brothers, a single kinship term, regardless of age, becomes intelligible. Similarly, my father's sister and all her female descendants through females are members of the same clan as my father. But a father's clansfolk are considered fathers and mothers (or aunts when not directly addressed) regardless of age; hence it is natural that the term for "father's sister" should include all the female descendants through females of a father's sister. The correctness of this view is corroborated by a test case. As soon as the clan element is eliminated, a different kinship term must be used. While my father's sister's daughter's daughter is my mother (or aunt), my father's sister's son's daughter is not, for she can no longer belong to my father's clan in an exogamous clan system with matrilineal descent.

Meeting of November 26, 1913

At a meeting of the Society, Dr A. A. Goldenweiser delivered a lecture on "Individual Names among the Confederated Iroquois." Among the confederated Iroquois tribes every clan in each tribe is distinguished by its own set of individual names. Not only may a Wolf Seneca not bear a Bear Seneca name, but the name of the Wolf Seneca and the Wolf Onondaga are also distinct. These names are not analogous to our

personal names. In personal address, and to a large extent, also in indirect reference to individuals, relationship terms are used, not individual names, which may thus be regarded as ceremonial designations, used only on special occasions, and standing for clan solidarity. The content of the names does not refer to the clan animal or bird, but to features of nature, to occupations in war and peace, etc. Thus, a clan may not be recognized by the content of its individual names, unless one knows the specific names used by that clan. In other words, the sets of names are socialized, but not their content.

The individual names may be utilized in solving the problem of the origin of such clans as the Great Turtle and the Little Turtle, etc. We find that such clans always use the same set of names. Hence, they must have once constituted one clan.

Among the Mohawk the clan sets have broken down. Any Mohawk man or woman may use any of the Mohawk names. Now, whereas the existence of clan sets among the Cayuga, Onondaga, and Seneca, seems to have checked the tendency to invent new names, this tendency reappears among the Mohawk where the check does not exist. The Mohawk situation is thus psychologically similar to the ancient condition in these Iroquois tribes which must have preceded the formation of clan sets. The names now being invented among the Mohawk are also similar in content and structure to the ancient names from which, in fact, they cannot be distinguished. Hence, the processes by which names are created among the modern Mohawk must be like the processes utilized in ancient times. One such process is to bestow upon the child a name suggested by some circumstance attending its birth. Such names are given now, and many of the ancient names must have been so suggested.

Meeting of January 26, 1914

The annual meeting of the Society was preceded by a session of the Executive Committee, attended by Boas, Saville, Goddard, and Lowie. Sr Manuel Gamio, Mr A. V. Kidder, Dr E. A. Hooton were elected Anthropological Fellows; Professor Luise Haessler a Fellow; Rev. P. H. Ristan a Non-Resident Member; and Mrs Elsie Clews Parsons a Life Member. The Committee then nominated the following officers for the ensuing year, all of whom were subsequently elected by the Society: Honorary President, General James Grant Wilson; President, Franz Boas; First Vice-President, M. H. Saville; Second Vice-President, Clark Wissler; Recording Secretary, R. H. Lowie; Corresponding Secretary, Frederick S. Dellenbaugh; Treasurer, Stansbury Hagar; Librarian, R. W.

Tower. Executive Committee: In addition to the above, P. E. Goddard and A. A. Goldenweiser. Dr Boas proposed, and it was carried that, with the exception of the William Jones volumes for which the mover had assumed personal responsibility, the editing of future Publications should be entrusted to Dr P. E. Goddard.

After the election of officers Dr Fay Cooper Cole delivered a public lecture, illustrated with lantern slides, on "The Wild Tribes of Mindanao."

Dr Cole first described the Island of Mindanao and its history and then discussed in more detail the life of two of the pagan tribes,—the Bukidnon and the Bagobo.

The Bukidnon, who inhabit the north-central portion of the Island have for centuries been harassed by the wild Manabo warriors on the east, and by the slave-hunting Moro on the west. The many conflicts with these enemies caused them to develop a unique culture, one phase of which is shown in the tree-dwellings found in part of their territory. The presence of three well-marked physical types in the population is another point of interest brought out by this people. The native views concerning the spirit world and some of the ceremonies made to propitiate the superior beings were described and illustrated in the talk.

Going to the Bagobo, on Davao gulf, a glimpse was given into their traditions, laws, and customs, particularly those which led up to and explained the custom of human sacrifice, and the organization known as *Magani*—the members of which gain the right to the title and a distinctive type of dress, by slaying a certain number of enemies.

About seventy slides showing the country, the people and their homes, as well as several native crafts, were used.

Meeting of February 21, 1914

A meeting of the Executive Committee was held at the Faculty Club, Columbia University. Present: Boas, Saville, Goddard, Goldenweiser, Lowie. Messrs D. D. Streeter and Julius Sachs were elected Fellow and Member, respectively. On suggestion of the Chair it was proposed and carried to print 96 pp. of Swanton's *Haida Texts* during 1914 as a beginning of Vol. VIII, and to publish Jones's Kickapoo material as Volume IX. In response to a communication from Dr A. Hrdlička inviting the coöperation of the American Ethnological Society at the Americanist Congress and suggesting the appointment of two delegates, the President was empowered to appoint these delegates.

Meeting of February 25, 1914

At a regular meeting of the Society Dr A. A. Goldenweiser presented a paper on "Functions of Women in Iroquois Society." Dr Goldenweiser explained that in the house women did the cooking, sewing, and embroidering (ancient porcupine quill followed by modern beadwork). In the field, the functions of the sexes were divided. The men felled the trees (girdling, burning of dead trees); the women did the hoeing, sowing, planting, harvesting. The work was communal on the common lots as well as on the individual fields, which, while not the property, were, together with the house, in control of the women. One woman—usually the most prominent woman of the leading clan in a locality—was in charge of the field work and with the help of two female assistants superintended the labors of the "bee." From the owners of the individual fields, each woman of the "bee" received a new dress; a meal was also provided for the worker. There was considerable jollification on these occasions; the old men would tell stories; also women would often gather information from the leaders of the "bee" as to the working capacities of girls whom they wanted as wives for their sons.

In ceremonial matters woman was the equal of man. Three males and three female officials were elected from each clan (these officers were hereditary in *maternal families*) who, at preliminary meetings, arranged the details of ceremonies, superintended the preparation of food, fixed the date, and officiated at the ceremonies themselves.

Perhaps the most important functions of women were in connection with the political system, namely with the election and deposition of federal chiefs, of whom there were fifty in the League. These chiefs were hereditary and elective in *maternal families*, the office passing most commonly from uncle to nephew and from brother to brother.

Upon the death of a chief, a successor was nominated by the head woman of his maternal family. This nomination was discussed by women of the family at an informal council, to which the other women and men of the clan were also admitted. At these councils the candidate selected by the head woman was almost invariably accepted. The nomination was then ratified (or, in very rare cases, rejected) by the chiefs of the phratry, to which the clan of the deceased belonged, then by the chiefs of the opposite phratry, then by the confederate council. On that occasion a date was set for the ceremonial "raising" of the new chief. The head woman of his family kept close watch over the activities of the new chief. If he did not live up to the required standard, she called on him and admonished him to desist. This visit was repeated, if

necessary. If he still persisted in his evil ways, the head woman accompanied by the chief warrior of the clan, again called on the chiefs, and formally deposed him, subsequently notifying the confederate council of her act.

While women could not be chiefs and had no vote in tribal or federal councils, their functions in connection with the election and deposition of chiefs constituted them a most important factor in Iroquois society. Moreover, prominent women often addressed councils, some were noted for their eloquence, and, in all cases, the opinion of women was asked and heeded.

Contrary to the prevailing opinion, supported by such instances as the Iroquois, there is no necessary connection between maternal descent and matriarchate. While conditions among the Zuñi, for instance, are not unlike those among the Iroquois, the position of women among the highly advanced tribes of the Northwest Coast, the Tsimshian, the Haida, the Tlingit, is by no means as high, notwithstanding the tracing of descent through the mother. Economic factors are of importance here. Wherever woman is an essential factor in tribal economy, as among the agricultural Iroquois and Zuñi, where woman is the agriculturist, her status tends to be high. Another circumstance operating in the same direction is the husband's residence with the wife's family, a common but not invariable concomitant of maternal descent. It must also be noted that in the most primitive stages of culture, woman's status is never as low as at some much higher stages with polygamy, patriarchal family, etc. A systematic subjection of one important element in society by another cannot be successfully achieved in the absence of the fixity of social forms and the unwieldiness of the social fabric which are characteristic of relatively high stages of culture (a comparison of slavery among primitive and civilized peoples would corroborate this principle.)

Meeting of March 23, 1914

A meeting of the Society was held in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. This being a General Meeting of the Academy, in charge of the Section, Dr George F. Kunz, President of the Academy, introduced as the representative of the Section Dr R. H. Lowie, who took the chair, introducing the lecturer of the evening, Professor Hiram Bingham of Yale University. Professor Bingham's address, which was illustrated with slides, dealt with "Recent Exploration in the Land of the Incas." He outlined the results of the expedition of 1912 under the joint auspices

of Yale University and the National Geographic Society, which had for one of its chief objects the clearing and exploration of Machu Picchu in southern Peru, a city so ancient that there is no reference to it in the Spanish chronicles, and its old name is not known. The ruins were discovered by the Yale Expedition of 1911. This ancient city, which seems to have been built by the Incas or their immediate predecessors, between one and two thousand years ago, is situated on a narrow, precipitous ridge 2,000 feet above the Urubamba river. It is 9,000 feet above the sea, and is located in one of the most inaccessible parts of the Andes, about sixty miles north of Cuzco. It contains about 200 edifices, including palaces, stairways, temples, fortifications, and shrines, all built out of white granite. It is admirably situated for defense, and is protected by two walls and a dry moat. In culture it is probably purely Incaic. Owing to the extraordinary number of windows, the presence of three large windows in the principal temple and the evidence of the city being finely situated for a place of refuge, it is thought that possibly we may have here the ancient "Tamp Tocco," which is ordinarily supposed to have been south of Cuzco, near the village of Peccaritampu.

Meeting of April 30, 1914

A regular meeting was held, at which Mr Leslie Spier was elected a Fellow and Mr W. L. Smith a Non-Resident Member. Among those present was Dr Edward Sapir of the Geological Survey of Canada. Professor Franz Boas spoke on "Indian Mythologies of Alaska and Northern British Columbia." He explained the sharp distinction drawn between "myth" and "tale" in this area, there being throughout distinct terms for these concepts. By the example of the Bungling Host story he showed that there is not merely diffusion, but also a new development of basic themes. He then pointed out how differently the several tribes of the area deal with their traditional lore. In the north interest centers in the Raven cycle; in the central region interest is divided between the Transformers and Mink; while in the south the tendency toward definite cycles is much less strongly developed. Comparing the Raven cycles of the Tlingit, Haida, and Tsimshian, the complexity and incoherence of the Haida myth are noteworthy. A very suggestive feature is the paucity of elements accounting for the origin of cultural possessions in the Raven cycle,—this in spite of the fact that the Raven appears as the culture hero. The Northwest Coast material seems to support the view that explanatory elements are secondary additions to tales.

The paper was discussed by Doctors Goddard, Goldenweiser, Sapir, and Lowie.

Meeting of October 26, 1914

At a joint meeting of the Society and the Section of Anthropology and Psychology of the New York Academy of Sciences, several papers were presented.

In his paper on the "Origin of Clans among the Iroquois" Dr A. A. Goldenweiser developed the following lines of thought. The problem of clan origins has for years attracted the attention of ethnologists. The common assumption made about the origin of clans is that they have sprung from an original social group through subdivision, the primal group often developing into a phratry.

Researches among the Iroquois of Western New York and Eastern Canada revealed three types of clan origins.

Type I. Origin by subdivision. This is seen in the common phenomenon of two clans bearing the name of the same animal but distinguished by an adjective. Here it was possible to prove that such clans originally constituted one clan, for they still preserve the same set of individual names.

Type II. Origin by fusion. A number of instances have come to light in which a Delaware and a Tuscarora clan of the same name, or an Oneida and a Tuscarora clan of the same name, have fused into one clan.

Type III. Origin from a maternal family. In one instance, at least, it can be shown that a maternal family consisting of individuals of one direct line of maternal descent, has developed into a clan distinguished as White Bear, whereas the other individuals of what was originally the same clan, are known as Black Bears or Bears.

It will be noted that in origins of types I and II conditions of locality and population must have been determining factors. There are reasons to believe, however, that not one of the above three types of origins represents the origin of clans which was most common in the history of society. I refer to the origin of clans from local groups which develop social solidarity through the exercise of common functions and intermarry, producing the local distribution of individual clans so characteristic of communities having clan or gentile systems. We may designate this type of origin, which has not so far been sufficiently demonstrated by concrete data, as type IV. Conditions on the Northwest Coast make it all but certain that such was the predominant origin of clans in that area.

However that may be, the above instances, excepting type III, make

it clear that the growth and depletion of a population on the one hand, and occupation of the same locality on the other, must have been all important factors in the history of clan-origins.

Mr Alanson Skinner next spoke on "The Social and Ceremonial Organization and Societies of the Iowa Indians." The Iowa are divided into seven exogamic gentes each of which is made up of four subgentes. Chieftainship is hereditary in the royal family of each subgens. The tribal chief is the chief of the Buffalo gens during spring and summer, and of the Bear gens during winter. On the march or hunt a chief is elected each night, his office expiring the following evening. In addition to the gentile system the tribe has three classes or castes, royalty, nobility, and commoners, which tend to be endogamous.

The societies and dances of the Iowa are of four types. Military, social, ancient and modern mystery dances. Many of these are typical Plains military societies, with the no-flight rite and crooked-spear regalia, etc. The Helucka dance is important. Of mystery and animal dances the Buffalo-dance and Medicine dance take first rank. The latter is a form of the Algonkin Midéwin. Of modern societies and cults the Ghost, Religion, and Peyote are foremost. The Peyote cult is rapidly doing away with all ancient customs.

Finally, Dr R. H. Lowie presented some remarks on "The Cultural Relations of the Northern Paiute." He explained that the Northern Paiute (Paviotso) who claim linguistic relation with the Bannock, had been in recent contact with the Shoshone on the east, and the Washo and Pitt River Indians on the west, the latter figuring in tradition as their foremost enemies. Culturally the Northern Paiute display interesting relations with both the Californian Indians and the Lemhi Shoshone. Some of their tales are especially suggestive of important Lemhi myths. On the other hand, the economic life, with its very extensive dependence on seeds, the high development of basketry, the use of the balsa, and other traits indicate a cultural connection with California.

Meeting of December 17, 1914

Before an audience of about 40, including among the guests Professor Arnaldo Faustini of the University of Rome, Professor Felix von Luschan (Berlin) gave an address on "Culture and Degeneration." After enlarging on the achievements of modern civilization and the very real progress made in many directions, the speaker turned to *le revers de la médaille*. He enumerated four causes of degeneration: the increase of insanity, the increase of criminality, the dying out of urban families owing to the

influence of alcoholism and venereal diseases, and the prudential restriction of the birth-rate. The increase of insanity he regarded as apparent, there being really merely an increase of those confined in asylums; and criminality, so far as it is a biological trait, he felt confident could be reduced very largely by a policy of isolation. On the other hand, the ravages of drink and venereal infection, coupled with neo-Malthusian practices, must inevitably lead to racial decadence.

The lecture, which was illustrated with lantern slides, was discussed by Dr Fishberg, Dr Lowie, and Professor Boas. Dr Fishberg emphasized the importance of the decreased infant mortality as balancing the effect of the decreased birth rate. He also cited Pearson's data as to the non-injurious effect of parental alcoholism on the children. Dr Lowie inquired what was the proportion of biological criminality, the result of inheritance, to the other type of purely juridical criminality. Professor Boas raised the question, to what extent Mendelian inheritance was proved for the human species, and also cited the decreased infant mortality as a counterbalance to the reduced birth rate. One of the guests asked to what extent economic factors produced neo-Malthusian practices.

In reply Professor von Luschan emphasized the necessity of both quantity and quality of offspring. The economic factor does not enter, he contended, because prudential motives do not influence the poorer but only the well-to-do classes. By criminality, he repeated, he meant only biological criminality that is unaffected by the environment. He was obliged to reject Karl Pearson's statistical investigations on alcoholism.

Meeting of January 22, 1915

Meeting of the Executive Committee, 4.30 p.m., in Dr Goddard's office. Present: Boas, Goddard, Hagar, Lowie. It was moved and passed that the Chair appoint a committee to present the draft of a revised Constitution to the Executive Committee. On motion of the Secretary it was passed that the Society be incorporated and that Mr Hagar be instructed to take the necessary steps. The Treasurer presented his report. The Secretary was instructed to send a list of members, after revision by the Treasurer, to Brill. It was decided to drop from the membership list A. R. Goldstein, Elias Brown, and H. B. Vannote, and to communicate with other delinquent members. The Secretary was instructed to write up the proceedings of the Society to include the meeting of January 25, and to publish in the *Anthropologist* with an account of expenditures. It was decided to prepare a resolution to be submitted to the Society expressing the opinion of the Executive

Committee that in the interests of the organization the practice of the continuous re-election of officers should be abandoned. The following officers were then recommended for nomination before the Society: President, Franz Boas; First Vice-President, George Bird Grinnell; Second Vice-President, A. A. Goldenweiser; Recording Secretary, Corresponding Secretary, and Librarian, R. H. Lowie; Treasurer, Stansbury Hagar; Executive Committee (in addition to the above), M. H. Saville, Elsie Clews Parsons, H. J. Spinden; Editor, P. E. Goddard. President Boas presented the draft of a reply to a letter received from the French Universities as a protest against the declaration of the German Universities. After some slight verbal changes, Professor Boas was directed to give proper publication to the letter in the United States.¹

Meeting of January 25, 1915

At the annual meeting of the Society, coinciding with the monthly Sectional meeting of the Academy, the officers nominated by the Executive Committee were unanimously elected. Dr Lowie then presented the following:

Secretary's Report

The present membership of the American Ethnological Society, divided into the classes established by the Constitution and usage, is as follows: Life Members, 13; Fellows, 52; Anthropological Fellows, 23; Members, 13; Non-Resident Members, 3; Subscribers, 12; total, 116. Early in the year we sustained the loss of our Honorary President, Gen. James Grant Wilson, for many years President of the Society. The Society held the usual number of meetings, three of them in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. At these meetings the following eight papers were read: Fay Cooper Cole, *The Wild Tribes of Mindanao*; A. A. Goldenweiser, *Functions of Women in Iroquois Society*; Hiram Bingham, *Recent Exploration in the Land of the Incas*; Franz Boas, *Indian Mythologies of Alaska and Northern British Columbia*; A. A. Goldenweiser, *Origin of Clans among the Iroquois*; Alanson Skinner, *The Social and Ceremonial Organization of the Iowa*; R. H. Lowie, *The Cultural Relations of the Northern Paiute*; Prof. Felix von Luschan, *Culture and Degeneration*.

The work of publication of native linguistic material has been actively promoted and a specific report will be presented by the Editors.

In the absence of Mr Hagar the Secretary presented the following Treasurer's Report, which was accepted for auditing.

¹ See p. 416 below.

Permanent Fund, Jan. 22, 1915.....	\$2414.60	
(Increase for 1914, \$100.00)		
Drawing Account, Jan. 19, 1915.....		347.03
Income		
Dues.....	352.10	
Interest, permanent fund.....	163.35	
		<u>\$515.45</u>
Expenditures		
Stationery, printing, mailing.....	\$ 28.45	
Lantern operator.....	1.50	
Engrossing Wilson resolutions.....	25.00	
Editorial and secretarial expenses.....	6.75	
1913, Vol., No. 3, <i>Anthropologist</i>	54.00	
	<u>\$115.70</u>	<u>115.70</u>
Balance of income over expenditures.....		\$ 399.75

Approved by auditing committee, Feb. 25.

CLARK WISSLER,
H. J. SPINDEN

Rev. John W. Chapman then presented a paper on "The Medicine-Men of Anvik, Alaska, and the Vicinity." After sketching his personal observations of shamanistic practices, the lecturer described some of the fundamental native theories underlying them. One method of foretelling the future is to go to the moon where the shaman meets his informants; another was to look into the bottom of wooden bowls and there see, as in a vision, what was to come to pass. The shamans enjoy a privileged position in native society. They pretend to ward off danger from individuals and exact high fees in return. The office is not hereditary, but seems based on the conviction becoming established that a certain man possesses extraordinary powers. The intellectual atmosphere in which such a belief may thrive is characterized by certain striking features. Honors and mortuary gifts are regularly paid to the deceased. It was formerly the custom to remove a corpse from the house through the smoke-hole rather than the usual exit. There were a number of feasts, some of a purely social potlatch type, others of a ceremonial character. One of these is noted for its pantomimic exhibitions. There is a belief in the survival of the soul after death, special conditions being assigned to suicides and those who die by violence.

The lecture gave rise to many questions and comments by Drs Boas, Goddard, Lowie, and Hatt. Dr Hatt called attention to certain interesting similarities between Anvik and Lapp beliefs and customs.

ROBERT H. LOWIE,
Recording Secretary

SUMMARY OF THE WORK OF THE INTERNATIONAL SCHOOL OF AMERICAN ARCHEOLOGY AND ETHNOLOGY IN MEXICO

1910-1914

I. POLICY

In founding the School, the Patrons and Protectors determined that it should be the object of the establishment to promote in every possible way scientific research relating to the archeology and ethnology of Mexico and the adjoining countries. In determining on this policy, the Patrons and Protectors decided that the School should not devote itself to popularization of these subjects, but to the training of productive investigators and to the advancement of our knowledge. Accordingly, it was decided that Fellows of the School should be men who had completed their preliminary studies and who were able to devote themselves to field researches. Accordingly, the duties of the Director in his relations to the Fellows were primarily the selection of problems for their field-work, and the direction of their work in such a way as to develop their power for independent investigation.

By following this policy, the Patrons and Protectors hope also to develop gradually a body of investigators who, on account of a friendship developing through personal coöperation, would help to advance the interests of our branch of science in all the countries from which they came.

2. METHOD OF RESEARCH

Since the organization of the School provides for a regular change of Directors, it seemed necessary to take steps to avoid a dissipation of energy and to develop a continuous policy in the research work of the School. The Secretary of the Junta Directiva was charged with correspondence between the Directors, and has taken particular pains to connect the work of each Director with that of the preceding Director. This has been done by means of extended correspondence and personal conferences. The problems which have been the subject of the researches of the School were evolved principally during the first two years. To these were added incidentally investigations that developed from the larger plans.

During the first year of the School, 1910-11, while Professor Seler of Berlin was in charge of the work, considerable time was consumed in the preliminary organization. During this time, Professor Seler was able to make certain studies in Yucatan and in Palenque. On these journeys he was accompanied by the Fellows of the School. During the same year Professor Boas, who was at that time associated with the University of Mexico and with the International School, commenced the organization of work on the native languages of Mexico. Professor Seler's attention was also devoted to some of the important problems of the archeological history of the Valley of Mexico.

From this work of the first year was developed a more systematic plan for researches, and since that time the School has devoted its attention primarily to the following problems:

1. The geological sequence of civilizations in the Valley of Mexico and their relations to other parts of the country. Professor Seler had called particular attention to the diversity of types occurring in the Valley of Mexico,—a fact that had become apparent to other investigators as well. The question arose, how to determine the chronological sequence of these remains. A survey of the wells and brick-yards in the environment of the City of Mexico showed that this question could be studied by observations on geological sequence of strata. In the year 1911-12 a careful investigation was conducted in one single excavation in a brick-yard at San Miguel Amantla near Atzacapotzalco, which was carried out under the supervision of the Director by Mr Manuel Gamio. The result of this excavation was the definite proof that three distinct civilizations were found in the Valley of Mexico,—a primitive one, which is found in the bottom layers; a second one, identical with that of San Juan Teotihuacán; and a third one, the Aztec. Of these, the second period seemed to be the longest.

It was necessary to extend the results of this single investigation and to make other parallel investigations in numerous parts of the valley. Furthermore, it seemed necessary to determine the chronology of these periods by exact levels carried over the valley and intended to determine the depths at which these deposits were found in relation to the level of the lake.

After it had been determined that these three types occurred in succession in the valley, the question arose of ascertaining their distribution, and a careful search of archeological sites was made in the neighborhood of the city, which led to the discovery that the archaic type was found in a number of definite sites on the lower slopes of the hills,—north

of Guadalupe, on the Peñon de los Baños, on the Cerro de la Estrella, Contreras, Texcoco, San Angel, Coyoacán, and at other places. At the same time a few sites of the period of Teotihuacán were discovered.

The most ancient type appeared clearly related to the finds from the Tarascan and Otomi areas. Mr Hay, one of the Fellows of the School, working under the direction of Professor Tozzer, discovered similar types in the State of Vera Cruz, and found that the form extends southward into Guatemala and Salvador. The wide distribution of this type makes the investigation one of great importance. The archeological investigations during the past years were all devoted to clearing up this important problem.

Incidentally it seemed necessary to obtain greater clearness in regard to the relationships of the archaic type, and for this purpose Professor Engerrand undertook an investigation in Colima. Professor Tozzer was led, in connection with this investigation, to the study of a small cerro near Santiago Ahuizotla, which yielded important results.

No extended publication on this subject has been made up to the present time, because the problem still requires further investigation. The School has obtained sufficient data, however, for a characterization of the type of the archaic civilization. Material bearing upon the succession of these three types has been illustrated in the Album mentioned as No. 19 of the list of publications.

Another problem arose in connection with the detailed studies on the distribution of types in the Valley of Mexico. Since we had to determine the chronology of successive civilizations, we had to know whether there was a probability of the development of local types during the same period. Striking evidence of the occurrence of such local types was found in Culhuacán and in Texcoco, and for this reason special attention was paid to the accurate determination of the local type of pottery of Culhuacán. This work has been largely in the hands of Miss Isabel Ramírez Castañeda. During the second year indications were found that in Culhuacán the same succession of civilizations occurred; but, owing to the character of the soil, the evidence was not conclusive, and the investigation was carried on during the following year. Fairly convincing evidence was also found during the second year of the School, showing that the two Aztec types found in this district were not synchronous.

Thus the problem before the School may be summarized as centering around the accurate investigation of the succession of civilizations in the Valley of Mexico and the effort to establish an exact chronology.

2. The ethnological investigation had for its primary object the inquiry into the structure and distribution of languages of the country. For this purpose an accurate phonetic examination of the Mexican was undertaken, which entailed the study of some of the strongly divergent dialects. An inquiry into the valuable material collected by Dr Peñafiel in connection with the census of Mexico indicated that some of these aberrant types of Mexican were on the verge of extinction, and for this reason these were taken up first. The dialects of Pochutla and of Tuxtepec were studied. Mr Mechling determined the occurrence of three distinct dialects in the region between Tuxtepec and Vera Cruz. It was planned to extend this investigation over other dialects of the Mexican language.

At the same time the more detailed study of certain languages was taken up. The School was guided in this largely by the urgency of the case; and one of the Fellows, Dr J. Alden Mason, spent two seasons among the Tepecanos of Jalisco, whose language is confined at the present time to a few individuals of one single village; while Dr Paul Radin studied the Huave near Salina Cruz, which is also bound to disappear within a short time. In connection with his studies in Tuxtepec, Mr W. H. Mechling made collections of the Mazatec and Chinantec. During the third year Dr Radin was also instructed to make a preliminary phonetic survey of the Zapotecan dialects with a view to laying out a plan for a future more thorough investigation of this difficult field.

The linguistic material brought together in this way, which consists to a very great extent of texts, brought up a question of great importance. It appeared that among the Tepecano a certain amount of ancient Mexican material still persisted, but that everywhere else the traditions of the people gave clear evidence of a far-reaching influence of Spanish oral tradition. It appeared that for the purpose of interpreting the ethnology of the Mexican Indians it was indispensable to understand better the influence of Spanish civilization upon them. From this point of view two problems were attacked. Collections were made of the folklore of the Indians, and these were compared with Spanish sources, and an investigation was made of the phonetics of the Spanish as spoken in various parts of the country, in order to determine the mutual influences of Spanish provincial dialects and the languages spoken by the Indians who later on had acquired Spanish speech. The folkloristic side of this work was carried on by all the Fellows, whose work was chiefly devoted to linguistic and ethnological researches and also by Miss Ramírez Castañeda. The strictly philological inquiry was carried on by Dr Leopold Wagner.

In the judgment of the past Directors and of the Secretary of the Junta Directiva, it should be the policy of the School to continue inquiries in regard to these three problems; namely, a chronology of archeology in the Valley of Mexico; the analysis of the grammar of Mexican languages; and the folklore and phonetics of Mexican in relation to their Spanish and Indian sources.

3. COLLECTIONS AND PUBLICATIONS OF THE SCHOOL

It has been the opinion of the Patrons and Protectors of the School that the essential scientific results of the work of the School should be placed in the Mexican Republic. For this reason it is deemed essential by all the participants that not only the most important parts of the collections, as illustrating the scientific points gained, should be deposited in the National Museum of Mexico, as is required by law, but that also the important publications of the School should be made in Mexico, so far as this may be feasible. In accordance with this plan, the Secretary of the Junta Directiva has attempted to induce in every case the investigators connected with the School to give the opportunity to the Mexican Government to publish their work, if the Government should be so inclined. The Secretary of the Junta Directiva also believes that the important specimens of the School should be published, and should in this way be made accessible to scientists who are devoting themselves to the investigation of Mexican antiquities and of Mexican ethnology. In accordance with this plan, a selection of specimens was made during the second year, in which all the essential scientific points brought out by the School inquiry were represented, and the specimens thus selected were illustrated in an Album that has been printed in Mexico City. It is the opinion of the Secretary of the Junta Directiva that the School should continue to publish illustrations in this manner.

It may not be amiss to call attention here to the fact that the problems to which the School devotes itself make it necessary that particular attention should be paid to all fragments, however unsightly, that may reveal important data in regard to our studies. This is the reason why the School collections contain so many fragments of pottery (*tepalcates*). If the Secretary of the Junta Directiva is allowed to express an opinion, he would like to say that one of the greatest needs for the advancement of scientific archeology is the establishment of a building or at least of rooms, which would enable the Museum to deposit in trays accessible to the student, although not necessarily accessible to the public, a large collection of broken material that is indispensable for an accurate study

of our problems. As long as this is not available, the handling of material of this type will always be difficult. It is not by any means necessary to preserve in Mexico everything of this type that is found, but a selection like the one illustrated in the Album should be available to students.

FRANZ BOAS

LIST OF PUBLICATIONS AND MANUSCRIPTS¹

1. Eduard Seler, *Archaeologische Reisen in Süd- und Mittel-Amerika* (*Zeitschrift für Ethnologie*, Berlin, vol. xlv, 1912, pp. 201-242).
2. Eduard Seler, *Die Stuckfassade von Acanah in Yucatan* (*Sitzungsberichte der K. preussischen Akademie der Wissenschaften*, vol. xlvii, 1911, pp. 1011-1025, 10 pl.).
3. J. Alden Mason, *Four Mexican-Spanish Fairy-Tales* (*Journal of American Folk-Lore*, vol. xxv, 1912, pp. 191-198).
4. W. H. Mechling, *Stories from Tuxtepec, Oaxaca* (*Ibid.*, vol. xxv, pp. 199-203).
5. Franz Boas, *Notes on Mexican Folk-Lore* (*Ibid.*, vol. xxv, pp. 204-260).
6. Franz Boas, *Notes on the Chatino* (*American Anthropologist*, N.S., vol. xv, 1913, pp. 78-86).
7. Franz Boas, *Archaeological Investigations in the Valley of Mexico by the International School, 1911-12* (*Proceedings of the 18th International Congress of Americanists*, London, pp. 176-179).
8. Franz Boas, *Phonetics of the Mexican Language* (abstract) (*Ibid.*, pp. 107-108).
9. Manuel Gamio, *Arqueología de Atzacapotzalco, D. F., México* (*Ibid.*, pp. 180-187).
10. Isabel Ramírez Castañeda, *El folk-lore de Milpa Alta, D. F., México* (*Ibid.*, pp. 352-361).
11. J. Alden Mason, *The Tepehuán Indians of Azqueltán* (*Ibid.*, pp. 344-351).
12. J. Alden Mason, *Folk-Tales of the Tepecanos* (*Journal of American Folk-Lore*, vol. xxvii, 1914, pp. 148-210 [véase: Aurelio M. Espinosa, *Comparative Notes on New-Mexican and Mexican Spanish Folk-Tales*, *Ibid.*, pp. 211-231]).
13. *Escuela Internacional de Arqueología y Etnología Americanas, Año Escolar de 1910 a 1911. Informe del Presidente de la Junta Directiva. México 1912. pp. 1-32.*

¹ Those marked (*) are partially printed; (†) manuscripts completed and in the hands of the Secretary of the Junta Directiva; (‡) manuscripts in preparation.

14. — Año Escolar de 1911 a 1912. Informe del Presidente de la Junta Directiva. México 1913. pp. 1-14.
15. — Anexo al Informe del Presidente de la Junta Directiva, Año 1911 a 1912: Exposición de Trabajos en la Sala de Conferencias del Museo Nacional de Arqueología, Historia y Etnología. pp. 1-20.
16. Jorge Engerrand, Discurso Inaugural y Reseña de la Exposición anual de la Escuela Internacional de Arqueología y Etnología Americanas (Boletín del Museo Nacional de Arqueología, Historia y Etnología, vol. ii, México, 1913, pp. 263-269).
17. W. H. Mechling, Languages of Oaxaca (*American Anthropologist*, N.S., vol. xiv, pp. 643-682).
- 18.* Franz Boas, El Dialecto Mexicano de Pochutla, Oaxaca (Museo Nacional de Arqueología, Historia y Etnología).
- 19.* Álbum de arqueología mexicana hecho con 69 láminas (plates finished, texts by Sr. Manuel Gamio).
- 20.* Isabel Ramírez y Casteñeda, Apuntes acerca de los Monumentos de la Parroquia de Tlalnepantla (in *Anales del Museo Nacional*, vol. iv, 1913).
- 21.† Franz Boas, Pottery Designs from Culhuacán, D. F. (to be published by the Museum of the University of Pennsylvania, Philadelphia, Pa.).
- 22.† Paul Radin, El folk-lore de Oaxaca (to be published by co-operation of the Hispanic Society of America with the International School).
- 23.† Paul Radin, Phonetics of Zapotecan Dialects.
- 24.† Paul Radin, The Huave, Grammar, Dictionary, and Texts.
- 25.† W. H. Mechling, Notes on the Mexican Dialect of Tuxtepec, Oaxaca.
- 26.† J. Alden Mason, Grammar and Texts of the Tepecanos (to be published by the New York Academy of Sciences).
- 27.† [Alfred M. Tozzer] Año Escolar de 1913-1914. Informe del Presidente de la Junta Directiva.
- 28.† J. Alden Mason, Religion of the Tepecanos.
- 29.† Franz Boas, Archaeological Observations between Teul and Mesquiteal del Oro, Zacatecas.
- 30.† Franz Boas, Folk-Tales in Modern Mexican.
- 31.† Jorge Engerrand, A report on archaeological investigations in Colima.
- 32.† [Jorge Engerrand] Año Escolar de 1912-1913. Informe del Presidente de la Junta Directiva.

- 33.† Clarence L. Hay, The "tipo arcaico" and its place in the cultures of the Valley of Mexico.
 34.† Alfred M. Tozzer, The excavation of a pre-Aztec site in the Valley of Mexico.
 35.† Max Leopold Wagner, The Spanish Language as spoken in Mexico.
 36.† Folk-Tales, Romances, Riddles, and Songs from the Federal District and from the State of Vera Cruz.
 37.† Infancia de N^{ra} Sr. Jesu-Cristo.—MS. del siglo XVI de Tlacotalpan, Vera Cruz.

REPORT OF THE DIRECTOR FOR 1913-1914

SEÑOR PROFESSOR DOCTOR D. EZEQUIEL A. CHÁVEZ,
 President of the International School of American
 Archeology and Ethnology, Mexico.

Sir,—

As Director of the School for 1913-1914, I have the honor to submit to you a report of the activities of the School for the year.

Managing Committee of the School

President, Professor D. Ezequiel A. Chávez, Delegate of the Government of Mexico.
 Secretary, Professor Franz Boas, Delegate of Columbia University.
 Secretary in Mexico, Doctor Alfonso Pruneda.
 Professor Eduard Seler, Delegate of the Government of Prussia.
 Professor Roland B. Dixon, Delegate of Harvard University.
 Professor George B. Gordon, Delegate of the University of Pennsylvania.
 Archer M. Huntington, Esqr., President of the Hispanic Society of America.

Directors and Fellows

Director: Professor Alfred M. Tozzer, nominated by Harvard University.
 Fellows: Señor Rodrigo Gamio, nominated by the Government of Mexico.
 Señorita Isabel Ramírez y Castañeda, nominated by the Government of Mexico.
 Doctor Max Leopold Wagner, nominated by the Government of Prussia and the Hispanic Society of America.
 William H. Mechling, A.M., nominated by the University of Pennsylvania.
 Clarence L. Hay, A.M., nominated by Harvard University.

The work of the School for the year was in the following fields of research: the Spanish language in Mexico, the diffusion of Spanish narrative literature in Mexico, Spanish folklore, Mexican linguistics, Mexican folklore, and archeology.

Dr. Max Wagner, the Prussian and Hispanic Society Fellow, worked in Mexico, Cordoba, Alvarado, Tlacotalpam, Cosamaloapam, and part of Tehuantepec. An endeavor was made to ascertain the present status of the Spanish language, literature, and folklore in Mexico. Dr. Wagner gathered ample linguistic material to enable him to publish a general work on the Spanish language as spoken in Mexico. He also collected a large number of words of the jargon of the Mexicans together with some poems in a secret jargon and some popular texts. These have never been fully investigated and they offer much philological and sociological interest.

In Dr. Wagner's study of the vitality of Spanish tradition he found that the Spanish tales, riddles, and songs were much better preserved among the Indians than among those who speak only Spanish. The words and music of many songs were transcribed, including those of children, lullabies, quintas, sextas, decimas and romances or corridos. Dr. Wagner had the good fortune to find in Tlacotalpam in the state of Vera Cruz a book of great linguistic and literary importance, dating probably from the sixteenth century. The book was printed in Spain, and serves as a text for the sacred performances still given each year at Christmas. The book is unknown to the literary world. It deserves great attention, because the unknown author shows himself a clever dramatist. The book contains many pastoral scenes written in the old dialect of Andalusia. It is also important for the history of the sacred performances in Mexico.

William H. Mechling, the University of Pennsylvania Fellow, continued his studies, begun under Dr. Boas in 1911-1912, upon the Nahuatl dialect spoken in Tuxtepec, Vera Cruz. He verified his former texts, collected several new ones, and amplified his grammatical material on this dialect now on the verge of extinction. He also studied the dialects spoken in Santiago Aculo and San Andres Aculo in the canton of Cosomahuapan, in Vera Cruz, Jaltipan on the Isthmus of Tehuantepec, and San Andres and Santiago Tuxtla. The dialects of this part of the state of Vera Cruz seem to fall into four groups: (1) Those northwest of the Papaloahuapan River; (2) Those of Santiago and Acula; (3) Those of Tuxtepec and the Isthmus of Tehuantepec; (4) Those of the Tuxtlas.

The limits of the Chinantec language were determined. It was found

to extend into the northern parts of the districts of Ixtlan, Villa Alta, and Choapan, Oaxaca. The Chinantec area is divided into two districts, —one the *tierra caliente*, and the other the high arid plateau. This division seems to be physical, linguistic, and ethnic. The work on the Chinantec seems to show that it has little relation with the surrounding languages. It is difficult to record phonetically, as it has not only pitch accent, but long and short vowels with a very definite quality, together with glottal stops. Some material was also collected on the Mazatec language.

Mr Mechling was able to make an archeological reconnaissance of the territory covered by his linguistic studies.

Miss Castañeda, one of the Mexican Fellows, spent the greater part of the year writing her report on the interesting and important collection she excavated at Culhuacán during the previous year. This collection adds much to our knowledge of the southern inhabitants of the Valley of Mexico. Miss Castañeda aided to some extent Dr Wagner in his researches, in addition to collecting many new tales and songs from the native population of the Valley.

Mr Clarence L. Hay, the Harvard Fellow, continued the stratigraphical work near Mexico City, which has been the most important archeological problem of the School. The most extensive work was carried on in San Miguel Amantla. Here the "tipo arcaico," also called the "tipo de cerro" and the "tipo montaña," was found *in situ* from 3 to 3.5 meters below the surface. A few pieces of this type were encountered as high as 2 meters from the surface. Mr Hay has shown beyond any reasonable doubt that the objects are where they were left by man and were not washed down from the hills into their present position. Many figurines of this type were found much larger than those hitherto excavated. These were often covered with white paint, and showed no signs of being water-worn. Several excavations were made on the ranch of Don Julio Díaz near the station of Naucalpan on the road to Toluca, and also on the slopes of the hill of Los Remedios. A most interesting collection of very large figurines of the "tipo arcaico" were found in these places, seldom deeper than 1.25 m. from the surface.

Collections of the same type were also obtained from Contreras, Texcoco, Zacatengo and the hills of Guadalupe, Peñon de los Baños, San Angel, and Coyoacan. Mr Hay has figurines and pottery closely resembling the primitive type which he found at Cuatololapan in the State of Vera Cruz. He also has a figurine from Guatemala which seems clearly to belong to the same type. Photographs of several images taken

by Mr Pablo Henning in Salvador show a strong resemblance to the "tipo arcaico" of the Valley of Mexico. It seems clear that we shall have to extend the limits of this primitive type as far to the east as it has already been extended into Colima and Michoacan on the west. The presence of similar types far to the south may show that we have here something representative of that early stage of culture which spread over the whole of Middle America and from which the various cultures now known as pre-Nahua, Zapotec, and Maya have sprung.

The Director and Mr Gamio, one of the Mexican Fellows, investigated two sites in the village of San Miguel Amantla from a stratigraphical point of view, endeavoring to trace the course of the ancient river-bed. The results were not satisfactory, as the trenches, although continued for some distance, failed to show the banks of the river. Much water-worn pottery sherds and a few figurines of the "tipo arcaico" were found.

The greater part of the time was spent in excavating a "cerrito" a short distance west of the village of Santiago Ahuizotla. The site proved to be of some importance, and I am glad to state that through the initiative of Señor Manuel Gamio, the Inspector of Ruins, the excavations have been taken over by the Government of Mexico and made a "national monument." The site was found to cover an area of about 1,000 square meters. Floors on three distinct levels were found. From the position and character of the objects found it seems clear that the main portion of the site dates back to early pre-Aztec times. It continued to be occupied, however, into the Aztec period. The lowest floors are badly damaged. They were followed in all directions by means of tunnels. The main edifice is on the second floor level and was completely uncovered. The walls and floors are well preserved. This building, 17 meters square, is surrounded by a low stone-faced terrace. To the north and south of the main structure other rooms were found. There is a striking similarity between the room plans on this level and those of the rooms excavated near the pyramids at San Juan Teotihuacán. The highest level floors date only from Aztec times. These were only a few feet beneath the present surface of the ground.

A large collection of all the main types of pre-Aztec and Aztec pottery and figurines was made. The greater part of the earlier type came from four well-like reservoirs beneath the floors and from large ash deposits under the floor of the southern rooms. The excavation of this "cerrito" shows the importance of a systematic investigation of the large number of other artificial mounds scattered over the Valley of Mexico. As a beginning of this work Señor Rodrigo Gamio is at work

upon a map of the Valley with the sites already explored by the Government and by the School and those awaiting exploration.

Respectfully submitted,

ALFRED M. TOZZER,

Director

CAMBRIDGE, MASSACHUSETTS,

14 October, 1914.

DISCUSSION AND CORRESPONDENCE

THE ESKIMO SCREW AS A CULTURE-HISTORICAL PROBLEM

THE highly interesting article of Mr Morten P. Porsild, *The Principle of the Screw in the Technique of the Eskimo*,¹ is fully entitled to the serious attention of all students interested in technology and the general development of human culture. The positive conclusion that "the principle of the screw is an old and original invention of the Eskimo, executed by a method of his own," indicates a problem of so great importance, that it cannot be left unnoticed or viewed with indifference by the historian of civilization. It is from the latter's point of view that I wish briefly to discuss the problem raised by Mr Porsild, and the remarkable conclusions reached by this scholar. By way of apology, I feel I have to state at the outset that I thoroughly disclaim any special knowledge of the Eskimo and their culture, and that the insignificant knowledge I may have of the subject is solely based on accessible literature and museum material. In anticipation, however, of criticism of my opinion on the part of students of real Eskimo life, which I should certainly be pleased to receive, I may say that my sympathy for this admirable people is no less than their own, and that my views are not biased by any sentiment in the matter. The principal question which I endeavor to answer for myself, and for others similarly inclined, is, Will the universal history of human culture be able to accept Mr Porsild's result as a definite fact, and how will it be reconciled or assimilated to other allied facts known to us? In other words, what is the position of the Eskimo screw in the general history of this mechanical device? And if it be true that the screw is an original and independent contrivance of the Eskimo, how will the previous views held concerning the development of the screw be affected or modified by the amazing thesis of Eskimoan originality? In using the word "amazing," I strike a keynote untouched by Mr Porsild. Amazing it is, because the Eskimo are the only known primitive tribes in the world acquainted with the application of the screw; and not only that, even the most advanced civilizations of antiquity—like those of ancient Egypt, Mesopotamia, India, and China—have never as yet yielded the slightest trace that would reveal any familiarity with

¹ *American Anthropologist*, N. S., vol. 17, pp. 1-16.

a screw device. The Chinese, we know positively, never were acquainted with it, but learned it only in the possession of Europeans, and have not yet adopted it in their home industries. The screw is an exclusively and decidedly European invention, peculiar to the Mediterranean culture area, in all probability first conceived by Greek mechanics approximately in the second or first century B.C. It represents one of the most recent, if not the very latest, of all human implements. In view of these facts, which are here cited merely for preliminary information, the problem of the Eskimo screw does not appear to me so simple and so easy of solution, but, on the contrary, extremely complex; and the whole question merits renewed and more profound discussion in the light of the history of the screw.

Before entering on this subject, I may be allowed to add some bibliographical references which seem to have escaped the attention of Mr Porsild. In 1901, E. Krause, at the Museum für Völkerkunde in Berlin, published a brief article on the Eskimo screw.¹ He spontaneously discovered the screw in three arrow-heads with points of reindeer-antler, collected in 1882 and 1883 by Captain J. A. Jacobsen at Singrak, Alaska. These are well figured and described in his article. Krause made a plea for the native origin of the screw, though the interrogative form of the title of his article shows that he was not fully confident of his proposition. He advanced two reasons which induced him to ascribe the invention to the Eskimo: if the Eskimo screw had originated in imitation of an introduced screw, it would certainly have received more threads, in harmony with the latter, instead of only the one which it has; there are further rudimentary screws forming a missing link between the pegs with a single thread and the usually conical or also double-conical peg of the arrow-heads. Krause's opinion was immediately antagonized by K. von den Steinen,² who most emphatically denied that the Eskimo ever invented the screw. This ethnologist adopted an historical point of view in the study of the subject, without, however, citing positive and specific historical facts which would substantiate his theory that the Eskimo screw is the result of attempts to reproduce imported European models. He generally invoked the commercial intercourse of the Alaskan Eskimo with Chukchee and Russians, and, among other things, appealed to a deserted and well-preserved telegraphic station on Bering Strait, erected in 1867, and visited by Jacobsen.

¹ "Die Schraube, eine Eskimo-Erfindung?" *Globus*, Vol. LXXIX, 1901, pp. 8-9 (7 figs.).

² "Die Schraube, keine Eskimo-Erfindung." *Globus*, Vol. LXXIX, 1901, pp. 125-127 (9 figs.).

The fact that the Eskimo opposite the Asiatic East Cape, twenty years ago, had ample opportunity of acquainting themselves with European screws, cannot be contested. Von den Steinen concludes. This possibility nobody will deny, but possibilities are not historical facts. The question first to be answered would be, Were screws of European or American origin ever actually found among the Alaskan or other Eskimo? The present evidence, as conscientiously gathered by Porsild, surely points to a far greater age of the screw than a mere score of years. It was the merit of Von den Steinen at that time, however, to have increased the material available for discussion by thirteen interesting objects. Among these are arrow-heads from graves in the western part of Greenland, showing well-developed screws. This afforded Von den Steinen occasion for the conclusion that, if it is difficult to believe in the Eskimo invention of the screw, it is indeed impossible to assume that it should have been invented by them twice,—once in the west, and once more in the east,—and in both cases in those localities where they were well acquainted with European Iron-ware. The left-handedness of the Eskimo screw was explained by Von den Steinen in the same manner as by Ryder and Porsild. He figured also a wooden pole in which a right-handed screw of fourteen rather regular grooves is carved,—very similar to the object illustrated by Porsild in Fig. 7. In conclusion, he generalized that the Eskimo were particularly gifted at learning technical stunts from Europeans, as emphasized by observers; the screw is merely an occasional and sporadic application of an introduced technique, whose influence on the Eskimo we are perhaps inclined to undervalue also in other lines. None of these arguments, to which we shall revert further on, really hits the case, and none is convincing to me.

Half a year later Miss H. Newell Wardle of Philadelphia took the platform.² She reviewed Eskimo material in the Museum of the Academy of Natural Sciences, Philadelphia, and rejected Von den Steinen's views, for the reason that the same ideas must originate in the same states of culture or in similar environments, intellectual or economic. "The intellectual abilities of the Eskimo cannot be doubted, their inexhaustible ingenuity has astounded all observers, and even the Aryan did not think it below his dignity to appropriate the more perfect harpoon of his 'barbaric' brother whale-hunter." Miss Wardle tried to explain the left-handed Eskimo screw from the spirally twisted tusk of the narwhal, which the people should somehow have attempted to imitate. This suggestion, however ingenious, is not plausible; we may even say it is rather improbable.

¹ "Die Eskimos und die Schraube," *Globus*, Vol. LXXX, 1901, pp. 226-227 (3 figs.).

If the Eskimo are acquainted with the screw, the main question that arises is, What relation does it bear to the European screw? And what is the history of the latter? We have no opportunity of studying the gradual development of this device, like that of so many other implements. It all of a sudden appears as an accomplished fact, scientifically understood and applied. Its first description and illustration, at once intelligent and scientific, we owe to the genius of Heron of Alexandria, instructor of a school for mechanics and surveyors, and the most prominent physicist produced by the ancients. His lifetime is not exactly ascertained; but, in the judgment of the latest and most competent scholars, he lived in the second half of the second century B.C., while others assign him to the first century A.D.¹ The Greek original of Heron's work on mechanics is lost; but it is preserved in an Arabic translation, ordered by the Caliph Abu'l Abbās Ahmed Ibn al-Mutasim (833-842), and extant in four manuscripts (Leiden, British Museum, Constantinople, and Cairo).² The screw,³ according to Heron, forms the fifth of the six mechanical powers, and is theoretically explained from a cylinder moving over a plain. A side of the cylinder is supposed to be in motion, and a point to move on this side from its extremity; this point runs through the whole side in the same interval as it takes this side to turn once around the surface of the cylinder and to come back to its starting-point. The curve described by this point on the cylindrical surface is the thread of a screw, designated as the screw. Then Heron proceeds to describe minutely the making, use, and properties of screws, single, and in combination with other mechanical powers.⁴ The most interesting of these instruments is the screw-press employed in the production of olive-oil.⁵ Oil being one of the chief articles of food among the ancients, the mechanical improvement of the oil-presses was a matter of large bearing upon economic progress. Pliny⁶ informs us that

¹ W. Schmidt, *Heronis opera*, Vol. I, p. xxiv (Leipzig, 1899).

² First edited by Carra de Vaux, *Les mécaniques ou l'éleveur de Héron d'Alexandrie publiées pour la première fois sur la version arabe de Qostā ibn Luqā et traduites en français*. Paris, 1894 (Extrait du *Journal asiatique*). Best edition by L. Nix in Nix and Schmidt, *Heronis opera*, Vol. II, fasc. 1 (Leipzig, 1900).

³ Greek *σέχλος* or *σέχλος* (Latin *cochlea*), which originally means "a snail with a spiral shell." The female screw is *σπειρόσχος*; Latin has no word for the latter.

⁴ Carra de Vaux, *l. c.*, pp. 101-106; Nix, *l. c.*, pp. 104-112. A small portion of Heron's work on mechanics is preserved in the "Synagoge," the mathematical collection of Pappus of Alexandria, who lived under the Emperor Diocletian (285-305). Among these fragments is also the description of the screw (Nix, *ibid.*, pp. 283-291).

⁵ Nix, *ibid.*, pp. 240-252 (with two illustrations).

⁶ *Nat. hist.*, xviii, 74, § 317 (ed. Mayhoff, Vol. III, p. 231).

the ancients used to hold down the press-boards with ropes and leather thongs, wrought by levers; that within the last hundred years the Greek press (*Græcanica*) had been invented, in which the grooves of the male screw pass through and around the female screw;¹ and that only within the last twenty-two years had a less unwieldy press with smaller boards been contrived. In this apparatus the stem of the screw was placed in the center. The screw was directly utilized in the act of pressing, the whole pressure being concentrated upon broad planks placed over the olives or grapes. Representations of presses have come down to us on wall-paintings of Pompeii; for instance, a clothes-press, which is worked by two upright screws, precisely in the same manner as our own linen-presses.²

Besides the screw-press, the ancients were acquainted likewise with the employment of screws for magnifying a motion and rendering it easily manageable and measurable,—the same principle as we still apply in the screw-feet of instruments of precision. The vaginal specula of the Roman surgeons were provided with screws to open or close the bows of these instruments according to need. Three specimens discovered in Pompeii are in the Naples Museum. They are illustrated and described by J. S. Milne.³ In one of these, 25 cm. long, the blades are at right angles to the instrument, and when closed form a tube the size of the thumb. On turning the screw, a cross-bar forces the two upper blades outward till sufficient dilation is secured for operative purposes. In

¹ This passage offers many technical difficulties, the discussion of which would be out of place here. I have adopted the interpretation of H. Blümner (*Technologie und Terminologie der Gewerbe und Künste bei Griechen und Römern*, Vol. I, 2d ed., p. 348). According to Nix and Schmidt (*Herons opera*, Vol. II, p. 388), who reproduce the text of Pliny, this kind of press survived in the Canton of Graubünden till the seventeenth and even the nineteenth century.

² Figured by Blümner, *l. c.*, p. 188; Overbeck-Mau, *Pompeii*, p. 393; W. Smith, *Dictionary of Greek and Roman Antiquities*, Vol. I, p. 464. Aside from Pliny, the screw is mentioned by the architect and engineer Vitruvius (*De architectura*, vi, 7, 3), who lived in the first century B.C.; it was therefore known to the Romans before Pliny's lifetime. In the translation of M. H. Morgan (Vitruvius, *The Ten Books on Architecture*, p. 184, Cambridge, 1914) the passage runs thus: "The pressing room itself, if the pressure is exerted by means of levers and a beam, and not worked by turning screws, should be not less than forty feet long, which will give the lever man a convenient amount of space." E. Krause, accordingly, in his article in *Glossar* cited above, was entirely misguided in asserting that "the Eskimo had advanced much further than the highly cultivated and over-refined Romans in the age of the imperium; for despite their progressive culture they did not know the screw." K. von den Steinen, in his reply, quoted this observation without adding any comment.

³ *Surgical Instruments in Greek and Roman Times*, pp. 151, 152 (Oxford, 1907).

another, on turning the screw, the lower blades could be drawn downward, at the same time separating slightly, while the upper blades diverged also. In one instrument the screw is left-handed; in another, right-handed. Paulus of Aegina, a celebrated physician of the seventh century A.D., in his description of the speculum, does not fail to call attention to the screw, which he says is to be turned by the assistant, while the speculum itself is to be held by the operator.

As to the further history of the screw,¹ it may suffice for the purpose in view to emphasize two important facts,—first, that the Romans passed the principle of the screw on to the peoples of central Europe, to whom it was a foreign affair; in short, that the modern development of the screw is an inheritance of classical antiquity; and, second, that the Arabs derived their knowledge of it from the Greeks. Reference has already been made to the Arabic translation of Heron's fundamental work on mechanics, in which the principle and application of the screw are described theoretically and practically. The most prominent of the native Arabic works on technology is the *Mafātih al-ulūm* (*Keys of the Sciences*), by al-Khārizmī, a mathematician who lived about 820 under the caliphate of Mamun. He describes the screw (*al-laulab*) as a well-known contrivance employed by carpenters and architects in laying foundations; and he mentions the oil-press in conformity with Heron, his term for the latter, *al-gālājārā*, being reproduced from the Greek γαλέγρα.² The history of the screw, accordingly, presents an unbroken chain of development which is well determined within the area of Mediterranean

¹ A history of the screw has not yet been written. What F. M. Feldhaus (*Technik der Vorzeit*, col. 981, Leipzig, 1914) offers on this subject can hardly be looked upon as a useful or trustworthy contribution, as it suffers, like many articles in this technological dictionary, from serious defects: lack of criticism and historical sense, misinformation and inaccuracy. The so-called Archimedean screw (see Blümner, *l. c.*, Vol. IV, pp. 121-126; and C. G. de Montauzan, *Essai sur la science et l'art de l'ingénieur aux premiers siècles de l'empire romain*, pp. 90-91, Paris, 1908), which is a spiral pump for raising water, with a pipe coiled like a screw, is not to be connected with the history of the screw proper, as asserted by Feldhaus; still less so what he styles the peculiar thread of a screw in the spindle whorls of the Himalaya. These whorls are quite familiar to me, and are decorated with grooves of concentric circles which have nothing to do with the threads of a screw. According to Feldhaus, the screw-line occurs as ornament as early as the bronze age, particularly in the large rings for the neck. Such twisted metal rings, as occur also in China in the form of bracelets or in the handles of vessels, are modelled after ropes, and, at any rate, bear no relation to a screw. The fundamental passages of Heron's work on mechanics are not pointed out or discussed, while reference is made to an incidental mention of the screw in his *Pneumatica*.

² E. Wiedemann, "Zur Mechanik und Technik bei den Arabern" (*Sitzungsber. phys.-med. Soc. Erlangen*, Vol. 38, 1906, p. 21).

civilization. The screw is not an invention of primitive man; in the works of ethnologists (for instance, in those of Lubbock, E. B. Tylor, O. T. Mason, H. Schurtz, etc.) it is conspicuous by its absence. Neither is it a prehistoric invention; prehistoric archeology is reticent about it. It is a comparatively late invention of historical times, appearing under the full searchlight of history. The ancient Greeks and Romans, as well as the ancient Egyptians, were still in complete ignorance of it, till it unexpectedly came to light in the Alexandrian epoch. We cannot say exactly when, where, and under what circumstances, the idea sprang up. Certain it is that the first invention was conceived on Egyptian soil, perhaps within the precincts of Alexandria, by men of thorough mechanical training, presumably those attached to or in close touch with the scientific schools of the great Hellenistic emporium. We hear nothing of experiments gradually leading to the idea: it was born like Pallas Athene from Jupiter's head,—a clear, self-conscious, and accomplished fact. Whether those mechanics were Egyptians or Greeks (Heron was probably an Egyptian) cannot be decided, either. The only safe formula to express the event is that the invention was accomplished within the time and boundary of Hellenistic civilization in Egypt, during the second or first century prior to our era. In the first century B.C. it spread from Egypt or Hellas to Italy. We further note that the screw then was not an accidental or passing toy, but, as a matter of necessity, was applied with perfect logic and volition to machines or instruments, which without it were clumsy and inefficient, and which in combination with it were suddenly turned into highly useful and time-saving devices, denoting a rapid step of technical and economic progress.

In applying this lesson to the Eskimo screw, we fail to see this idea of absolute necessity, essential function, and technical progress, in the adoption of the screw, however manifest its purpose may be. The Eskimo implements provided with this device are not only conceivable without it, but, in the case of the arrow-heads and plugs, in fact are so made. There is no Eskimo implement in which the screw fulfills so indispensable a function that it would not be equally effectual if it were devoid of it. In the mechanical contrivances of the ancients we readily recognize the motive prompting the introduction of the screw, while the motive is not conspicuous in the Eskimo screw devices; at least, students of Eskimo culture have not yet discussed this side of the question. Another point to be noticed is that Eskimo knowledge of the screw is somewhat limited or one-sided, inasmuch as only the male screw, not the female screw, is known to them; and in case the theory of indigenous

origin can be upheld, more stress should be laid on the study of the diversity of Eskimo screws from our own. Our inquiry bears out the fact that the Eskimo screw is an isolated and exceptional case in ethnic life, outside of our own culture sphere; and this is the very reason why the case is so intensely interesting and sympathetic. If the originality of this invention among the Eskimo could unobjectionably be proved, the case would certainly be remarkable, and would considerably affect and influence our opinions regarding analogous phenomena. It would stand out as an illustration of the first order, of independent invention. In view of this significance, however, we must insist on intrinsic and clean-cut evidence which is acceptable to the thinking majority; while at the outset such broad generalizations, based on theorizing speculations, as those advanced by Von den Steinen and Miss Wardle, should be strictly barred. The conclusion, for instance, that the Eskimo could not have invented the screw, because many other peoples of a higher degree of culture never invented it, and because this supposition would seriously disturb the circle constructed by us for the history of "our" screw, might prove also a fallacy, although the extraordinary isolation of the Eskimo screw remains a fact not easily to be disregarded. Everything is possible, and nothing is impossible. The possibility that the Eskimo might have conceived the principle of the screw independently must plainly be admitted. I for my part not only admit this, but even wish that definite proof might soon be established beyond any doubt. For the present, however, I have to confess that, despite all the meritorious efforts hitherto made, exact evidence in favor of Eskimo originality does not yet seem to me to be satisfactory or positively assured. We have had expressions of opinion from our prominent Eskimo scholars—opinions highly valued, as they are based on solid information—but we have not yet heard from the Eskimo themselves, who should be induced to take the witness-stand in their own defence. May I venture to suggest to Mr Porsild, who apparently is stationed among the people in Greenland, that he question his friends as to their knowledge of the bolder man, who, as the first among them, ventured on the manufacture of a screw, and what reasons prompted him to embark on this scheme? Should the folklore of the Eskimo not make any allusion to this device? Also they may be able to throw some light on the possible interrelation of it and the narwhal-tooth suggested by Miss Wardle, though this idea appears somewhat romantic. The evidence, as summed up by Mr Porsild on p. 15, is not wholly convincing; at least, not to an outsider, who, like the writer, is willing to be convinced. The utmost

concession I can make to him is, that his conclusion is a theory—a very attractive and suggestive one, to be sure—but certainly it is very far, as asserted by him, from becoming a fact which might readily be accepted by science. The “facts which lead to the belief that screw-bearing implements were made before the advent of Europeans into West Greenland,” strictly speaking, are not facts, but suppositions elicited from certain observations, and formulated in a somewhat dogmatic manner. The linguistic evidence gives rise to suspicion. The lack of a proper word for the screw, though not conclusive, augurs a serious defect; at least, it is disappointing. If it existed, if it were named, for instance, “narwhal-tooth,” in analogy to the Greek “snail,”¹ my faith in the theory of indigenous invention would be considerably strengthened. It is certainly possible that the lacunae still existing in our knowledge of the subject (lack of necessity and motive, absence of direct Eskimo information, deficiency of circumstantial evidence), and militating against the opinion of native invention, will be filled in the course of time; but, as long as these postulates are not satisfied, it will be safer to hold judgment in abeyance.

While, on the one hand, I am of the opinion that the case of those pleading the aboriginal invention of the Eskimo screw is not yet substantially backed up, I must confess, on the other hand, that the argumentation of Von den Steinen, who, as far as I know, is the only one to take the opposite stand, is weak, and does not at all carry conviction with me. Von den Steinen would have us believe that the Eskimo of Alaska and those of Greenland, independent of each other, constructed the screw in imitation of foreign products; but he omits to tell us why this double attempt at imitation yielded exactly the same results, and, while there is no other example of a primitive tribe which made a similar effort, the Eskimo in two widely different regions and at different times should have successfully performed the same experiment twice. This point of view seems to me more miraculous than the supposition of the native origin of the screw; it even seems to me to be inspired by poetic rather than scientific insight. It is inconceivable to me that this process of imitation should have taken place at various times and in various localities. If imitation it is, this act must be reduced to the experience of a single primeval occasion, which takes the responsibility for all subsequent instances. With Boas and Porsild, I concur in the opinion that

¹ This, of course, would not mean that Miss Wardle's theory has the right of existence. The ancients did not learn the principle of the screw from the snail, but merely termed it for the snail by way of comparison.

we have to do with a uniform phenomenon affecting all Eskimo tribes alike; and these scholars are certainly justified in regarding its wide geographical distribution and its occurrence in isolated places and ancient sites as symptoms of a certain antiquity.

Thus far we have been confronted with two opinions diametrically opposed,—the declaration of independence and the imitation theory. There remains, however, a third point of view to be taken into consideration. Let us start from an analogous case. The wood-carved snow goggles of the Eskimo with narrow horizontal slit, commanding a sufficient range of vision, without any doubt, represent spontaneous and indigenous invention of this people. Besides this type of goggles, there is another one with two large apertures assuming the outline of the eyeballs, and covered on the inner side with sheets of American or European glass.¹ The latter type, in my opinion, is the result of an adaptation (probably recent) to European-American spectacles or goggles. Accordingly we here face a foreign idea grafted upon an object of old native manufacture, and seemingly producing a net result which might lead the casual observer to condemn the whole affair with the sweeping judgment of being due to an outside impetus. But we have only to study carefully the large varieties and variations of slit-goggles in order to become convinced of the utter baselessness of such a grotesque generalization. This example illustrates that native inventiveness does not preclude the reception of foreign technical features, if these are apt to improve the object or to be pleasing to its makers. An allied process may have been in operation in the case of the screw. Granting the possibility of the comparatively great antiquity of the latter, two characteristics are discernible which in my opinion would speak in favor of a germ of native pre-invention. These are the simple single-threaded screw first emphasized by Krause, for which, as far as I know, no analogy exists in our technique, and the screw-like designs cut into the wedge-shaped plugs for closing the wounds of the seal. In the variations of the latter implement, the history of the development of the technique is perhaps preserved. We note plain pegs, those provided with horizontal, parallel grooves, and those with grooves cut spirally.² Did the screw of the latter, perhaps, result from the design of grooved circles? This primitive

¹ This observation refers to three goggles in the collections of the Field Museum, Chicago (Cat. Nos. 13829, 20288, and 53295), from the Alaskan Eskimo. Also O. T. Mason ("Primitive Travel and Transportation," *Report of U. S. Nat. Mus. for 1894*, pp. 293, 294, 296) has pointed out this type as a "modern adaptation."

² Compare Boas, "Eskimo of Baffin Land and Hudson Bay" (*Bull. Am. Mus. Nat. Hist.*, Vol. XV, 1901, p. 21); and Porsild, *l. c.*, p. 12.

foundation being given, foreign ideas could have been adapted to or transplanted on it. After all, it remains an open question whether the Eskimo screw, technically speaking, may not have had an origin different from that of our own. The fact that it is this very origin which is still shrouded in mystery accounts for the obscurity from which the whole subject labors, and for the variation of possible opinions.

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THE "RED PAINT PEOPLE" OF MAINE.

In justice to New England archeology I cannot let pass unnoticed the communication of your correspondent on page 207 of the preceding number of the *American Anthropologist*. Mr Bushnell says: "The graves discovered by Mr Moorehead on the coast of Maine differ in no respect from those rifled by the Pilgrims near the present Provincetown." This is a statement which facts do not justify. The grave at Cape Cod to which Mr Bushnell especially refers is described by the Pilgrims as follows:¹

Wee found a place like a graue, but it was much bigger and longer than any that we had yet scene. It was also covered with boords, so as we mused what it should be, we resolved to digge it vp, where we found, first a matt, and vnder that a fayre Bow, and there another Matt, and vnder that a boord about three quarters long, finely carued and paynted, with three tynes, or broches on the top, like a Crowne; also betweene the Matts we found Boules, Trayes, Dishes, and such like Trinkets; at length we came to a faire new Matt, and vnder that two Bundles, the one bigger, the other lesse, we opened the greater and found in it a great quantitie of fine and perfect red Powder, and in it the bones and skull of a man. The skull had fine yellow haire still on it, and some of the flesh vnconsumed; there was bound vp with it a knife, a pack-needle, and two or three old iron things. It was bound vp in a Saylers canvas Casacke, and a payre of cloth breeches; the red Powder was a kind of Embaulment, and yielded a strong, but no offensive smell; It was as fine as any flower. We opened the lesse bundle likewise, and found of the same Powder in it, and the bones and head of a little childe; about the leggs, and other parts of it was bound strings, and bracelets of fine white Beads; there was also by it a little Bow, about three quarters long, and some other odd knackes; we brought sundry of the pretiest things away with vs, and covered the Corps vp againe. After this, we digged in sundry like places, but found no more Corne, nor any things els but graues: There was varietie of opinions amongst vs about the embalmed person; some thought it was an *Indian Lord* and King; others sayd, the *Indians* haue all blacke hayre and never

¹ *Journal of the Pilgrims at Plymouth*, Cheever reprint, p. 38.

any was seene with browne or yellow hayre; some thought, it was a Christian of some speciall note, which had dyed amongst them, and they thus buried him to honour him; others thought, they had killed him, and did it in triumph over him.

Mr Bushnell also says: "We have no mention of pottery vessels occurring in these graves." On the contrary, the Pilgrims found an earthen vessel on one of the two graves opened and described by them, as will be seen by the following:¹

We found a little path to certaine heapes of sand, one whereof was covered with old Matts, and had a wooden thing like a mortar whelmed [overturned] on the top of it, and an earthen pot layd in a little hole at the end thereof; we musing what it might be, digged & found a Bow, and, as we thought, Arrowes, but they were rotten; We supposed there were many other things, but because we deemed them graves, we put in the Bow againe and made it vp as it was, and left the rest vntouched, because we thought it would be odious vnto them to ransacke their Sepulchers.

The only resemblance between the graves at Cape Cod and those in Maine was the presence of red paint in one of the former, and while this pigment occurred in considerable quantities in nearly all of the many graves opened in the red paint cemeteries in Maine, its presence is certainly not a characteristic of the later Algonkian graves in New England which contain skeletons. In nearly all of the graves of the later Indians explored by the Peabody Museum, red pigment has not been found, and I have personally opened a number of these in Maine, New Hampshire, and Massachusetts without, so far as I can recall, finding a trace of red paint. Moreover, the occasional use of red paint in burials is common among many tribes and its occurrence in the historic grave at Cape Cod has no ethnic significance whatever. Its presence, however, in such quantities in practically all of the graves of the red paint cemeteries is remarkable. It is probable that similar conditions would be found if a prehistoric cemetery of the Beothuk Indians of Newfoundland were explored, for this people, known as Red Indians by the early explorers, were so called, not because they were naturally of this hue, but for their universal custom of coloring their skin, their garments, canoes, bows and arrows, and all utensils belonging to them with red ocher. The aboriginal everywhere loved red paint and he used it whenever he could obtain it.

The term "Red Paint People" was, if I am not mistaken, first applied by Professor Arlo Bates of the Massachusetts Institute of Technology, whose good work in the Maine shell-heaps is well known

¹ *Ibid.*, p. 33.

to local archeologists. While of no ethnic significance, the term is a convenient one as used in New England archeology, but perhaps it cannot be fully appreciated by those who have had no personal experience in exploring these cemeteries. New England archeologists will, I am sure, be grateful for the suggestion of a better designation.

The Maine cemeteries explored by me in 1892 and 1894,¹ by Mr Marks in 1895, and by Mr Moorehead in 1912-14,² in which, owing to their age, the skeletons had wholly disappeared, were especially remarkable for the great number of stone implements found. Many of these implements were of types unknown in later graves containing skeletons that may be attributed to Algonkian tribes found by the whites occupying New England. Most of the implements may be included under the following divisions: fire-making stones, originally pieces of iron pyrites which owing to the age of the graves had in every instance disintegrated or undergone chemical change; chipped knives and spear points of the ordinary forms; beautifully fashioned and polished slate arrow and spear points; many pear-shaped pendants or "plummets," some of them carved to represent a fish; and a great number of adze blades of various forms and sizes with cutting edges straight or of various degrees of curvature. From 192 of the 246 graves opened by me and by Mr Moorehead, 374 adze blades were taken. Some graves contained but one blade, others as many as ten. No pottery vessels, either whole or in fragments, were found in the graves or on the surface. Tobacco pipes, and stone pestles for grinding corn were also absent. These together with pottery vessels are found frequently in the later Algonkian graves. Although the straight or nearly straight-edged stone adze blade was common to many American tribes and other primitive peoples, in New England and the adjacent territory, we have a development of this implement which is not equalled in other sections of the world, so far as is known.³ The blades occur in remarkable variety and in many sizes, with edges ranging from straight, through various degrees of curvature, to a half circle. They range from the heavy, narrow-edged type evidently fashioned for cutting heavy timber, to the delicate edged forms probably used for finishing various wooden objects. Some of these blades have knobs or a groove at the back for securing the lashing with

¹ Willoughby, *Prehistoric Burial Places in Maine*. Arch. and Eth. Papers of the Peabody Museum, Harvard University, Vol. I, No. 6.

² Moorehead, *The Red Paint People of Maine*, Am. Anthropologist, Jan.-Mar., 1913, p. 33.

³ Willoughby, *The Adze and the Ungrooved Axe of the New England Indians*, Am. Anthropologist, Vol. 9, p. 296.

which they were fastened to the haft. They are, like the modern steel adze, chisel, and gouge, adapted to a great variety of wood working, although in some instances the work was probably hastened by charring the wood.

These adze blades are very common in New England. They occur in certain sections of New York and in portions of the St Lawrence Valley, also in New Brunswick, Nova Scotia, and Newfoundland. From information received from time to time I feel sure that the blades collected as surface finds in southern New England, were ploughed from shallow graves similar to those in the Maine cemeteries. I also feel certain that graves containing similar implements will be found in Nova Scotia, New Brunswick, and Newfoundland. To a student of primitive technology these highly specialized blades suggest a remarkable development in wood working by the early inhabitants of this region. Outside of this locality, so far as is known, the highest development of the stone adze was among the Haida, Tlingit, and other Northwest Coast tribes where the art of working in wood had reached a high degree of excellence. Certain types of blades which are found both in New England and the Northwest do not occur elsewhere, and while practically all of the types of the Northwest are found in New England, there are several highly specialized forms in the latter locality which do not occur in the Northwest.

It seems, therefore, that we have good evidence here of a people highly skilled in working wood on a scale equalling, if not surpassing, the Indians of the Northwest. Like the latter people these early New Englanders apparently made no pottery.

With our present knowledge I will not attempt to establish the relationship of this early people with any historic tribe. They may or may not have been the ancestors of the Beothuk or of some Algonkian division. A careful study of available data, however, seems to indicate that they were not contemporary with the Algonkian tribes whose refuse piles form most of the shell-heaps along the New England coast.

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HOME STUDY IN ETHNOLOGY

THAT the ethnologist or ethnographer is given to wearing spectacles of colored glass, the "specs" of his own culture, none, I may assume, will dispute. Nor is comment worth while, in regard at least to the inadequate observation of unfamiliar facts or their misinterpretation. Of our failure to observe facts too familiar for observation or to free our-

selves of popular sociologizing we may be less aware. Let me give illustrations. I will take them from marriage.

What once put so much vitality into the promiscuity theory? Certainly not facts. Rather certain popular preconceptions the ethnologist was unwittingly influenced by—the preconceptions that social order proceeds from disorder, that the savage is an erratic, undisciplined creature, passionate and ever lustful, and that man, civilized as well as "wild," left to himself, untrammelled by the legal bonds of marriage, will fall back into promiscuity the very moment the occasion offers. Because the ethnologist had been brought up in the idea that the alternative to marriage was "free love", he confided in the theory of marriage as a development from promiscuity.¹

This same preconception has made him not only hasty about the origin of marriage but unobservant of its form or nature. The actual amount of monogamy in a group where there is some polygyny, the reasons for polygyny, the economic or political status of those practising it, to what extent it is merely nominal, all these features likely as not he fails to note, I suspect, because of his fixed notion that man being *naturally* a polygynist he will indulge himself with more than one wife whenever he is allowed.

As to the nature of marriage, because at home marriage to him is just marriage, and one married person very much like another, abroad he rarely observes the relations between husband and wife at all—the kind of companionship they have, or the lack of it, how much they talk together and what about, their formulas, their manners, the difference between their behavior when alone and when in the presence of others,—not to speak of all these matters as they are complicated by polygamy.

Or take the circumstances of divorce. In his own society divorce is so final a break, he fails to note whether or not it is in other societies. Do divorcés ever speak when they meet? Just now I can remember but a single reference to the behavior of divorcés in primitive circles. Among the Yuchi Indians we are told that a man must never speak to his ex-wife under any circumstances as it would lessen her chance with

¹For a particularly naïve example of this connection see Müller-Lyer, *Die Familie*, p. 47. Munich, 1912. If modern constraints—economic, legal, religious, and moral, fail to ensure monogamy, Müller-Lyer argues, in the beginning of society, these constraints lacking, promiscuity must have prevailed. But supposing the great constraint towards monogamy now and always, is habit, and economic, legal, religious and moral constraints merely the buttresses of habit, the justifications, would it seem so necessary to hypothecate promiscuity as a first stage?

other men.¹ Would it not be interesting to know whether this Yuchi point of view is unique or whether it is general? It might at least help us understand some of our own little jokes.

But for the moment I am more concerned with the view of how our own jokes may help us understand the Yuchi. Nor am I forgetful of the orthodox warning against interpreting other cultures in terms of our own, against deliberately putting on the aforesaid colored glasses. It was a very proper warning indeed, given the kind of glasses we wore, a fit caution to the unmitigated legalists and rationalists we once were, utterly unable to interpret our own culture. But nowadays, having acquired a sounder psychological point of view through a study of other cultures, it may be possible for us to become ethnologists at home. Then field-work, I venture to predict, will become greatly enriched in its turn by home study.

ELSIE CLEWS PARSONS

SOME ADDITIONAL NOTES ON THE LANGUAGE OF THE NATIVES
IN THE PATAGONIAN CHANNELS

SOME time after I had published my observations on the natives of the Patagonian channel region,² I had an opportunity to study the relation of Dr Coppinger's journeys³ more carefully. I undertook to compare his small vocabulary with my own and with Hyades' and Fitzroy's lists. The result of this comparison is of some little interest. The vocabulary in question was obtained by Dr Coppinger in Tilly bay situated on the north coast of Santa Inez island in the Straits of Magellan (opposite Jerome channel), thus within the land of the Channel Indians, and the range of the plank canoes (such are also mentioned by Dr Coppinger). The list comprises only fifty words; thirty-three of them are also translated in my vocabulary, for the remaining seventeen I did not happen to get the Indian equivalents. Of those thirty-three words, I can identify, with more or less certainty, seventeen; the other sixteen are widely different; nor do they seem to correspond with words in any other of the Fuegian tongues.

Below is a list of the seventeen corresponding words: C = Coppinger, S = Skottsberg.

basket: *dawyer* (C), *tá'ju* (S),

canoe: *ayoux* (C), *kiá'la* (S).

¹ Speck, F. G., *Ethnology of the Yuchi Indians*, p. 95; Anthropol. Pub. Univ. Pa. Mus., 1.

² *American Anthropologist*, October-December, 1913, pp. 578-616.

³ Cruise of the "Alert," London, 1883.

- dog: *sharkiss* (C), *lu'lei* (S).
 finger-nails: *tharsh* (C); S. has *tāu'xix:rkil* for finger, *jehl* for nail. There is a considerable resemblance between *tharsh* and *tauxl*, for it is to be remembered that Coppinger's *th* does not signify any of the various English *th*'s, but *t*, *h*.
 foot: *hadthakous* (C); S. has *ku'txkōrR* for leg, *le'ku:rrR* for foot, but the latter expression may signify boot.
 hair: *therkous* (C), *te'rrkō:f* (S).
 hand: *therrawaus* (C), *te'rrwa* (S).
 iron-stone: *tuksthaads* (C); surely a piece of iron pyrites, used for making fire; we obtained *i:kā'lā'* for matches, undoubtedly the same word and signifying an implement for striking fire.
 mouse: *ahraceps* (C), *u'trelōp* (S).
 nose: *lor* (C), *lauxl* (S).
 otterskin: *lalthers* (C); S. has *lā'ēld* for otter, *l-hauk'* for otterskin.
 ship's boat: *sherroux* (C), *zō'rru* (S).
 skin of seal: *harkusis-hushkei* (C), *ā'R-keul'* (S).
 spear for fish: *kip-thatharsh* (C), *tā'ldā:rR* (S).
 stomach: *kutshiss* (C), *hai'w'el* (S).
 thigh: *athursh* (C), *ā'il'u* (S).
 tongue: *lēhiss* (C), *lōhl* (S).

In some cases the likeness is not very great, but I have tried to trace whatever there is of it. Coppinger's *kesous*, stone axe, may have something to do with *kjet'flau*, stone (S). His word for eye is *sthole*, for eyebrows however *theseous*, possibly the same as *iēth'liu* (Fitzroy), eye = *tel'l* (S). Two of the children at Tilly bay answered to the names *gounaco* and *gounaco chikachikis*; *gounaco* is probably a corruption of *guanaco*, *chikachikis* = *chikichiki*, a corruption of *chico* (Spanish = small) often used among the natives.

From the comparison made here I conclude, that the natives seen by Dr Coppinger in Tilly bay spoke, at least in part, the same language as the Indians we met with in the Channel region. I cannot tell if the discrepancies depend on mistakes or on the existence of dialects.

To the list on p. 612 in my paper I can add the following words, according to Fitzroy of Alukulup origin, but evidently identical with such as we found in use among the Channel people.

- kēr'rkstā*, to fish = *k'rksta* (S).
ak'ldsh, to fly = *u'pāā'* (S), *ā'lā'* = run (S).
ykh'atā, flower = *i'ksta:xl* (S).

Finally, I use this occasion to correct the following misprints in my paper:

- p. 588, on the map, read "soundings" instead of "scale."
 p. 606, black, *palkuarrR*,² read *-kuarrR*.
 p. 606, footnote 2 belongs to the word captain on p. 607.
 p. 607, blue, *arxRuarrh*, read *-kuarrR*.
 p. 607, to cut, *ajeRahR*, read *ajeRorR*.
 p. 607, to fall, *kuRskal*, read *kurskal*.
 p. 608, harpoon nr 4, *ir²R²il*, read *ir²kl²il*.
 p. 609, footnote 4 corresponds to "rainbow," not to "quiver."
 p. 609, skin, *Rau²*, read *kau²*.
 p. 610, firewood, *4a²4a²*, read *4a²4a²z*.
 p. 610, three, read *tau²kl²* in both words.
 p. 611, footnote 1 corresponds to *Myrtola*, 2 to *Maytenus*.
 p. 612, 1.6 from top, *l²pi²*, read *l²fi²*.
 p. 612, 1.15 from top, *dcR²in²ish*, read *dch²in²ish*.

CARL SKOTTSBERG

UNIVERSITY OF UPSALA
 UPSALA, SWEDEN

THE NEW STOCK NAMES ANNOUNCED FOR CALIFORNIA

The announcement was made in the *American Anthropologist* for 1912, p. 691, of the discovery that certain languages and language groups heretofore considered independent are variously related. Later, a preliminary presentation was made of these new groups for which new family names were proposed.¹

By means of word lists illustrations were given showing the scope and character of the relationship believed to exist. These examples, however, were by no means sufficient proof of the alleged relationships. It has been generally understood that a more adequate presentation of the matter would soon be made.

Recently, one of the two discoverers of these new groupings made use of the proposed family names, assuming apparently that they had been accepted and were entitled to a place in anthropological literature. This is certainly not the case. The mere announcement of the discoveries has aroused considerable interest and the eminent position in anthropology held by the co-authors warrants the expectation that sufficient evidence for this new grouping exists. Until its presentation and examination, however, judgment must be suspended and the new names ought to be barred from the literature.

P. E. G.

¹ *American Anthropologist*, N. S., vol. 15, pp. 647-653.

ANTHROPOLOGIC MISCELLANEA

THE SAN FRANCISCO MEETING

A Special Meeting of the American Anthropological Association will be held at the University of California, Berkeley, August 2 to 7, 1915, in affiliation with Section H of the American Association for the Advancement of Science. While papers on any anthropological subject will be gladly received, those dealing with all the lands bordering on the Pacific Ocean are especially to be desired.

Three sessions have been set aside for papers and discussions of the following subjects:

1. *Race in the Pacific Area, with Special Reference to the Origin of the American Indians:*
 - Antiquity of Human Occupation
 - Racial Relationships and Descent
 - The Influence of Environment
 - Origin and Changes of Type
2. *The History of Civilization in the Pacific Area, with Special Reference to Relations between Asia and the New World:*
 - Sources and Diffusion of Cultures
 - Effect and Environment
 - Correlations in Time
3. *The Social Aspects of Race Factors in the Pacific Area:*
 - Mixture and its Significance
 - Movements of Population as Causes of Cultural Changes
 - Race Differences and Values

The scope of these subjects is the Pacific area as opposed to the Pacific ocean. The subject of these sessions is therefore not Polynesia, but the entire circum-pacific tract including Oceania, Indonesia, Eastern Asia, and the western portion of the two American continents.

Titles of papers intended for presentation and abstracts of the same should be sent to the Chairman of the Local Committee on Programme, Professor A. L. Kroeber, Affiliated Colleges, San Francisco.

A ticket covering the trip from Los Angeles to San Diego for the purpose of visiting the Panama-California Exposition may be secured

without extra charge if asked for when purchasing the excursion ticket from an eastern point.

GEORGE GRANT MACCURDY

*Sec. Amer. Anthropological Assoc. and Section H,
Amer. Assoc. for the Adv. of Science.*

THE REVERSAL by the higher court of the conviction of George G. Heye for the removal of skeletons from an old Indian burial ground in New Jersey is a matter of interest to all persons engaged in archeological work.

NEW JERSEY SUPREME COURT.

November, 5, 1914.

THE STATE

vs.

GEORGE G. HEYE,

Error to the Sussex Special Sessions Court.

Argued before Gummere, Chief Justice, and Justices Garrison and Minturn.

For the plaintiff in error, Robert S. Hudspeth.

For the State, William A. Dolan, Prosecutor of the Pleas Per Curiam:

The defendant was tried and convicted under the 148th section of the Crimes Act, which makes it a high misdemeanor for any one to remove a body of any deceased person from his grave or tomb for the purpose of dissection, or for the purpose of selling the same, or from mere wantonness.

The facts show that the plaintiff in error was an anthropologist, who, while looking for Indian relics in Sandyston township, Sussex County, came across a burial place used by the Indians who inhabited that part of the State two or more centuries ago; that he removed two or three of the skeletons which he found there for the collection of the New York Anthropological Society; about the same number for the Museum of the University of Pennsylvania; and several more for the United States Government at Washington. He did this with the consent of the owner of the land upon which these remains were found. On these facts he was convicted.

It may be that in what plaintiff in error did he violated the laws of decency and morality, but it does not seem to us that he brought himself within the purview of the 148th section of the Crimes Act. He certainly did not remove these skeletons for the purpose of dissection; nor was it shown that he did it for the purpose of making sale of them. His conviction was rested upon the theory that his act was one of mere wantonness. We do not think this conclusion sound. He took them for a specific purpose; and a thing done for a specific purpose, whether that purpose be one which the public generally will approve or disapprove, cannot be said to have been done in mere wantonness.

We conclude the judgment under review should be reversed.

THE AMERICAN ETHNOLOGICAL SOCIETY has addressed the following reply to the French universities, which have addressed the scientific bodies of neutral countries, setting forth their view of the causes of the war:

The American Ethnological Society acknowledges the receipt of the communication of the French universities to the universities of the neutral countries, dated November 3, 1914, and takes the opportunity to express its sincere sympathy for the sufferings that the present war is inflicting upon France and other European countries.

The society appreciates and respects the sentiments that have dictated the statement transmitted to it, but believes, regardless of the feelings of the individual members, that it behooves it to listen with the same respect that it gladly grants to you to the statements emanating from other nations. The society, being located in a neutral country, does not share the passions engendered by the patriotic feelings of the citizens of all the contending nations. It is conscious, however, that if the United States of America should find themselves involved in a similar struggle, our members might feel the same intense desire to convince the world of the righteousness of their cause as impels at present French, German, and British scholars.

At present, on account of the remoteness from warlike passions, the society is mindful that the time will come (and we devoutly hope it may come soon) when the universities and scientists of the whole world may work together again for the true ideals of mankind, that know no national boundaries, when respect for the individuality of each nation may again take the place of harsh recrimination, when the true spirit of coöperation that has characterized scientific work of the past century may reappear. When that moment arrives, the passionate expressions of an excited time will not and must not stand in the way of mutual understanding and of a renewal of old friendships.—*Science*.

F. C. COLE, Assistant Curator of Physical Anthropology and Malayan Ethnology in the Field Museum, Chicago, was granted the degree of Doctor of Philosophy on November 8, 1914, in the Faculty of Philosophy of Columbia University. He presented as his thesis "A Study of Tinguian Folk-Lore," reprinted from his publication "Traditions of the Tinguian, a Study in Philippine Folk-lore," which has just been issued by the Field Museum as No. 1 of Volume 14 of its Anthropological Series.

Doctor Cole lectured on March 13 and 20 at the University of Pennsylvania, Philadelphia, on "The Wild Tribes of the Philippines" and on "The Philippines before and after American Occupation." He was likewise engaged for a lecture at the New Jersey State Normal School at Trenton, N. J., on March 17.

Dr A. B. Lewis, Assistant Curator of Melanesian Ethnology in the Field Museum, Chicago, delivered a lecture on "Native Life and Industries in New Guinea," at the University Museum, Philadelphia, on February 27 of this year.

ANTHROPOLOGICAL field-work of the American Museum of Natural History will center chiefly in the Southwest. Mr N. C. Nelson continues his thorough and detailed exploration of the Galisteo pueblo district which is yielding the first definite stratigraphic data on the archeology of the Southwest. Arrangements for coöperation with the University of Colorado have been made by which similar systematic work will be carried on in Southern Colorado. Ethnological work in the Southwest will be restricted to the problems of relationship and social organization: Professor A. L. Kroeber will work at Zuni and Dr R. H. Lowie among the Hopi. Later in the summer Dr Lowie will continue his study of the Shoshonean tribes of Nevada. Rev. Gilbert L. Wilson will further elaborate his exhaustive studies of Mandan-Hidatsa material culture. In the vicinity of New York City Mr Alanson Skinner will proceed with the special archeological survey of Long Island and the study of certain rock-shelters in New Jersey and Pennsylvania. Mr Leslie Spier will continue the archeological work in Central New Jersey begun last year.

THE museum of the California Academy of Sciences has recently acquired the entire Lowe collection of Indian baskets, pottery, stone implements, Navajo and Chilkat blankets, and miscellaneous objects of Indian manufacture and use. This collection comprises more than 1,500 Indian baskets, and several hundred pieces of pottery and miscellaneous objects. The collection of baskets, which is said to be one of the most complete and valuable in existence relating to the Pacific coast tribes, is the result of many years devoted to the subject by the late Professor and Mrs T. S. C. Lowe, of Pasadena. The collection comes to the academy as an indefinite loan through the generosity of Hon Wm. M. Fitzhugh, of San Francisco. Mr Fitzhugh not only gives the collection, but will also meet all the expenses of labeling, card cataloguing, providing cases of the best type and installing the collection in the academy's new museum building now under construction in Golden Gate Park.—*Science*.

THE following course of lectures was given at the University Museum, Philadelphia:

February 26. Dr Edith H. Hall, of the University Museum, Paintings from Aegean Palaces.

- February 27. Dr A. B. Lewis, of the Field Museum of Natural History, In the Savage South Seas.
- March 6. Frederick Monsen, F.R.G.S., On the Trail of the Spanish Pioneers.
- March 13. Dr Fay Cooper Cole, of the Field Museum of Natural History, The Wild Tribes of the Philippines.
- March 20. Dr Fay Cooper Cole, of the Field Museum of Natural History, The Philippines Before and After the American Occupation.
- March 27. Prof. Howard Crosby Butler, of Princeton University, Byzantine Art.

UNDER the leadership of Dr Hiram Bingham, the National Geographic Society-Yale University Peruvian Expedition sailed from New York on March 3 to continue its work in the Andean Mountains. Members who left New York on this expedition are: Director, Hiram Bingham, Yale University; geologist, Herbert E. Gregory, Ph.D., Silliman professor of geology in Yale University, geologist of the 1912 expedition; naturalist, Edmund Heller, naturalist of the Smithsonian's African expedition, under the leadership of Colonel Roosevelt; botanist, O. F. Cook, Ph.D., of the United States Department of Agriculture; chief engineer, Ellwood C. Erdis, of the 1912 expedition; topographer, Edwin L. Anderson; chief assistant and interpreter, Osgood Hardy, M.A., of the 1912 expedition; assistant topographer, C. F. Westerberg, B.S., and several assistants.—*Science*.

ON FEBRUARY 2 a memorial address was delivered by Dr C. L. G. Anderson before the Anthropological Society of Washington on Dr A. F. A. King, for many years an active member of the Society. Mr J. N. B. Hewitt also read a paper on "The Tree of Life in Tradition." The meeting of February 16 was opened by a short statement by those who had recently returned from field-work of the nature and some of the results of their investigations. It was followed by a paper by Mr William H. Babcock on "The Races of Britain." On March 2 Mr E. T. Williams, Chief of the Division of Far Eastern Affairs of the Department of State, gave an illustrated lecture on "Confucianism; the State Religion of China."

DR W. H. R. RIVERS of Cambridge, England, who had attended the Australian meeting of the British Association for the Advancement of Science and subsequently supplemented some of his earlier field-work in the South Seas, made his return trip by way of the United States, sailing from New York on April 10th. Brief stays at San Francisco,

Washington, and New York gave his American colleagues a long-desired opportunity to exchange views with this distinguished anthropologist, whose recently published *Kinship and Social Organisation* and *The History of Melanesian Society* are bound to stimulate discussion and research for years to come.

PROFESSOR FELIX VON LUSCHAN, who sailed from New York on April 29, was likewise a guest of the British Association at the Australian meeting. He returned by way of Hawaii and the United States, where he visited the principal museums and attended the annual session of the American Anthropological Association at Philadelphia. Fortunately, he was able to devote several weeks prior to his departure to an anthropometric investigation of Southern Negroes and the relevant problems of miscegenation. Professor von Luschan and Dr Rivers both attended a reunion of resident anthropological workers at Professor Boas's house.

AN INSTITUTION for ethnological research has been founded in Leipzig. The new institution forms part of the King Friedrich August Foundation for Scientific Research. It is affiliated with the Ethnographic Museum of Leipzig, and is furthermore in close connection with the Ethnological Seminar at the university. Dr Karl Weule, director of the museum, is also director of the research institution. It may be expected that excellent results will be obtained by this concentration of effort, which contrasts favorably with the dispersion of energy as found in cities like Vienna and St Petersburg and in most cities of the United States.—*Science*.

ACCORDING to the *Revue Anthropologique* two noted French prehistorians, Joseph Déchelette and Captain M. Bourlon, have died at the front. Déchelette will long be remembered for his great work entitled *Manuel d'archéologie préhistorique, celtique et gallo-romaine*, of which the first volume appeared in 1908 and the third part of the second and last volume in 1914, only a short while before the outbreak of the war. Captain Bourlon, an enthusiastic and gifted explorer of the paleolithic French caves, had written a number of valuable papers based on his field-work.

The last number of *L'Anthropologie* adds to these Capt. René Avelot, known for his contributions to geography and especially those dealing with the ancient population of central and eastern Africa; and Capt. Maurice Cortier, eminent topographer, and active in the archeology of Sahara.

PREPARATIONS have been successfully concluded by the University Museum of Philadelphia for sending an expedition to the interior of China for the purpose of studying Chinese culture in the earliest stages of its development and collecting data relative to the more primitive aboriginal cultures, some of which have survived the contact with Chinese civilization. Mr C. W. Bishop, assistant curator of the Ethnological Section of the Museum, has been chosen for this work. Mr Bishop left Philadelphia about the middle of January to begin his work in the Far East.

DR J. W. FEWKES has returned to Washington from a month's exploration of the prehistoric village sites of the Mimbres valley, N. M. He secured by purchase a collection of prehistoric objects from that valley consisting of painted pottery, stone implements, and artifacts of shell, bone, and other material, numbering about eight hundred specimens. The painted pottery is particularly important on account of the unique geometrical designs and the abundance of figures of men and animals which recall those from the Casas Grandes, in Chihuahua.

NEWS has been received from the University of Pennsylvania's Amazon expedition through its director, Dr W. C. Farrabee. It is the first news that has come through in four months. Dr Farrabee reports that he has spent three months at work in the interior, where he has been successful in getting much information and many specimens. He further states that he has just started for the highlands on the borders of Bolivia, Peru and Brazil, from which he had to turn back last August. —*Science*.

JANUARY 12 Dr J. W. Fewkes was present as a special delegate representing the Smithsonian Institution at the inauguration of Dr Von Kleinsmid, the new President of the University of Arizona. On this occasion Dr Fewkes had conferred upon him the degree of LL.D. by the University.

MRS MATILDA COXE STEVENSON, for many years an ethnologist in the Bureau of American Ethnology at Washington, has tendered her resignation to take effect June 30, 1915. Mrs Stevenson has been engaged in recent years in studying the ethnology of the Tewa Indians of New Mexico, a memoir on which is practically ready for publication.

A HOPI INDIAN GROUP was formally opened at the American Museum of Natural History in New York, April 8, 1915. The village of Walpi

and its surroundings are shown in a background painted by Howard McCormick. In the foreground are modeled figures by Mahouri M. Young representing the industrial life of the Hopi.

THE 75th anniversary of the foremost Italian anthropologist, Prof. Giuseppe Sergi, will be celebrated by his colleagues during this year, and a commemorative volume of anthropological contributions by his many friends will be published on the occasion.

MINOR C. KEITH has deposited in the American Museum of Natural History as a loan a large selected portion of his collection of stone and pottery objects from Costa Rica as well as the unrivaled collection of gold from the same region.

THE HARVARD TRAVELLERS CLUB is publishing a book which will follow along the same lines as the Royal Geographical Society's "Hints to Travellers." Professors R. B. Dixon and A. M. Tozzer are writing the section on "Anthropology."

SINCE Easter Professor George Grant MacCurdy of Yale University has lectured on "The Dawn of Art" for the Archeological Institute of America at Richmond, Va., Washington, D. C., and Rochester, Auburn, Syracuse, and New York, N. Y.

THE APRIL number of the *Revue Anthropologique* brings a curious exposure relating to archeological activities by certain foreigners in the Eyzies, one of the richest regions in remains of man's antiquity in France.

PROFESSOR ARTHUR KEITH, Royal College of Surgeons, London, is in this country to deliver a course of five lectures on anthropology at the Western Reserve University, Cleveland, Ohio.

MR JOHN P. HARRINGTON, who has been engaged particularly in ethnological researches among the Mohave and Chumashan Indians, has been appointed ethnologist in the Bureau of American Ethnology.

PROFESSOR BYRON CUMMINGS has resigned from the University of Utah and accepted an appointment as Professor of Archeology in the University of Arizona at Tucson.

DR WALTER HOUGH, curator of ethnology, U. S. National Museum, gave an address before the California Academy of Sciences on February 17, on "Explorations of a Sacred Cave in Arizona."—*Science*.

DR A. V. KIDDER of the Peabody Museum is to excavate the Pueblo of Pecos for the Department of Anthropology at Andover. He will be assisted by S. J. Lothrop, a graduate student of Anthropology at Harvard.

THE ANNUAL PEARBODY MUSEUM EXPEDITION to Central America is in charge of Dr R. E. Merwin assisted by Arthur Carpenter, Central American Fellow. The expedition is now in northern British Honduras.

DR RUDOLPH R. SCHULLER, of the Museu Goeldi, Para, Brazil, delivered an illustrated lecture on "Present Knowledge of the South American Indians" at the University of Chicago on February 11th.

S. G. MORLEY, Research Fellow of the Carnegie Institution, is now exploring in Guatemala.

IN the Division of Anthropology at Harvard University, Dr Earnest A. Hooton will offer a new course on Criminal Anthropology.

American Anthropological Association

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SUN-CULT AND MEGALITHS IN OCEANIA

By W. H. R. RIVERS

THERE is at present no decisive evidence that the sun was the object of a public religious cult in any part of Polynesia.

Roggeveen and his companions¹ observed the inhabitants of Easter island prostrating themselves towards the rising sun, but as these prostrations seem to have had some relation to the stone statues of the island, it would be dangerous to conclude that the sun was the object towards which the prostrations were directed.

Similarly, Gill² speaks of an "ancient solar cult" in Mangaia, but it is doubtful whether this is more than an inference from the mode of orientation of the dead which probably arises directly out of the belief in the direction of the home of the dead and only corresponds with the direction of the sun if this home lie either east or west.³

While there is thus no direct evidence of any cult of the sun in Polynesia, there are features of the ritual of the Areoi organization of eastern Polynesia which point to its essential purpose having been closely associated with the sun.

The Areois were outwardly bands of strolling players and

¹ See Behrens, *Reise durch die Süd-Länder und um die Welt*, 1737, Leipzig, p. 83. (Translated as an Appendix to "Voyage of Captain Don Felipe Gonzalez." Hakluyt Soc., Second series, No. 13, Cambridge, 1908, p. 133; for another account, see *The World Displayed*, London, 1773, Vol. IX, p. 120.)

² *Life in the Southern Isles*, London, 1876, p. 75.

³ Cf. W. J. Perry, *Journal of the Royal Anthropological Institute*, 1914, XLIV,

chartered libertines who are best known to ethnologists through their practice of infanticide, it being a condition of entrance into the society that with certain exceptions no child of a member should be allowed to survive its birth. This practice of infanticide and the licentious character of the festivals have attracted the attention of those who have described the societies to such a degree that with one exception they have neglected or overlooked the beliefs and practices which evidently formed the essential purpose of the societies. There can be little doubt that the features which have hitherto attracted so much attention are only superficial, perhaps only recent, additions to a ritual which had a deep and truly religious purpose.

The practice of infanticide was confined to the Areois of the Society islands and seems to have been wholly absent in other groups such as the Marquesas. Even in Tahiti it was probably a late growth, a special development of the practice of infanticide as it existed widely throughout Polynesia.¹ Similarly, the licentious dances and representations of the Areois were limited to the lowest rank of the societies and seem even among them to have been only a fair sample of the morals of the people as a whole.²

In seeking for the deeper meaning of the societies, the first point to note is the resemblance to the secret organizations found in other parts of Oceania. Each Areoi society contained seven ranks or grades, and the processes of initiation into the society and of raising in rank³ were of a kind closely similar to those of the secret societies of Melanesia. The first object of this paper is to show that this resemblance is more than superficial and proceeds from a fundamental similarity in the purpose and ritual of the different organizations.

In Tahiti, whence most of our accounts of the Areois have come, the festive proceedings of the societies were almost continuous, and no features of the ritual have come down to us which give any indication of a deeper meaning. In the Marquesas and some

¹ See Moerenhout, *Voyages aux Iles du grand Océan*, Paris, 1837, I, 500.

² Moerenhout, *op. cit.*, I, 498.

³ Moerenhout, *op. cit.*, p. 491; Ellis, *Polynesian Researches*, I, 211 et seq.

of the Society islands, however, the active life of the Areois was limited to a portion of the year, and it is this limitation which shows the true meaning of the ritual.¹ In the Marquesas, the Areois were inactive during the season of the year when the sun was north of the equator and came out of their retirement in October to celebrate by means of a festival the return of Mahui,² the god who brings fertility and abundance, and is, according to Moerenhout, a personification of the sun. About the time of the southern solstice in December there was a second festival, the chief feature of which was the offering of first-fruits to Mahui. The activity of the Areois came to an end in April or May, the exact date varying with the locality and climate. At this time the god was believed to go to Po, the obscure and dark home of the dead, and the members betook themselves to their *marae* or sacred enclosures to pray for the return of the god from this land of obscurity to Rohoutou noanoa, the home of light and life and the proper abode of the gods. From this time until the following October the Areois were in retreat; they suspended all their amusements and bemoaned the absence of the god until the time came to celebrate his return anew at the following equinox. There can be little question that we have here a ritual celebration of the annual death of the sun and of its coming to life again to bring abundance and fertility. The Areois of the Gambier islands had festivals at the equinoxes in October and April which show that the societies must have had a purpose and meaning similar to those of the Marquesans.³

There can be little doubt that the celebration of the sun must once also have been the purpose of the Areois of Tahiti. The place of the Marquesan god Mahui is taken in Tahiti by Oro, and, though it is only in some of the Society islands that the celebrations of the Areois had any seasonal character, it is probable that Oro was also a sun-god, and that it is only by the exaggeration of the

¹ Moerenhout, *op. cit.*, p. 501-2.

² The connection of Mahui with the Maui of other parts of Polynesia is doubtful, but their identification is supported by many features of the history of Maui which suggest the personification of the sun.

³ Moerenhout, I, 110.

chartered libertines who are best known to ethnologists through their practice of infanticide, it being a condition of entrance into the society that with certain exceptions no child of a member should be allowed to survive its birth. This practice of infanticide and the licentious character of the festivals have attracted the attention of those who have described the societies to such a degree that with one exception they have neglected or overlooked the beliefs and practices which evidently formed the essential purpose of the societies. There can be little doubt that the features which have hitherto attracted so much attention are only superficial, perhaps only recent, additions to a ritual which had a deep and truly religious purpose.

The practice of infanticide was confined to the Areois of the Society islands and seems to have been wholly absent in other groups such as the Marquesas. Even in Tahiti it was probably a late growth, a special development of the practice of infanticide as it existed widely throughout Polynesia.¹ Similarly, the licentious dances and representations of the Areois were limited to the lowest rank of the societies and seem even among them to have been only a fair sample of the morals of the people as a whole.²

In seeking for the deeper meaning of the societies, the first point to note is the resemblance to the secret organizations found in other parts of Oceania. Each Areoi society contained seven ranks or grades, and the processes of initiation into the society and of raising in rank³ were of a kind closely similar to those of the secret societies of Melanesia. The first object of this paper is to show that this resemblance is more than superficial and proceeds from a fundamental similarity in the purpose and ritual of the different organizations.

In Tahiti, whence most of our accounts of the Areois have come, the festive proceedings of the societies were almost continuous, and no features of the ritual have come down to us which give any indication of a deeper meaning. In the Marquesas and some

¹ See Moerenhout, *Voyages aux îles du grand Océan*, Paris, 1837, I, 500.

² Moerenhout, *op. cit.*, I, 498.

³ Moerenhout, *op. cit.*, p. 491; Ellis, *Polynesian Researches*, I, 211 et seq.

of the Society islands, however, the active life of the Areois was limited to a portion of the year, and it is this limitation which shows the true meaning of the ritual.¹ In the Marquesas, the Areois were inactive during the season of the year when the sun was north of the equator and came out of their retirement in October to celebrate by means of a festival the return of Mahui,² the god who brings fertility and abundance, and is, according to Moerenhout, a personification of the sun. About the time of the southern solstice in December there was a second festival, the chief feature of which was the offering of first-fruits to Mahui. The activity of the Areois came to an end in April or May, the exact date varying with the locality and climate. At this time the god was believed to go to Po, the obscure and dark home of the dead, and the members betook themselves to their *marae* or sacred enclosures to pray for the return of the god from this land of obscurity to Rohoutou noanoa, the home of light and life and the proper abode of the gods. From this time until the following October the Areois were in retreat; they suspended all their amusements and bemoaned the absence of the god until the time came to celebrate his return anew at the following equinox. There can be little question that we have here a ritual celebration of the annual death of the sun and of its coming to life again to bring abundance and fertility. The Areois of the Gambier islands had festivals at the equinoxes in October and April which show that the societies must have had a purpose and meaning similar to those of the Marquesans.³

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³ Moerenhout, I. 110.

pleasure-seeking aspect of the societies and the accretion of the practice of infanticide that the true character of the ritual has been obscured.

If now we turn to the secret societies of Melanesia, we find evidence pointing clearly to the seasonal character of their celebrations and to the possibility that they represent the annual birth and death of the sun. Just as it is the external and obvious features of the Areoi societies which have absorbed the attention of ethnologists in the eastern Pacific, so is it certain obvious and external features which have almost exclusively attracted their attention in New Britain. We have abundant accounts of the dances and masks, and of the functions of the societies as associations by means of which one section of the community acquires wealth by terrorization and blackmail, but among all the accounts I have only found one to record a feature which furnishes the clue to the deeper meaning of these societies. The Rev. R. H. Rickard tells us¹ that the Dukduk, which is one of the two chief objects of the ritual of the society, dies annually at one season of the year and comes to life again at another. We have here an annual representation of the birth, life, and death of some mysterious being. We know of nothing in the ritual of these societies which points to the sun as the being so represented. We have only the seasonal character of the celebration, and when we examine this in detail we find that it differs from the annual celebration of the Marquesas in that the death of the Dukduk takes place at the beginning of the northwest monsoon and the new birth at its end, the period of activity of the Dukduk thus corresponding approximately with that of the retirement of the Areois.

While there is thus no direct evidence that the function of the Dukduk societies is to celebrate the annual birth and death of the sun, there is evidence of rites connected with the sun in a neighboring part of New Britain.

In one district of the island of Vuatom, in the island of Vurar, and at one place on the mainland of New Britain, a festival takes place when the sun has reached the southern limit of its course.²

¹ *Proc. Roy. Soc. Victoria*, 1891, III, 75.

² O. Meyer, *Anthropos*, 1908, III, 700 and J. Meier, *Anthropos*, 1912, VIII, 706.

In this festival, which lasts for three days, offerings of the fruits of the earth are made to the sun, and rites are performed which are believed to keep the sun in its proper course. It is clear that it is the annual course of the sun which determines the performance of the rites, for this takes place at the time when the sun reaches its southernmost point as determined by its position in relation to certain hills. The offerings of food which appear to be first-fruits also point to a close resemblance with the leading motive of the celebrations of the Areoi. On the other hand, the rites of Vuatom have features such as the rigorous exclusion of women and the plundering of gardens which form points of resemblance with Melanesian secret societies.

The people of the district where the sun is thus celebrated have certain characteristics of language which show them to be distinct from their neighbors. It would seem as if they practise, as part of their general religious cult, a rite which in neighboring regions of New Britain has become part of a secret ritual.

We have evidence of the importance of the sun in the religion of another part of the Bismarck archipelago. In the more northern parts of New Ireland an object called *oara* is made to represent the sun rising out of the sea, and at the end of the rites this object is burnt together with the skull of a dead man which has been dug up soon after interment.¹ It is probably more than a coincidence that the masks of the Dukduk should also be burnt on the day when the annual death of this being is celebrated.

The evidence that the celebration of the birth, life, and death, of the Dukduk represents the annual changes of the sun is thus indirect and conjectural. It will become more probable, however, if it is possible to find any connection with the sun in the ritual of the secret societies of other parts of Melanesia. Passing southward, societies called Rukruk similar to the Dukduk of New Britain exist in northern Bougainville. We know very little about their customs, but one obvious feature is the wearing of peculiar headdresses which often have a globular form. In the south of

¹ Krämer-Bannow, *Zeit. d. Gesell. f. Erdkunde*, Berlin, 1911, p. 21.

Bougainville the sun forms a prominent object in the decorative art.¹

In the British Solomon islands secret societies called Matambala formerly existed in Florida, and here we have definite evidence of the seasonal character of the celebrations.² They began in the month when the canarium nuts ripen, which form one of the staple foods of the people, and the gathering of nuts to be offered as first-fruits formed the opening rite in the ceremonial. At the end of the proceedings, which seem to have lasted for several months, the masks were burnt as in the Dukduk ceremonies of New Britain. In the course of the celebrations houses were built so sacred that it is said not even men might enter them, and among the objects which these houses contained were images of the sun and moon.

While there is thus evidence that the sun was an object of importance in the ritual of the Matambala societies, we have no direct evidence that their purpose was to celebrate the annual course of the sun. Indeed, the fact that the ceremonies only took place at intervals of several years shows that, if the annual celebration of the course of the sun was once the object of the rites, they had departed very widely from their original purpose.

Another region of Melanesia which is characterized by the presence of secret societies is that comprising the Banks and Torres islands and the northern New Hebrides. Here the rites have no obvious seasonal character, and there is nothing which at first sight raises a suspicion that the ritual may be in any way connected with the annual course of the sun. Nevertheless, there are features which are seen to fit in with such a purpose as soon as the possibility is suggested. The people of Mota in the Banks islands speak of the birth or death of a *tamate*, the mask or other object which acts as the badge of a Tamate or ghost society. One *tamate* is said to have been born at the door of a *gamal* or clubhouse, while a rite in which the image of a dragon-fly is burnt

¹ Thurnwald, *Forschungen auf den Salomo-Inseln u. d. Bismarck-Archipel*, Berlin, 1912, Bd. I, Tafel XII; also *Ethnopsychologische Studien an Südländern*, Leipzig, 1913, Tafel XXI.

² Codrington, *The Melanesians*, 1891, p. 95; also Ruy, *Zeitsch. f. afrikan. u. ozean. Sprachen*, 1897, III, 214.

after the initiation of a new member into the dragon-fly society is said to represent the death of the *tamate*. These expressions point to the representation of the birth, life, and death of the *tamate* as one of the purposes of the secret ritual, and there are so many points of resemblance with the ritual of the Dukduk of New Britain as to leave little doubt that they are manifestations of one and the same culture. It is thus suggested that the representation of the birth, life, and death of the *tamate* in the Banks islands may have had its origin in the idea of the representation of the annual birth, life, and death of the sun.

The number of Tamate societies in the Banks islands is very great, but there is one known as the Tamate liwoa or great Tamate, the leading position of which makes it probable that, if any one of the societies is to be associated with the sun, it would be this. There is one feature of the ritual of the Tamate liwoa which suggests relation with the sun. An important feature of initiation into this society is the use of six stakes by means of which the novice advances as he approaches the spot where the special secret of the society is to be revealed to him, and these six stakes form a line from east to west. The ritual of which we know, forms only a small proportion of the whole, and a more complete record may show other features of this kind.

More striking, however, than any correspondence in ritual is a similarity in the traditions of origin of the Tamate liwoa and the Areois of Tahiti. The Polynesian societies are said to have been founded as the result of the visit to earth of the god Oro who married a maiden of the earth named Vairaumati, and tradition connects the origin of Tamate liwoa with a supernatural visitor named Wetmatliwo who married a maiden of high rank in the island of Vanua Lava. A great light which filled the house when this person was shown to his wife's parents and his final disappearance by sinking into the earth suggest that Wetmatliwo was a personification of the sun. One point of similarity in detail is that while the Tahitian Oro visited his earthly wife by means of a rainbow, a rainbow was also seen by the maiden of the Banks islands when Wetmatliwo first appeared in her village.

There are other features of the secret organizations of the Banks islands which suggest a connection with the sun, but this evidence is so scattered and fragmentary that if it were not for the obvious connection of the Tamate ritual with that of the Dukduk no great importance could have been attached to it. It is only the combination of the evidence from the secret rituals of New Britain, the Solomon, and Banks islands which enables us to conclude that one of the purposes of this ritual was the celebration of the annual course of the sun by the anthropomorphic simile of birth and death.

The similarity of the ritual of the secret societies of four different parts of Oceania raises the problem which faces the ethnologist at every turn of his path whether he has to do with independent origin or with community of culture. In the case before us the resemblances in detail are so close, and the connection of the cultures of which the secret societies form part so obvious, that I do not suppose there will be any who will venture to put forward the plea of independent origin. The most that could be said from this point of view is that the similarities in belief and practice of the people of the Marquesas and Tahiti, the Banks islands, the Solomon islands, and New Britain in this respect are the outcome of some definite idea common to these peoples, not merely as part of the general furniture of the human mind, but through some cultural element common to the different peoples.

I propose, however, to leave such a vague possibility on one side and to assume with confidence that the ideas and practices found in these four parts of Oceania have a common source. The question next to be considered is whether the common source whence the four sets of ideas and practices have been derived is to be placed within or without the limits of Oceania. Are these elements of culture the result of a development which has taken place in some part of Oceania and radiated thence to the places where they are now found, or have they been transported from some other part of the world to the Bismarck archipelago, the Solomon islands, southern Melanesia, and eastern Polynesia? I believe that there is one feature of the beliefs and practices which makes it possible to answer this question.

We have been led by the comparison of the secret societies of the four regions to conclude that the central idea underlying them is the representation of the annual course of the sun by means of the anthropomorphic processes of birth and death. All four regions are in the tropics. New Britain is only about five and the Marquesas and the Solomons only about ten to twelve degrees south of the Equator; such annual movements of the sun as take place in these regions would not be likely to suggest the birth and death of a human being or of an anthropomorphic god. The annual movements of the sun in the equatorial belt are associated with change in the prevailing direction of the wind and in the amount of the rainfall, and consequently with the luxuriance of vegetation, but the changes in the luminosity and heat-giving power of the sun are not sufficiently great to suggest a simile with birth and death; nor does it seem likely that the annual changes in the position of the sun would have become the sign for the practices of special religious rites unless there had been some extraneous source which would have led the people to attend to these changes and charged them with such emotional tone as to make them the motive for religious rites. The representation of the sun's annual movements by the events of birth and death becomes much more easy to understand if the idea were brought to these tropical regions from a latitude where the representation would have a real meaning and be concordant with the behavior of the sun.

If, then, the central idea underlying the ritual of the Arcoi, Dukduk, Matambala, and Tamate societies be the representation of the sun's movements by the simile of birth, life, and death, we are driven to the view that the idea and the resulting cult must have been introduced into Oceania by a people who came from some latitude where the simile would have a meaning. There can be little question that such a latitude must be placed in the northern hemisphere for, if we except the southern part of South America and perhaps the south of New Zealand, there is no part of the southern hemisphere which could have been the home of such an idea.

This cult of the sun forms part of a secret ritual confined to

men and associated in at least three of the four places with a cult of dead ancestors. I show elsewhere¹ that the secret cults of Melanesia embody in a more or less pure form the religious practices of an immigrant people. I do not propose to consider the evidence for this here. I must be content to point out that the considerations now brought forward only serve to confirm a conclusion reached by the general study of the secret organizations of Melanesia.

The conclusion so far reached is that the secret rituals of Oceania which have the sun as their object belong to an immigrant culture which has come from a widely distant part of the world. I have now to consider whether it is possible that this same people may also have been the architects of the stone buildings and images which form so great a mystery of the islands of the Pacific.

Here again I will begin with eastern Polynesia. The Areoi societies held their celebrations in an enclosure called *marae* or *marai* at one end of which was situated a pyramidal structure with steps leading to a platform on which were placed the images of the gods during the religious celebrations of the people. The *marae* was used for religious ceremonial unconnected with the Areoi societies, but there seems to be no doubt that the Areois were of especial importance in connection with it. In the pyramid of the *marae* we have one of the best examples of the megalithic architecture of Polynesia. One such pyramid in the western part of the island of Tahiti was 267 feet in length and 87 feet in breadth at the base. All were built of large stones without cement, but so carefully shaped that they fitted together closely and formed durable structures.²

In the Marquesas, another home of the Areois, there were platforms similarly constructed a hundred yards in length, and many of them shaped and closely fitting blocks of which these structures were composed were as much as eight feet in length.³ On these platforms were pyramidal "altars" and they were surrounded by enormous upright stones.⁴ This association of the

¹ *The History of Melanesian Society*, Cambridge, 1914.

² Captain Cook's *Journal*, London, 1893, p. 83.

³ Porter, *Journal of a Cruise Made to the Pacific Ocean*, New York, 1822, II, 38.

⁴ Clavel, *Les Marquisiens*, Paris, 1885, p. 69.

distribution of the Areois with the presence of megalithic structures suggests that the immigrants to whom I have ascribed the cult of the sun may also have been the people who introduced the art of building the stone structures which have so greatly excited the wonder of visitors to Polynesia.

The part of the Pacific ocean where these stone structures have reached their acme in size and complexity is the Caroline islands. If there be anything in my hypothesis, we should expect here also to find manifestations of the religious ideas of those who founded the Areoi societies, and they are not lacking. In the Marianne or Ladrone islands there were associations of persons which seem to furnish an intermediate condition between the Areois of Tahiti and the occupants of the clubhouse of Melanesia.¹ We know very little about these associations, but their relation to the Areois of the east is shown clearly by the name they bore, Urritois or Ulitaois, which is merely another form of the Tahitian word, Areoi, the latter word having suffered the elision of a consonant so frequent in Polynesia. Similar associations flourished in the Carolines, and though we know still less of them than of the Urritois of the Ladroneis, we can be confident that they had a similar character. Societies very closely related to the Areois thus existed in this region in conjunction with stone structures similar to those of eastern Polynesia.

There is a remarkable point of similarity between the traditions concerning the origins of these stone structures and of the Areoi societies of Tahiti. The ruins of Nan-matal on the east coast of Ponape in the Carolines are reputed to have been built by two brothers, Olochipa and Olochopa.² In the tradition of the foundation of the Areois of Tahiti, a very prominent part was taken by two brothers Orotetefa and Urutetefa.³ The interchanges between *r* and *l*, *t* and *ch* and *p* and *f* are so frequent in Oceania as to suggest that these two pairs of names are variants of one original, so that

¹ Le Goblen, *Histoires des Iles Mariannes*, Paris, 1776, p. 203; Freycinet, *Voyage autour du Monde*, 1829, II, 368, 370; Meinicke, *Die Inseln des stillen Oceans*, 1876, II, 407.

² Christian, *Caroline Islands*, London, 1899, p. 81.

³ Ellis, *Polynesian Researches*, 1829, I, 311; Moerenhout, *op. cit.*, I, 487.

we should have in the traditions of these two groups of islands nearly four thousand miles apart a most striking similarity of the names of pairs of brothers to whom prominent features of the culture are ascribed. In one case the brothers founded societies whose aim it was to celebrate the annual changes of the sun, while rude stone buildings were the handiwork of the others.

A recent account by Hambruch¹ shows that the resemblance between the Ponape and Tahiti names is not quite as close as would appear from previous records. Hambruch calls the two founders of the stone buildings, Sipe and Saupa but to put against this, he states that the place, Matolenim, where the structures were built, was formerly called *sau nalan* which means "the sun."

Though the resemblance in the names of the two culture heroes of Ponape and Tahiti is not as close as once seemed to be the case, it cannot be neglected. It may be that the two words have some meaning which would reduce the importance of the similarity, but taken in conjunction with the close resemblance of the names of the societies in the two places, it affords striking corroborative evidence supporting the conclusion suggested by the distribution of societies and monuments that both are the work of one people.

If the stone monuments and secret societies of Polynesia have had a common source, we should expect to find an association between the two elements of culture in Melanesia, and so it is. We know of stone structures in several parts of Melanesia, viz., the northern New Hebrides, Santa Maria in the Banks islands, Loh in the Torres islands, Ysabel in the Solomons, and Fiji.² The Banks and Torres islands and the northern New Hebrides are strongholds of the secret cults, and though the only island in the Solomons in which we know of the existence of secret societies is Florida, there is a definite tradition that this society came to Florida from Ysabel. The distribution of stone structures in Melanesia is just as it should be if the ghost societies and the stone buildings were the work of one and the same people.

The evidence for the connection of stone structures with secret

¹ Korr, *Bl. f. Anth., Ethnol. u. Urgesch.*, 1911, XLII, 121.

² See *History of Melanesian Society*, vol. II, p. 427.

societies is even more definite in Fiji. The Nanga societies of Viti Levu take this name from their meeting places, oblong enclosures, consisting of two or more compartments, surrounded by stone walls¹. The resemblance of these enclosures to the *marae* of Polynesia has struck more than one observer and the similarity extends to detail. At one end of each main compartment of the *nanga* there were truncated pyramids which served as platforms, evidently representatives of the pyramids of the *marae* of Tahiti measured by Captain Cook. Further, both *marae* and *nanga* were oriented with their long axes east and west, though the two differ in that the pyramids were at the western end of the *marae*² and at the eastern end of the *nanga*³.

There is thus a remarkable correspondence between the distribution of stone structures and secret societies in Oceania which points strongly, if not yet decisively, to the introducers of the secret cult of the sun having been the architects of the stone buildings which form one of the chief mysteries of the islands of the Pacific.

It is even possible that we may have here the clue to the greatest mystery of all, the great stone statues of Easter island. There is reason to suppose that these statues are not so unique as is often supposed. According to Moerenhout,⁴ similar statues, though not so large, exist in the islands of Pitcairn and Laivaivai; he believes that such colossal figures once existed in many other islands, but have been destroyed or have fallen into ruins. In the Marquesas and Society islands, also, stone figures in human form have been found which are sufficiently like those of the smaller and more eastward islands to suggest a common origin. Moerenhout believes that such stone figures and statues had a common meaning and were all representatives of beings called *iti* whose function it was to mark the limits of the sea and land, to maintain

¹ L. Fison, *Journ. Anth. Inst.*, 1885, XIV, 14; Joske, *Internat. Arch. f. Ethnogr.*, 1889, II, 254; B. Thomson, *The Fijians*, 1908, p. 147.

² Captain Cook's *Journal*, 1893, p. 83.

³ A further point of resemblance between the *marae* and *nanga* is that both were the scene of offerings of first-fruits.

⁴ *Op. cit.*, I, 461.

harmony between the two elements and prevent their encroachment upon one another. I venture, though very diffidently, to extend the comparison. At one end of a clubhouse of Santa Maria in the Banks islands there are ancient stone figures which, in one respect at least, resemble the colossal statues of Easter island. In each instance the head is covered. This head-covering is very frequent in one variety of the representations of the human figure found throughout Melanesia, and is almost certainly connected with the importance of head-coverings in the ritual of the secret societies. It is therefore of interest that a head-covering should be a prominent feature of the statues of Easter island. Such a point of resemblance standing alone would have little significance, but taken in conjunction with the other correspondences and similarities pointed out in this paper, we must not ignore the possibility that we may have here only another expression of the art of the people I suppose to have introduced the cult of the sun into Oceania.

I cannot consider here how far it is possible to connect the stone work and sun-cult of Oceania with the megalithic monuments and sun-cults of other parts of the world. Megalithic monuments elsewhere are associated with a cult of the sun and the occurrence of this association in the islands of the Pacific ocean must serve to strengthen the position of those who hold that the art of building megalithic monuments has spread from one source. I must be content here to mention certain megalithic monuments of Polynesia which raise a difficulty.

The island of the Pacific which holds examples of megalithic structures most closely resembling those of other parts of the world is Tongatabu, where there are trilithic monuments so like those of Europe that the idea of a common source must rise to the mind of even the most strenuous advocate of independent origin. It is not possible at present to bring these monuments into relation with those of other parts of Oceania by connecting them with a cult of the sun, but Hambruch tells us that tradition points to the builders of the stonework of Ponape having come from Tonga. It may be that Tongatabu forms the intermediate

link between the stonework of the Carolines and the megalithic monuments of other parts of the world.

I have dealt elsewhere¹ with the relation between these Tongan monuments and the pyramids of other parts of Oceania, and have suggested that these two ancient forms of monument may be expressions of the ideas of two different streams of the megalithic culture. I cannot deal with this matter here; to do so would take me far beyond the relation of sun-cult and megaliths which is the subject of this article.

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¹ *History of Melanesian Society*, vol. II, p. 549.

NOTES ON THE ARCHEOLOGY OF SALVADOR¹

By HERBERT J. SPINDEN

THE little republic of Salvador, with its 7200 square miles of territory and its 1,200,000 inhabitants, includes the most densely populated portion of Central America. It is a mountainous and picturesque region with several fine lakes and one large stream, the Lempa. A coastal plain extends along the shore of the Pacific and back from this the land rises in a succession of broken ridges of volcanic origin. The volcano of Izalco is in a state of almost constant eruption and has lava-blackened sides, but most of the other peaks are quiescent except at rare intervals and have cultivated patches reaching to their very summits. Most of the population of Salvador is to be found in the pleasant upland valleys where coffee and other tropical products grow with great luxuriance.

Languages.—In Salvador the Indian population has merged and assimilated with the conquering Spaniards to a much greater degree than in Guatemala. Languages belonging to three or four irreducible stocks were once spoken within its borders.² The most important of these, the Pipil, belongs to the Aztec or Mexican group of the Nahuatl stock. It was once spoken over at least half of the present republic and still may be heard at Izalco and a few other towns. Two or three other districts of Pipil speech are situated farther west in Guatemala. One of these, on the Pacific slope, includes the modern town of Esquintla and the famous archeological site of Santa Lucia Cozumalhualpa. Another lies in the upper valley of the Motagua on the eastern slope of the

¹ Read in substance before the Anthropological Association at Philadelphia under the title, "Nahua Influence in Salvador and Costa Rica."

² Linguistic maps of Salvador are given by Sapper, 1907, Lehmann, 1910, and Thomas and Swanton, 1911. (See Bibliography.) The second of these is by far the most valuable since it represents original field-work. The general distribution of the Nahuatl stock is best seen in the map of Thomas and Swanton.

cordillera. Still another district held by Nahua-speaking Indians who are sometimes called Pipiles, is on the Pacific coast in the vicinity of Soconusco, near the boundary of Mexico and Guatemala. The eastern limits of Pipil speech in Salvador are marked by two towns whose names end with the Nahua word *nonualco* which means "where the language changes."¹ Beyond this line the natives were called Chontales or "strangers." They are described as lower in culture than the Pipiles.

Two languages of the Mayan stock, namely the Pokomam and Chorti, are said to have once extended into Salvador although their main territories lay in Guatemala and Honduras. The Chorti, supposed by some to have been the builders of Copan because they now inhabit the surrounding country, seem to have once held the village of Tejutla in northern Salvador. The writer believes Copan was a frontier city of the Maya tribe proper who once held the wet lowlands of Peten and of the Usumacinta and Motagua valleys.

There is good reason to believe that the area of Salvador before the advent of the Pipiles was largely in the hands of tribes belonging to the Lencan stock. In historic times these occupied only the eastern third of the republic (as well as a large part of Honduras) and were the Chontales already referred to. Dr Lehmann offers comparative vocabularies to prove that many of the supposedly independent stocks of Central America should be united. He sees resemblances in the Lencan, the Xincan of southern Guatemala, and the Jicaquean and Payan of northern Honduras. He even suggests that the distant Mixe-Zoquean languages of Oaxaca should be brought into the group and that all should be combined with a second group that will be mentioned presently. Lexical similarity between these several languages is seen in only a few words and the combination should not stand without additional proof.

¹ Lehmann, 1910, p. 734, note 3. Palacio, 1860, p. 63 speaks of four villages of Nonualco Indians and adds: "at this place, though in the same province, the Indians commence to speak a new language called the Chontal." The Nonualco Indians, themselves, were Pipiles as we know from the census lists of Juarros.

The language of Cacaopera, a mountain village in northeastern Salvador, is combined by Dr Lehmann, directly with the Matagalpan of Nicaragua. At the same time he makes a very strong case for the unity of the Matagalpan stock with the adjacent Sumo, Ulua, and Misquito, belonging to the humid and little known lowlands of eastern Nicaragua and Honduras. The connecting links between these languages are morphological as well as lexical and are much more convincing than those previously given for the Lencan series which Dr Lehmann would throw for full measure into the same grand family.¹

Ethnology.—Few of the ancient customs of the Salvador Indians survive to this day nor have we a superabundance of references to them in the works of the Spanish historians. The earliest account of all is the brusque chronicle of Alvarado who brought the region under the Spanish crown in 1524.² But Palaccio is our best early authority. He gives a very interesting account of the native priesthood and of human sacrifice as practised at Mictlan near Lake Guija. He also gives a few details concerning native laws, marriage, childbirth, aboriginal products, etc. Juarros, Fuentes, and the unknown author of *Isagoge historico apologetica* make slight contributions as do the better known historians such as Herrera and Oviedo. In modern times Squier was the first to attempt anything like a study of the natives.³ He was followed by Habel whose narrative affords glimpses of life in the 60's when the Indian elements were more in evidence than now. Hartmann succeeded in collecting some scanty myth material and in gathering data on vanishing arts. A number of Salvadorean scholars have engaged themselves in gleaning the odds and ends of tradition and ancient speech and in working out the meanings of local place names. Prominent among them should be mentioned Santiago Barbarena, Alberto Luna, Rafael Reyes, Jose Antonio Cevallos, Leopoldo Alexandro Rodriguez, Juan Jose Lainez, and David J.

¹ *Op. cit.*, p. 713 et seq.

² For the conquest see Bancroft, 1883: I, pp. 669-677; Milla, 1879-82, Vol. I, pp. 89-94, etc.

³ 1855, pp. 328-352; 1858, pp. 316-345.

Guzman. Many of their papers have appeared in *Repertorio Salvadoreño*, *La Quincena*, *La Universidad*, and other local publications.

Native dress and house types may still be studied in a few sheltered places. Calabash dishes are still painted and incised according to methods that are believed to be pre-Spanish. Minor arts, such as the making of mats, nets, etc., possibly retain aboriginal features. Wooden masks¹ worn in historic pageants may be surviving features of ancient dances in which animals were mimicked.

The pottery of today retains few if any resemblances to the ancient work. Palaccio says of pottery making at Ahuachapan in the sixteenth century: "Here is made the best pottery, after the Indian manner, in all the provinces. It is chiefly manufactured by the women, without the aid of a wheel, and with their hands alone, in the use of which they are so dexterous as to give their vessels whatever shape may be desired." He also mentions a peculiar method of obtaining red and black pigment for pottery from a scum that arises on certain pools.

Archeological Sites.—Many scattered ruins showing truncated pyramids, platforms, and courts, are known to exist in Salvador but no detailed descriptions of them have been published and no extensive archeological work has been carried on at any site. A number of very fine private collections exist but these have been recruited piecemeal through gift and purchase. Burial mounds are of rather common occurrence and beautifully painted pottery is often contained in them.

Palaccio mentions a number of places sacred in the early years of the Spanish epoch where remains may still exist. Squier seems to have been the first to pay any especial attention to the anti-

¹ Two of these masks, one a deer and one a monkey, are reproduced by Montessus de Ballore, 1891, pla. xxiii and xxiv. Several are in the collections of the American Museum of Natural History. Although these masks are used in ceremonies that have to do with Spanish history (*Moros y Cristianos*) they often represent animals of the country and resemble the masks used by Guatemalan natives in dances that certainly have pagan features. Habel, 1878, p. 34, refers to a dance with pagan features at Izalco.

quities of the country but he gathered little information. Habel locates a number of ruins and describes the opening of a grave at Apaneca in which a number of carved jades, a "sacrificial yoke," a head carved in profile on both sides of a stone slab, and several pottery objects were found. Montessus de Ballore gives a brief account of ruins in Salvador that accompanies an atlas of rather poorly drawn specimens. Among these specimens are several which must have come from Peru. Sapper furnishes us with some information both as regards sites and specimens. Lehmann discusses the principal archeological types. Rodriguez and other local savants also give important details. A brief survey of the archeological sites has recently been published by Peccorini.

The largest ruin in Salvador is known as Tehuacan or Opico. It is situated on the flanks of the volcano of San Vincente and apparently belongs to an epoch earlier than the Conquest. A sketch plan of the ruin is available¹ and several brief descriptions.² Lehmann,³ after mentioning the occurrence of Maya pottery along the Lempa river, calls the ruin of Tehuacan "the most important evidence of the former existence of a Maya people in Salvador." But the Ball Court at this site, to which both Lehmann and Sapper refer, is characteristic of Nahua ruins and occurs in the Maya area only where Nahua peoples have penetrated. A single monolith at Tehuacan is said to be carved in true Mexican style.⁴

Important groups of mounds are said to occur in the vicinity of Lake Guija and the modern towns of Cara Sucia, Apaneca, Abuchapan, Chalchuapa, Sonsonate, Tejutla, Suchitoto, Apopa, Bermuda, San Salvador, Santa Tecla, Umana, Santa Elena, San Miguel, etc., as well as along the course of the Lempa river. From the description of Peccorini the ruins of Quelepa must be very extensive. The number of sculptured monuments is slight and the most important of these will be referred to later. Caves are common and often contain pictographs.

¹ Sapper, 1896, p. 4.

² Squier, 1858, p. 341; Habel, 1878, p. 22; Gonzalez, 1906; Rodriguez, 1912, pp. 34-35.

³ 1910, p. 735.

⁴ Squier, 1858, p. 341.

Unfortunately, we know nothing of the actual stratigraphy of archeological remains in Salvador. The specimens available for study come to us, for the most part, without information of any sort. But it is very clear that the ceramic remains can be arranged in several categories according to the character of the decorative art and that these categories can, in turn, be correlated with those of adjoining areas where the historic relations have already been worked out. Were it not for the startling contrasts that exist between the different kinds of art in Salvador such a method would be foredoomed to failure. The deficiency in information is balanced by the wealth of material contained in the archeological collections. At the Museo Nacional in San Salvador are a number of large sculptures coming from different parts of the Republic. The private collections examined by the writer were those of the Señores Justo Armas, Alberto Imery, and Andres Bang in San Salvador and Dr Alberto Luna in Santa Tecla. Every facility for study and photographing was offered by these gentlemen. A collection purchased for the American Museum of Natural History with the permission of the Salvadorean government, arrived too late to be represented in this report.

Archaic Period.—It is now well known that in 1910 an actual stratification of human art products was found in the environs of Mexico City in which could be discerned three principal culture horizons. Since that time careful research has been carried on under the International School of Archeology and many authenticated specimens from the three layers have been brought together. The lowest layer, characterized by crude figurines of a peculiar style, was soon found to be identical with an art long known as Tarascan after a tribe of rather low culture and peculiar language inhabiting the State of Michoacan. Examples of this so-called Tarascan art have undoubtedly been found within the restricted area of the Tarascan Indians. However, the most striking examples, including large effigies of men and women engaged in their everyday occupations, do not come from Michoacan but instead from Colima, western Jalisco, and Tepic where Indians of the Nahuatl stock reside. In the Valley of Mexico and in the

States of Morelos, Puebla, and Vera Cruz the primitive art is also plentiful. In other words it follows the general area inhabited by tribes of the Nahua or "Mexican" group and is rare elsewhere. The coincidence in distribution between this early art and the Nahua language in Mexico might be regarded as purely fortuitous were it not for the occurrence of archaic figurines of the same style in both Guatemala and Salvador. These countries contain no Indians speaking the Tarascan language but they do contain large bodies of Nahua-speaking natives as we have already seen. Whether the ancient art skips certain regions where the Nahua tribes are not found is a question that cannot be definitely answered at this time. Of course, if it were once evenly distributed over the entire area from Tepic to Salvador we could not safely refer its origin and distribution to any single linguistic stock. The archaic figurines seem, however, to be rare in Zapotecan territory.

In Nochistlan, Oaxaca, are found crude figurines in the native slate colored clay as well as more finished products of Toltec type. A ware closely resembling yellow Aztec pottery is also common. Archaic figurines occur in collections from the Uloa valley, Honduras. In the latter locality it is interesting to note that Gordon found a definite stratification of remains and yet claimed that all the layers showed the same styles of pottery decoration. Among the specimens figured from his excavations are some that clearly belong to the archaic period and others that are no less clearly Maya. The writer ventures to suggest that a critical reëxamination of these deposits will disclose stratigraphic relations in art comparable to those already noted in the Valley of Mexico. In this connection it may be pointed out that there is strong evidence that a Nahua-speaking people once inhabited parts of central Honduras. Archaic figurines are unmistakably present in certain parts of Nicaragua and Costa Rica where Nahua colonies are known to have existed but where the mass of art has a distinctive character. These southernmost occurrences are accompanied by certain divergent evolutions in technique which must be explained at another time. Suffice it to say that all the evidence at our command shows that the probable home of this art was the Mexican plateau, that it was made by a

people on an agricultural plane of life and that in all probability this people spoke the Nahuatl language.

Let us now return to a somewhat detailed consideration of this archaic art as it is found in Mexico, Guatemala, and especially Salvador. The small figures are solid and the large ones hollow. Most are modeled in a flat gingerbread fashion with features and detail added by buttons and fillets to a gross underlying shape.

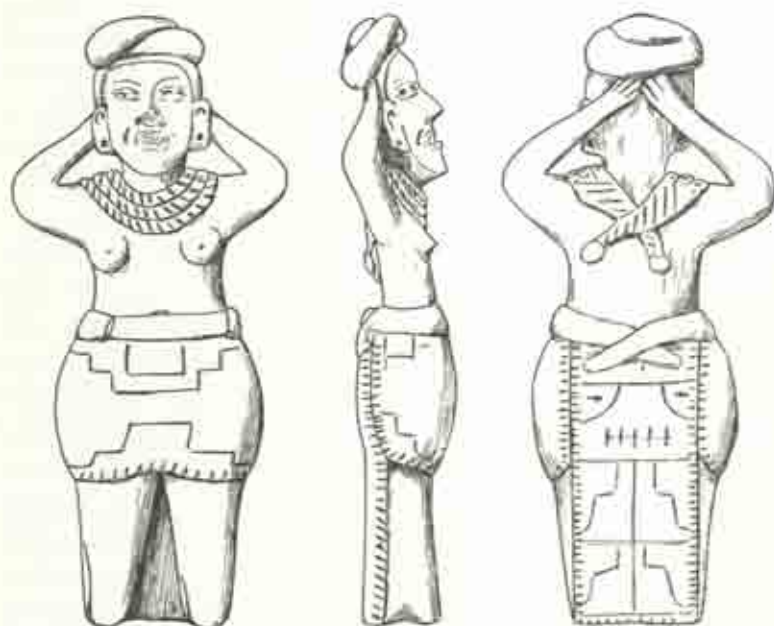


FIG. 56.—Archaic figurines from Cuesta Blanca. Collection of Señor Alberto Imery.

Modeling and shaping was done with the fingers, moulds being as yet unknown. A grooving and incising tool was used to modify the surface in various ways. The heads are characteristically of slight depth compared with their height, the limbs taper rapidly from a rather plump torso and the hands and feet are often mere knobs. When the figures are intended to stand erect, as is often the case, the feet are pinched down to a forward and backward cusp. Groovings are seen in connection with the eyes, mouth, fingers, toes, and details of dress and ornament. Paint is often added to the modeled surface.

Archaic heads from different parts of Mexico, Guatemala, Salvador, etc., showing uniformity of style are given in plate XXI. In the private collection of Señor Alberto Imery is an archaic



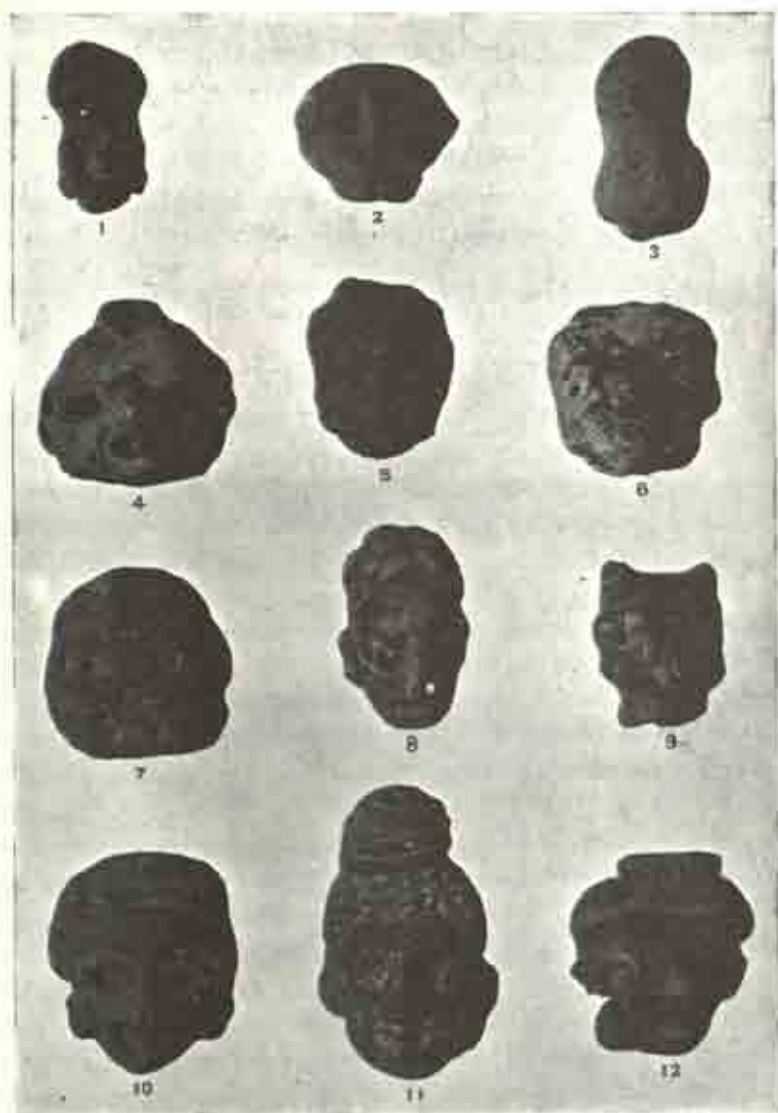
FIG. 57.—Archaic figurines from Cara Sucia. Collection of Dr Alberto Luna.

figure, eight inches high (fig. 56) that is said to have been found far below the surface in a stone quarry at Cuesta Blanca. A stout little effigy very close in style to many coming from the distant State of Jalisco, Mexico, is reproduced in figure 57. It is in the collection of Dr Alberto Luna and is accredited to Cara Sucia in western Salvador.

The eyes of the archaic images (see fig. 58), of the most wide-spread types, are made according to several methods, as

follows: first, a simple groove, usually horizontal but sometimes tilted upwards at the outer corners; second, a groove across an applied ball or button of clay; third, a round gouging made with the end of a blunt instrument held vertically; fourth, a round gouging in an applied ball or button of clay; fifth, two gougings made with a rounded or chisel-edged instrument held diagonally, the grooves may be horizontal or tilted (4*b* and 5); sixth, the edges of the lids modeled in a variety of shapes with the eyeball plain or marked with a streak of paint; seventh, a flat button inserted between the lids to represent the eyeball; eighth, the center of the eye marked by a perforation. Of these the first four seem to be the earliest with the second, fourth, and fifth sufficiently unusual to serve as safe criteria of the archaic art. The last three types of eyes (fifth to eighth) are seen mostly in the hollow effigies. These eye forms are carried over into work which clearly belongs to later periods, as will be shown in another place.

The large figures, better known from Tepic and western Jalisco than elsewhere, may represent a rather late development of the



HEADS OF ARCHAIC PERIOD: 1-3, ATZCAPOTZALCO, MEXICO; 4-6, WESTERN GUATEMALA; 7, PANSAWALA, GUATEMALA; 9, NICARAGUA; 8, 10-12, SALVADOR. SPECIMENS IN AMERICAN MUSEUM OF NATURAL HISTORY

archaic art. The technique of manufacture naturally changes somewhat with the increase in size. These large figures in clay give us much information of an ethnological nature since articles of dress and adornment as well as many objects such as musical instruments, weapons, etc., are reproduced in detail. Head-dresses are of many sorts. Often a turban is worn or the hair twisted into the semblance of one. Headbands are seen as well



FIG. 58.—Eyes of archaic figurines.

as many devices perched unsymmetrically on one side of the head. Nose rings and earrings are abundantly represented. We may be sure that weaving was practised by the makers of these effigies because garments such as shirts, skirts, and aprons are often painted with geometric designs. Body painting or tattooing appears to have been a common usage. The *atlall* or spear thrower was already known because a model of one is carried by a fine warrior effigy from Tepic in the American Museum of Natural History. The dog was domesticated at this early time and apparently developed into a rather special breed. Figures of women nursing children and carrying food or water vessels give pictures of everyday life.

A thing to be noted in connection with the archaic art in general is the absence of purposely grotesque or compounded figures representing divinities. Dogs, snakes, etc., are occasionally modeled in clay but we miss the characteristic features of the various gods which are so common in later Mexican art. Was the pantheon of the agriculturalists then in process of formation? We have no evidence that human sacrifice was practised. Of course the presence of elaborate figures of clay in carefully made graves is evidence of religion. Figurines of a widespread type represent nude females in a standing or sitting position and may have served as votive offerings connected with childbirth or as amulets and fetishes suggestive of fertility.

These nude female figurines may be traced from Mexico south-

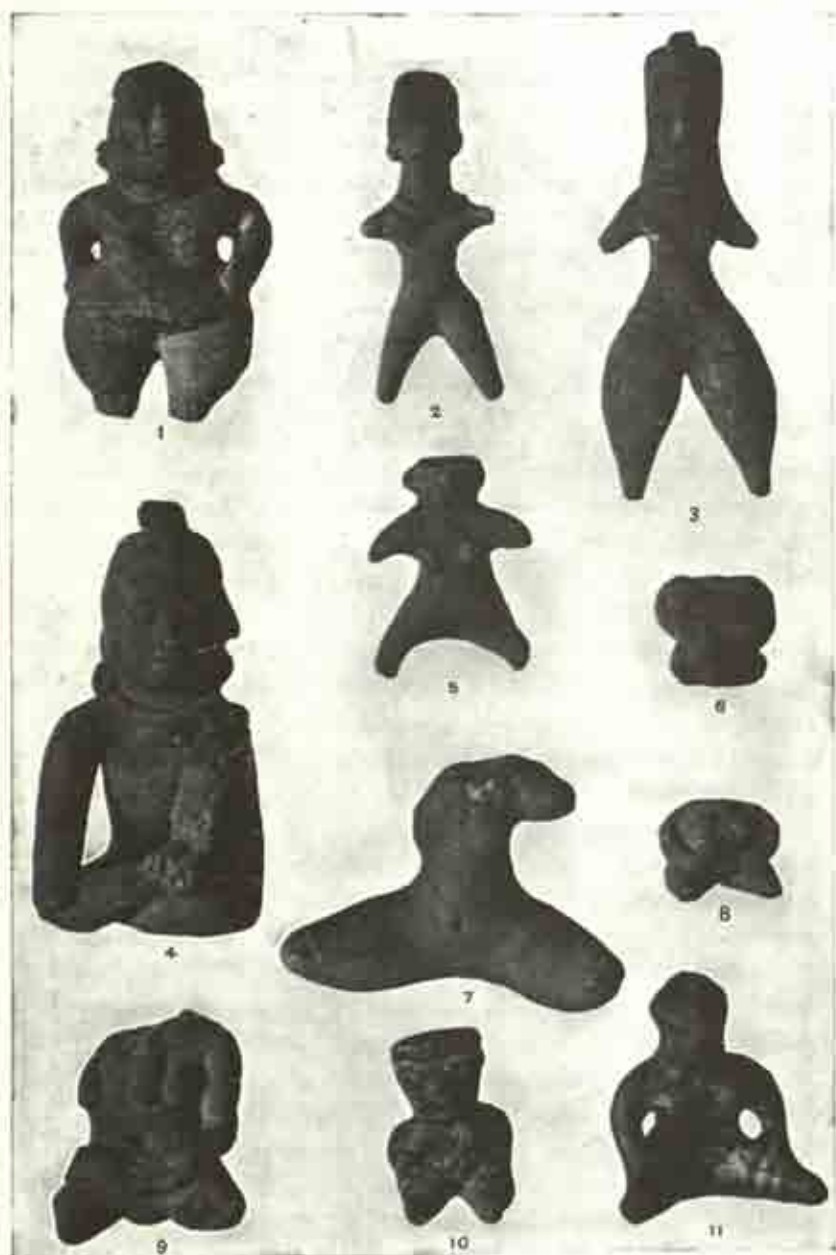
ward through Nicaragua to the boundaries of Panama (for a comparative series see plate XXII). A very interesting change takes place in the technique of manufacture when we come to Nicaragua and northwestern Costa Rica. The features of the face and body were made according to the northern method, that is by attaching nodules and fillets of clay to the gross body form and



FIG. 59.—Archaic pottery in the collection of Señor Andres Bang.

by making grooves and indentations with a special grooving tool. Paint was then applied as follows: the body was covered with a rich glossy red and over this additional features, as well as decorative designs, were put on in a lustrous black. The overlying paint destroyed the value of plastic work beneath and in the Chiriqui pottery of the so-called alligator group, the female figurines show little besides painted features upon the original featureless gross form. All of the figurines in the south are perforated for suspension. Unfortunately, the archeological situation in Nicaragua and Costa Rica is so complicated that it cannot be considered in detail in the present paper. It shows, however, a cultural succession capable of being correlated with that of the north.

The ordinary pottery of the archaic period from Mexico to Salvador is marked by a number of characteristic forms of which the globular bowl with a constricted neck is perhaps the most noteworthy. Wide-mouthed bowls are also common and these may have round bottoms or tripod supports. Lugs and handles are frequent and spouts occur on some pieces. When plain the tripods are large, hollow, and rounded with a perforation on the



SERIES OF FEMALE FIGURES: 1, ZADAPA, GUATEMALA; 2, 7 & 8, ATZCAPOTZALCO D. F., MEXICO; 3, NOCHISTLAN, OAXACA, MEXICO; 4, MEDELLIN, VERA CRUZ, MEXICO; 5 & 9, SALVADOR; 10, RICOYA, COSTA RICA; 11, BUENOS AIRES, COSTA RICA. SPECIMENS IN AMERICAN MUSEUM OF NATURAL HISTORY

under side. But tripods are often modified into faces and feet. Incised decoration is frequently seen, the patterns being simple and geometric. Painted decoration is also common but here we have to do with a technical process quite different from the plastic process and more or less antagonistic to it as we have just seen. Of course there are many pottery vessels that are decorated either wholly or in part according to the plastic method.



FIG. 60.—Painted designs on archaic vessels from Guasapa and Metapan.

Some vessels are shaped grossly to represent human beings, dogs, snakes, etc., while others show merely surface applications of plastic ornament. A number of Salvadorean examples in the Bang collection might be described. These are particularly interesting since they permit a correlation of painted and plastic ornament in this southern region. A black vessel from the slopes of the volcano of San Salvador is shown in figure 59a. A head and arms are built out of a globular bowl and two feet appear as grooved nodules at the bottom. The style of the head is that of the archaic figurines although possibly somewhat advanced. The next example is a handled pitcher from Las Delicias in the Department of Suchitoto colored a dull gray and with a simple face in relief on the front and an irregular painted decoration in red and black around the shoulder (fig. 59c). Several specimens have a globular body and a pair of loop handles attached vertically. The necks of the vessels are variously modified with plastic heads. The wide spaces between the handles bear the painted panel-like designs reproduced in figure 60. Two vessels with spouts are next shown (figure 61). These offer evidence of a peculiar kind of painted decoration. The smooth surfaces seem to have been covered with red paint and while this was still wet a comb-like instrument was rubbed across it, leaving groups of parallel lines. The first vessel of this type bears a face with small widely separated features and the second represents a seated female with the limbs

in low relief. In both cases the eyes are in the archaic style. A last example will serve to indicate diversity in shape (fig. 59b). This vessel is essentially a horizontal cylinder with a smaller vertical cylinder rising from the center as a neck. The body markings of a monkey are modeled in low relief and distributed over the surface in a curious detached fashion.

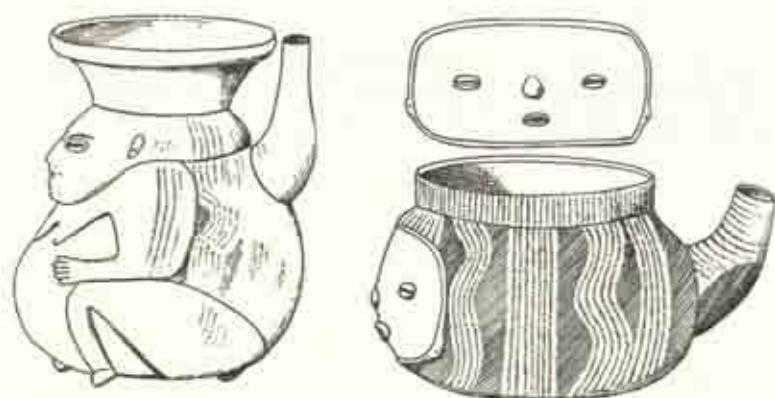


FIG. 61.—Archaic vessel with comb markings. Collection of Señor Andres Bang.

A number of objects in clay which probably belong to the archaic period deserve a brief description. The bulb or resonator whistle which occurs in the archaic culture layer of the Valley of Mexico as well as in the later strata was not observed in Salvador although it may exist. Straight whistles, or flageolets, are found. In the collection of Señor Justo Armas are a number of these objects. All have four finger holes, arranged not equidistant but in two pairs with a wider space between the pairs. The open end is more or less flaring and the partially closed end with the vent is decorated with some plastic detail such as a bird or animal head. The construction of the flageolet may be seen from the drawings (figure 62). The finger holes are on the opposite side from the wind vent. In this respect these clay flageolets vary from those of the Valley of Mexico. It is difficult, if not impossible, to segregate spindle whorls in Salvador into styles that accord with periods. They are fairly plentiful and are sometimes decorated. A curious double ring for which I can offer no explanation is seen in a number of specimens

from Salvador, some of which bear plastic ornament of the ancient type. Earplugs of clay are likewise found.

Art in stone of the archaic period has, in general, some of the characters that distinguish the early ceramics. This is particularly true of the stone sculptures of the State of Jalisco in the collection of Señor Maximo Bohnstedt of Guadalajara.

The eyes protrude and usually the lips as well, and the limbs are rarely cut free from the body. In Salvador only a few stone sculptures are noted which seem to belong to the archaic period. Some of these have protruding eyes and some have sunken

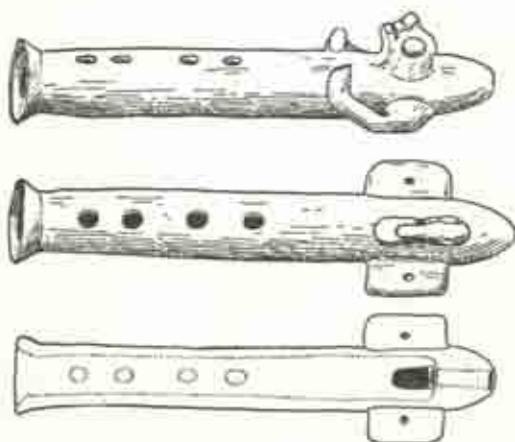


FIG. 62.—Flageolets of clay from Apopa. Collection of Señor Justo Armas.

ones. The human beings are seated with the arms and legs carved in relief against the body. Animals are grossly and massively shaped. The character of the archaic stone sculptures of Salvador may be seen from the examples presented in figure 63.

The Maya Period.—The second culture layer in the Valley of Mexico is the so-called Toltec which lasted for centuries and which shows many evidences of kinship to the classical civilization of the Maya. This latter civilization is better known historically than any in the New World and bids fair to furnish a standard section with which far-stretching culture strata may some day be correlated. The great city of Copan, lying but a short distance from Salvador, is important as furnishing the key to the artistic sequence in Maya art. This city has many sculptures in an archaic style—which, however, should not be confused with the archaic art just considered—as well as many others in a perfected style. The dated monuments at Copan cover a stretch of nearly three hundred years

and if our correlation with European chronology is correct, they fall between 200 and 500 A.D. Monuments with somewhat later dates are found at Quirigua, Seibal, etc. The Maya influence

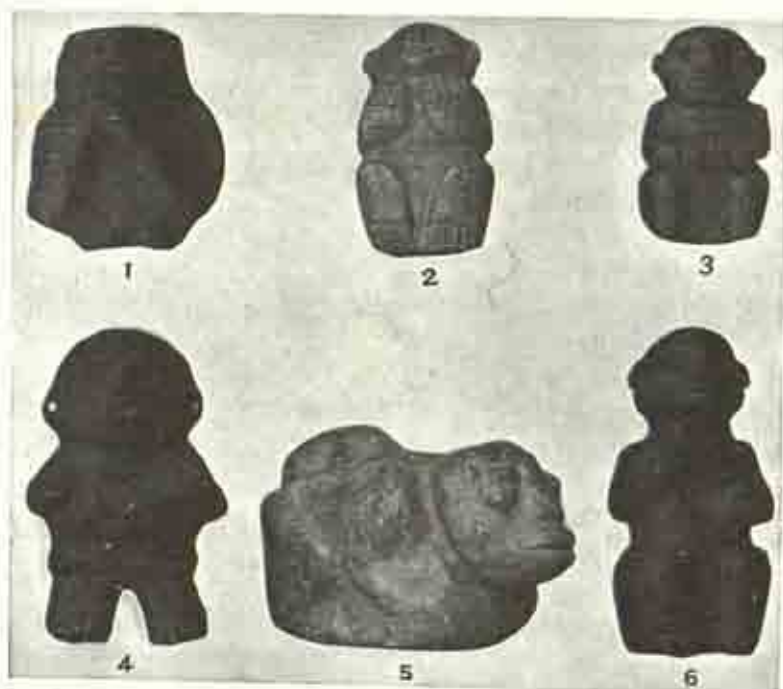


FIG. 63.—Stone sculpture with archaic characters. Collection of Señor Alberto Imery.

upon surrounding tribes was probably more strongly felt toward the end of the period of greatest brilliancy, or from 400 to 600 A.D. Maya art is in striking contrast to the archaic Nahuatl art just considered both in technique and subject matter. The religious motive is foremost and grotesque gods with the physical characters of reptiles and animals are seen on every side. The hieroglyphic inscriptions are truly hieroglyphic in the sense that they were connected with religious activities.

The Maya period in Salvadorean prehistory is richly represented by painted vases and by figurines. The painted vases are usually cylindrical with very short tripods, although wide-mouthed bowls are also common. Cylindrical vases are indeed character-

istic of the entire Maya area and when examples are found in the Isthmian region or in Central Mexico the designs usually indicate a Maya relationship. While there is a high development of geometric ornament on the vases from Salvador there is also a fine decora-

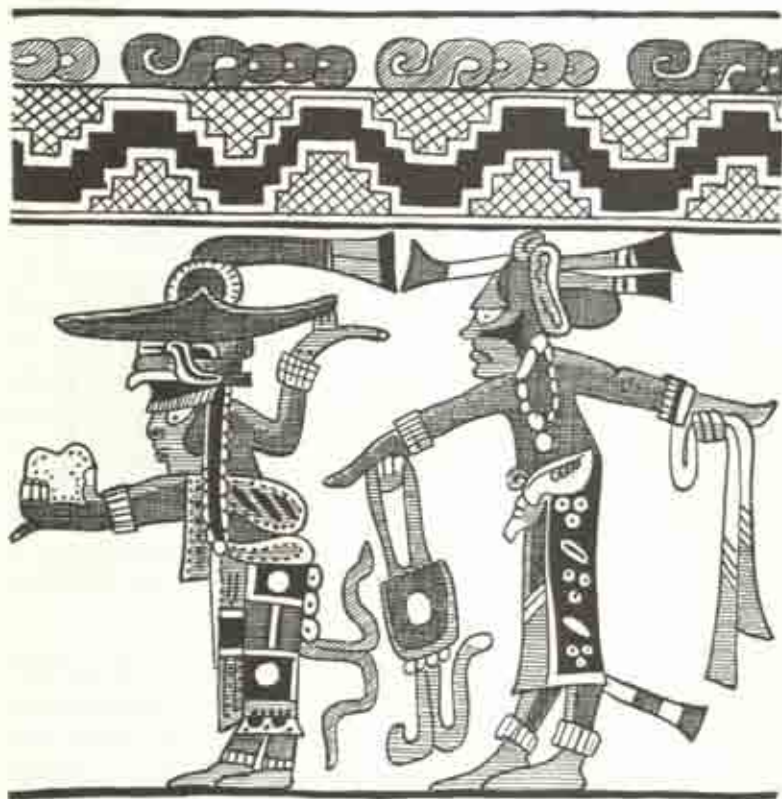


FIG. 64.—Detail of polychrome vase. Collection of Señor Justo Armas.

tive use of realistic drawings, including human beings, monkeys, birds, etc. The serpent is also a common motive but in a subversive fashion. Hieroglyphs usually take the form of a face with appendages and so may be called realistic. The designs are ordinarily delineated in black upon a yellow or orange base and some of the enclosed areas are filled in with red, orange, and brown, making in many cases a true polychrome ware.

The human figure is often represented in connection with what may be called religious activities. A remarkable vase in the possession of Justo Armas has at the top a pleasing geometric pattern and below this a succession of six priests in highly elaborated dress and with pouches and other objects in their hands. Three face to



FIG. 65.—Detail of Maya vase from Chalchuapa, Dept. of Ahuachapan. Collection of Señor Alberto Imery.

the right and three to the left and five take various standing poses while the sixth is seated. The background is cream-colored, the lines are of a rather thin black and the enclosed areas are filled in with dark red and orange. A light brown wash appears on some of the scrolls. All the figures differ in details of dress but an impression of the style of art can be obtained from figure 64. The umbrella-like head-dress of the left-hand figure follows models that are seen in the sculptures of Copan and Tikal. Medicine pouches of the same general character as the one carried by the second figure are carried by the priestly beings on many stelæ. Arm and leg bands are to be noted as well as a skirt-like garment that extends from the waist to below the knees.

A second interesting example of work from the Maya period is

in the collection of Alberto Imery. This vessel is said to have come from Chalchuapa in the Department of Ahuachapan. At the top is a border of hieroglyphs, none with recognized meanings. The principal zone of decoration shows a procession of five figures of which three are here reproduced (fig. 65). The base is a light orange yellow, the line work is done in black and is firm and solid as a rule but thin and shaky in a few places. The red is a dull, dark crimson. The headdresses show the use of feathers and a prominent feature of the dress is the usual belt and apron. A jaguar skin robe is worn by one of the men. An interesting detail is an object placed on the mouth of two figures. This object seems to represent a pair of reptile jaws and may be explained as a mask or a speech sign.

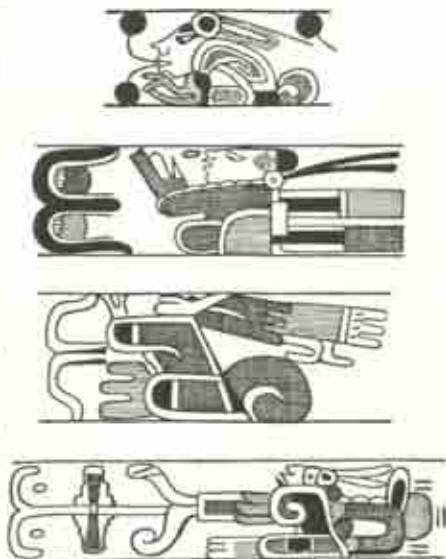


FIG. 66.—The human figure motive on Maya pottery.

A kneeling or seated human figure, probably male, is repeated three times on a fine bowl in Señor Imery's collection coming from the Costa del Balsamo near Libertad. The washes are in dark red, clear orange, and light brown. The drawings are so highly decorative that the details of dress are hard to pick out and explain. A ceremonial object held in the extended hands also resists interpretation.

All the examples given above are so specialized in style that they might almost be called end products of an art long in existence. In many instances where the human motive is applied to a narrow band or other cramped space the shorthand character of the drawing becomes even more manifest (fig. 66). Four examples

of the simplified human motive are given for comparison. These designs are not from cylindrical vessels but from bowls and jars with the drawing surface warped and confined. The decadent phase of Maya art in this region may perhaps be seen in the peculiar



FIG. 67.—The monkey motive in Maya pottery.

motive of joined human figures (dancers?) to which Lehmann¹ has already called attention. His drawings also serve to emphasize the similarity between the marginal types of Maya art in Salvador and those in the Uloa valley of northern Honduras. Unless the

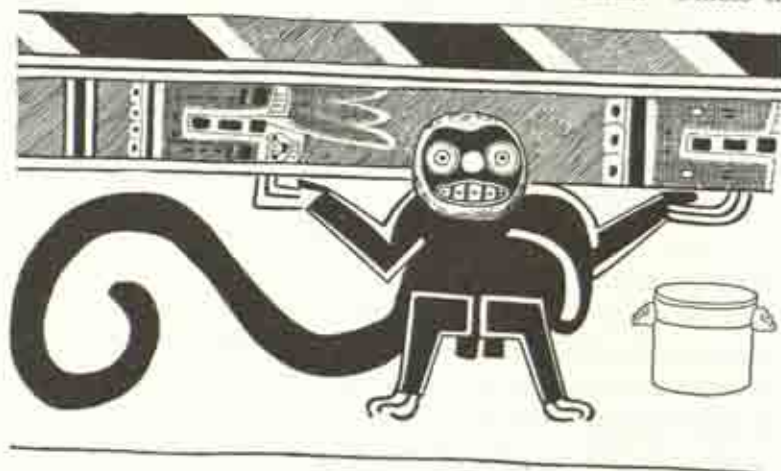


FIG. 68.—Monkey motive; combination of graphic and plastic methods. Collection of Señor Andres Bang.

examples of Maya designs with the human figure given by Sapper² are badly reproduced they also may be late and decadent.

The range of painted decorations outside of the human figure motive is seen in figures 67 to 71. The monkey is frequently and

¹ 1910, pp. 736-738.

² 1896, pl. I.

finely done. The bird motive is less common. The serpent head design occurs in painted and incised wares. Many designs reproduce in a conventional manner shields, feathers, and what may be ceremonial objects.

Plastic decoration is seen on a noteworthy vase from Salvador, that represents one of the principal Maya deities, marked by a twisted ornament above the nose. It is conserved in the Royal Museum of Natural History in Vienna. A photograph of this specimen has been published by Seler¹ in connection with a number of representations in clay of the same deity which he found on the highlands of Guatemala. An earlier drawing of this specimen is given by Montessus de Ballore² and a statement in the text names the ruins of Zapotitlan as the place where it was found. A moulded flask in the Imery collection (figure 72) shows two seated figures



FIG. 69.—Maya vase with pelican design from Hacienda Malpilapa, Dept. San Salvador. Collection of Señor Justo Armas.

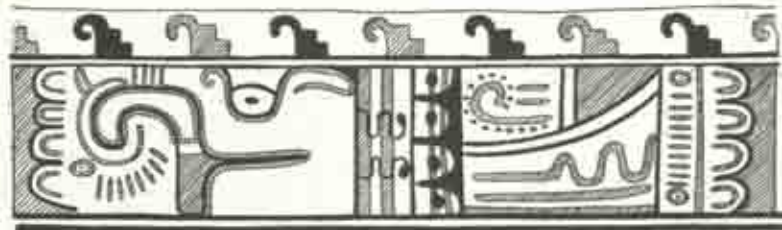


FIG. 70.—Plumed serpent design, Maya period. Collection of Señor Alberto Imery.

facing each other with a column of hieroglyphs between. The left hand personage seems to represent the Long-nosed god of the Maya. This is made all the more likely by the fact that other examples of the same sort of ware from Guatemala and Honduras clearly represent other Maya deities. This small piece might easily have passed

¹ Seler, 1901, p. 180.

² Montessus de Ballore, 1891, p. v.

in trade. As a rule, the pottery of the Maya period in Salvador gives slight reason for supposing that Maya religious cults had been taken over by the ancient inhabitants of this region.

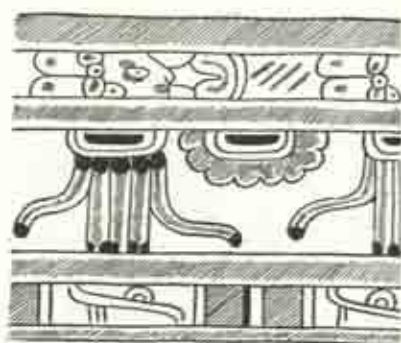


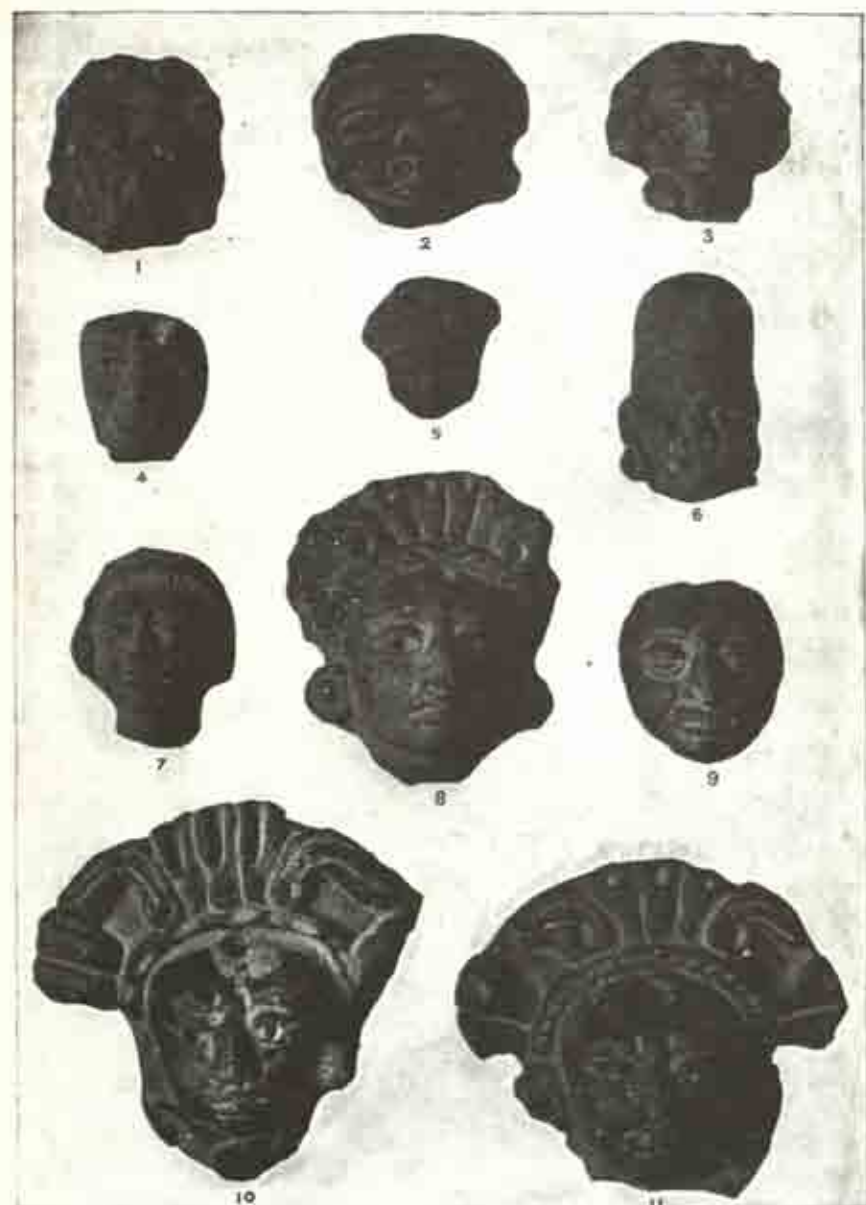
FIG. 71.—Design on cylindrical vase. Maya period. Collection of Señor Andres Bang.

The hieroglyphs which so frequently occur on vessels from Salvador are probably no more than meaningless decorations but the same may be said of many of those on vases from the heart of the Maya area. Learning was doubtless in the hands of the priests and upper classes and potters had to content themselves with outward forms. Sometimes a single face glyph, with or without dot

numerals, is repeated over and over again round the rim of a bowl. At best such a glyph could only stand for a name or a day. Sometimes two glyphs alternate in the decorative band. A face glyph with a linked prefix occurs on many pieces in Salvador and is also common at Copan and in the Uloa valley.

Figurines of the Maya period are as sharply defined from the work of the archaic period as is the painted pottery. They show a much superior modeling of the face and a richer decoration. The superiority of the modeling is seen especially in the eye and the overhang of the forehead although the entire face is nicely and delicately rounded. Of course there are many grotesque heads but these also show rounded contours. A number of clay heads belonging to the Maya period are given in plate XXIII.

Stone carvings that can be definitely referred to the Maya period are rare. A crude stela found near Chalchuapa and now in the Museo Nacional at the capital has been figured by Lehmann. This monolith was found on a terraced hill called Taxzuman. On the sides are faint traces of hieroglyphs which, however, are different in style from those of the classical Maya. The human figure on the front wears for headdress an animal head with feathers



HEADS OF THE MAYA PERIOD, SALVADOR. SPECIMENS IN AMERICAN MUSEUM OF NATURAL HISTORY.

at the side and holds in the right hand a wand which may be a crude imitation of the Ceremonial Bar. A number of small carvings in jade and other fine grained stones show strong Maya influence and may possibly be referred to this period. Several in Señor Imery's collection come from Ataco in the Department of Ahuachapan.

Transition between Archaic and Maya Periods.—Having reviewed in some detail the productions of both the archaic and the Maya periods we can now go back and note the evidence of transition from one to the other. Transitional forms are usually difficult to find, first, because transitional periods are naturally short, second, because a mixed manner affects but a small part of the products of such a period. But in the present instance we are fortu-



FIG. 72.—Bottle with stamped design. Collection of Señor Justo Armas.



FIG. 73.—Vessels showing transitional features. Collection of Señor Alberto Imery.

nate in dealing with two schools of art mastering different processes as well as different designs. In figure 73 are two vessels of almost the same size and shape and with plastic ornament attached in the same position. The plastic ornament on the first bowl represents a bird-like head with an arm-like object at each side. Both the head and arms are decorated with attached buttons of clay. Groovings mark off the lips or bill and also the fingers in which the two arms terminate. Groovings ornament the short, pointed tripods of the vessel. The eyes are flat disks with a hole in the center. All these charac-



FIG. 74.—Eyes of Totonacan figurines.

ters are found in the archaic art, but here they are expressed in an extraordinarily neat and rounded fashion. The second bowl has tripods exactly like those of the first. The plastic decoration is a human head that is purely and unmistakably Maya. In marking the headdress with lines and punctations the old fashioned grooving stick of the archaic school of ceramics was put to a more delicate use than before.

It is certain that the general technical processes that characterize the archaic pottery were to some extent carried over into later products. Moulds and stamps were introduced as new, shorthand devices. The larger pottery constructions of Mexico and the Guatemalan highlands, down to Spanish times, show a building up out of ribbons and buttons of clay (as well as out of moulded pieces) even though the shapes and subjects have completely changed. The Zapotecan funeral urns, for instance, are strongly Maya in subject matter but they exhibit certain similarities in technique to the ancient art.

But the transition can be seen most clearly of all in some of the work of the so-called Totonacan school. Here we have heads, less complicated than those of the Zapotecan urns, attached to one side of a cylindrical or bell-shaped support. The range in quality of modeling is great. Some of the heads are scarcely superior to the archaic work and others exhibit the finest characters of the Maya

potters. A series of eyes will show the close connection that these faces have to archaic products. In figure 74 the first example is a simple groove and the second one a groove covered with heavy black paint. Number three gives us the archaic eye made by a double gouging. The fourth and fifth show the use of paint and

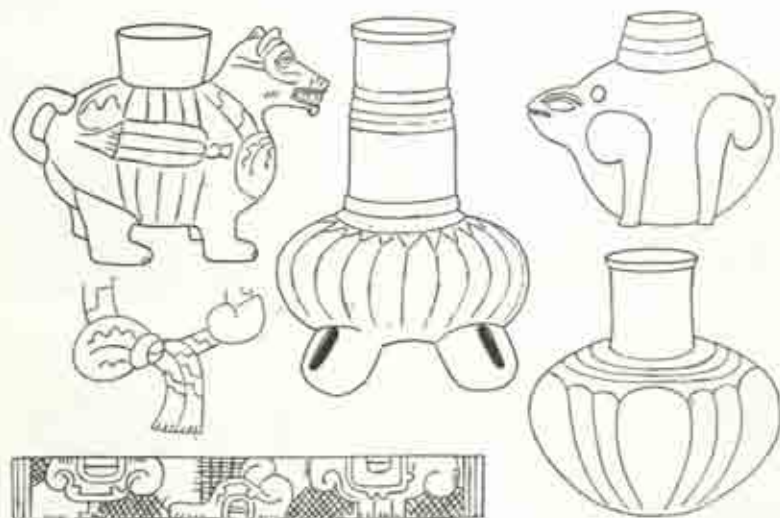


FIG. 75.—Glazed ware. Collection of Señor Andres Bang.

in the sixth case, which represents a common form, a painted eyeball is set into the groove. The seventh example is the eye of one of the "laughing heads" that stand at the point of highest development. The last eye is the perfected product of the true Maya. Returning to Salvador we find a large group of pottery heads with rather crude modeling of archaic characters but with eyes having a single punctation in the center (plate XXIII, 1 and 2). These are also transitional in type.

Post-Maya Period.—There is good evidence that the great Maya cities of the south were abandoned soon after 600 A.D. and that the Maya tribe proper, moved northward toward central and northern Yucatan. This left Salvador free from the pressure of Maya culture. The rise of the Toltec civilization in Mexico gave a new source of inspiration and influ-

ence. The most brilliant cultural development of the southern Nahuatl tribes (Pipiles) was that centering around Santa Lucia Cozumalhualpa in southern Guatemala. The splendid sculptures of this ruin, and of a number of neighboring sites, show qualities of design and workmanship that are reminiscent of the Maya but the subject matter is surely Mexican. Human sacrifice



FIG. 76.—Glazed ware. Collection of Señor Andres Bang.

is frequently represented. Elaborate speech scrolls recall those of the so-called Temple of Agriculture at San Juan Teotihuacan and those of the Temple of the Jaguars at Chichen Itza. From rather satisfactory evidence it appears that the Temple of the Jaguars dates from no earlier than the close of the twelfth century. Santa Lucia Cozumalhualpa may have flourished round about the same time.

The Post-Maya period is represented in Salvador by stone sculptures which bear a close resemblance to those of Santa Lucia Cozumalhualpa and by a peculiar kind of pottery which is known to have passed in trade to Toltec cities in the Valley of Mexico. Let us first consider the pottery. This may be studied in many beautiful examples. Without regard to the character of the decoration it may be classified at once by a semi-vitreous glaze. The ware is

hard, thin, and fine-grained. The surface has a slight but unmistakable gloss, varying in hue from dull green to dull orange. The greenish variety predominates and it is likely that the orange colored specimens were subjected to a reducing flame. In no one of the many examples that have come to the attention of the writer does the surface appear to have become actually liquid. Instead a slight suffusion seems to have taken place when the pottery was being fired. This may have been due to the presence of lead in the clay. Although the finest examples of this ware probably antedate the Spanish epoch by several centuries still it is worthy of note that the same greenish and semi-vitreous surface is seen on post-Spanish products.



FIG. 77.—Stone disk from Cara Sucia now in San Salvador. Period of Santa Lucia Cozumalhualpa.

The suffused surface of this ware would not carry sizing or painted designs and as a result we find the ware decorated, first, by incised designs, second, by plastic designs (see fig. 75). Special attention seems to have been paid to the development of shape as an esthetic whole. Vases with varied profiles are seen as well as long-necked bottles with the body gracefully modified by flutings. A series of vessels of the semi-glazed ware is given in figure 76. It will be observed that when faces or animal figures are reproduced by modeling there are no signs of archaism. The heads are in the full round while minor details are often expressed in incised lines. The applied plastic decoration is freely and realistically treated, with headdresses, etc., on wing-like projections. A human head is sometimes shown in an animal mouth in accordance with a fashion inaugurated by the Maya. Necklaces and other decorative objects are frequently worn by animals. The incised patterns are characterized by curvilinear motives of serpentine origin and by cross

hatching. The figures of the best period are not particularly grotesque but this quality increases as we approach the Spanish epoch and in post-Spanish work we have a hodge podge of grotesque features put together without rhyme or reason.

This semi-vitreous ware seems to have been peculiar to the western half of Salvador and perhaps the adjacent portions of Guatemala. Since the glaze is probably dependent upon a natural quality of the clay rather than an added ingredient its locality should be capable of exact determination. It seems to have passed far and wide in trade. In the American Museum of Natural History there are very similar examples from Guatemala and from San Juan Teotihuacan in Mexico. Examples have been reported from northern Yucatan and from the State of Vera Cruz. Some excellent specimens of the ware were published by Montessus de Ballore¹ who apparently thought this glaze was due to balsam from the Costa del Balsamo. Seler² comments on the distribution as does Lehmann.³ It is not impossible that the pottery found by Gordon in the caverns of Copan belongs to this kind of ware.

An example of stone carving with marked resemblances to the sculptures at Santa Lucia Cozumalhualpa is given in figure 77. It is in the Museo Nacional in San Salvador and was obtained many years ago by Dr Santiago Barbarena at Cara Sucia. The subject is a jaguar in full face as may be determined by the great teeth and the heart-shaped ears. It is conceivable that the design may have also represented the sun in accordance with the Sun-Tezcatlipoca-Jaguar series. At each quarter point on the sides of the disk is a pair of turned-out frets. The "Chacmool" sculpture at the Museo Nacional, which proves the transference of a cult to Salvador, may also date from this period.

The other three sculptures (fig. 78) evidently represent one and the same subject—a grotesque face, probably reptilian, in front view. The part of each stone which at present is buried in the cement of the pedestal is shown in dotted outline: *b* was mounted upside down. Each representation is incomplete but by taking

¹ 1891, pls. I-III.

² 1904, pp. 107-108; 1902-1908, III, pp. 621-624.

³ 1910, p. 739.

the three together we may easily restore the missing features. In *a* we see the top of the wide mouth, the eyes with their scroll-shaped supraorbital plates and between these the upturned nose. In *b* the left eye is wanting but the mouth with the hanging tongue appears complete. In *c* the details of the nose are more fully



FIG. 78.—Sculptured boulders from Ahuachapan at Museo Nacional, San Salvador. Period of Santa Lucia Cozumalualpa.

presented than in the other examples. These stones are said to have been in the *cabildo* at Ahuachapan before they were taken to San Salvador.

A number of brief references to monolithic sculptures in Salvador indicate that much remains to be done. Habel¹ tells of seeing two colossal heads near Sonsonate and three more in a plain near the volcanoes Cuyutepet and Sisilintepet. There is also Squier's reference to a sculptured slab of Tehuacan.

It has been known for some years that an unmistakable example of the "Chacmool" type of sculpture exists in Salvador. It is said to have been discovered in the vicinity of Ahuachapan and is now exhibited in the Museo Nacional at San Salvador. The figure is true to type although crudely carved and shows a male divinity in a half-reclining position with the knees drawn up and the body supported in part upon the elbows. The head is raised and turned to one side and in the upper ventral region is a round, flat space where incense may have been burned. This space is not

¹ 1878, p. 32.

hollowed out into a dish as in other representations. There is no uniformity of opinion concerning the identity of the divinity portrayed in figures of the "Chacmool" type but he clearly belongs to the Nahua rather than the Maya pantheon. The famous original of the type was found at Chichen Itza by Le Plongeon who gave it the fanciful title. Several other specimens exist at the same site. All are associated with buildings that date from this period of Nahua influence or from about 1250 A.D. During this well-authenticated period Chichen Itza was in the hands of Mexican overlords—the foreign allies of Mayapan—and the influx of Mexican ideas in religion and art that took place must be obvious to any student. The "Chacmool" type is well established in the Valley of Mexico and it has also been reported from Cempoalam in Vera Cruz and Patzcuaro in Michoacan.

The spread of this peculiar type of sculpture seems to have followed the spread of the sacred Nahua game of *Tlachtli* which was played in specially walled-in places called Ball Courts. The finest Ball Court of all is the one at Chichen Itza. From none of the early Maya cities has this structure been reported and it is rare in the later centers of northern Yucatan. It does occur over the highlands of Guatemala, but here Nahua tribes were settled and Nahua arts, myths, and ceremonies were passed to and fro in the centuries following the fall of the early Maya civilization. A Ball Court in Salvador has already received comment.

The "Chacmool" idea may perhaps be detected in some of the gross sculptures from the Guatemalan highlands that represent the squat human subjects with a bowl in the center of the body. Examples occur in the great ruin between Guatemala City and Mexico. Professor Saville informs the writer that a "Chacmool" executed in plaster formerly existed at Quirigua. Unfortunately no photograph of this object is extant and no traces of it have come to the notice of archeologists working at this site. A remarkable stone sculpture closely resembling the "Chacmool" of the north forms part of the Minor C. Keith collection from Mercedes, Costa Rica.

Aztec Period.—At the top of the historical series there is in Sal-

vador a culture strongly Mexican in character that corresponds to the period of Aztec dominance. Evidence of this culture is seen in religion, tradition, and art. It is impossible to draw any exact dividing line between this Aztec culture and the earlier one just described.

All students agree that among the Pipiles of Salvador the principal Mexican deities were known and worshiped. In some instances the names were slightly different from those in the Valley of Mexico. It is evident that this worship had been implanted a considerable time before the arrival of Alvarado and it is equally evident that it did not extend back to the archaic period. We have seen that the culture of Santa Lucia Cozumal-hualpa offers evidence of a community of ceremonies

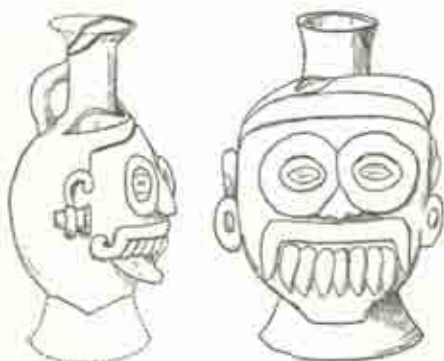


FIG. 79.—Tlaloc vases of Aztec period; Dept. of Chalatenango. Collection of Señor Justo Armas.

and beliefs with Mexico. It is likely that a fairly constant intercourse was maintained for centuries and that fresh cults and practices were introduced from time to time.

The supreme deity or godhead of the Pipiles of Salvador was Teotl and after him came Tal, the earth, Tonal, the sun, Metzli, the moon, etc. Palaccio gives us details of human sacrifice to the god Quetzalcoatl and the goddess, Itzqueye. In "Los Pipiles" Señor Lainez gives fragmentary myths and traditions concerning these gods as well as Camascatl, Xipe, Tlaloc, and other divinities.

On the side of tradition there are a number of references so highly fantastic that they deserve slight attention. The story of the kingdom of Payaqui¹ supposed to have been founded by the last Toltec ruler with Copan for the capital is at best a distorted and made over tradition which might conceivably have referred to

¹ Rodríguez, 1912, pp. 17-20.

the time of Santa Lucia Cozumalhualpa. It is practically certain that Aztec conquests did not extend into Salvador. However, large trading parties which almost took on the character of embassies, probably reached this land.



FIG. 80.—Incense burners of Aztec period: (a) and (b) collections of Señor Alberto Imery; (c) Codex Borbonicus.

The traveling merchants of the Aztecs called Yaqui are referred to in native documents of Guatemala such as the *Annals of the Cakchiquel* and the *Popul Vuh* of the Quiché. In the former, there is evidence that they were particularly active in the years immediately preceding the Spanish Conquest. In 1501 some Yaqui of "Xivico" were put to death for interfering in local politics of the Akahab nation.¹ In 1511 there seems to have been an official delegation sent to the Cakchiquel by Moctezuma II, the exact reference being as follows:

At this time the Yaquis of Culucan were received by the kings Huny and Lahuh Noh. The Yaquis arrived on the day 1 Toh, sent by the king Modecumatzin, king of the Mexicans. And we ourselves saw these Yaquis of Culucan when they arrived, and they came in old times in great numbers, these Yaquis, oh my children, during the reign of our ancestors Huny and Lahuh Noh.²

But it is the archeological remains, after all, with which we are mostly concerned and if the two lines of evidence already given should be entirely obliterated these archeological remains would

¹ Brinton, 1885, p. 161.

² *Ibid.*, p. 165.

still be sufficient to show a connection with the Valley of Mexico during the last centuries before the coming of Cortez.

First to be mentioned are vases of a peculiar form indicating that the cult of Tlaloc had spread to this far southern land (fig. 79). The grotesque and not to be mistaken face of this mountain rain god is modeled on the front of bottle-shaped vessels that are also characterized by a loop handle at the back and by an annular base.

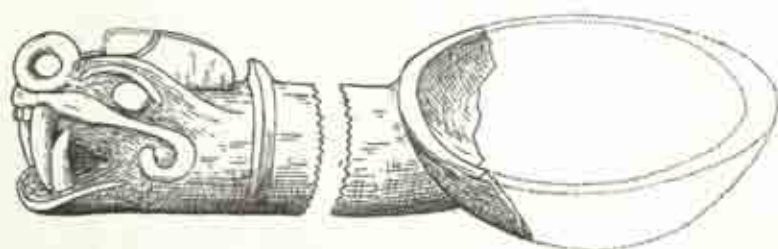


FIG. 81.—Incense burner. Collection of Señor Justo Armas.

The vases are of rough unpainted ware and are so well represented in the private collections that it does not seem possible they should have been mere objects of trade. Examples are shown in the atlas of Montessus de Ballore.¹ Similar pottery pieces are abundant in Mexico. One fragment in the American Museum of Natural History is accredited to as distant a site as Ixtlan in Jalisco and several complete examples are catalogued from Teotitlan del Camino in Oaxaca.

Incense burners in the shape of a shallow bowl with a cylindrical handle ending in a serpent's head are found in considerable numbers. Burners of this type have a wide distribution in the Valley of Mexico and over the highlands of Guatemala. They were in use in Tenochtitlan when Cortez arrived, as may be seen by a number of beautifully painted examples found in Escalarillas street. They are frequently represented in Mexican codices (fig. 80c). The specimens seen in Salvador are unpainted and the material is rather coarse and of dull orange hue. Figures 80a, b, and 81 present two fragmentary pieces in the Armas collection. The first of these is

¹ 1891, pls. XII and XIII.

three stout legs. The yellowish sizing of the background is modified by the splashes of thin orange colored pigment and the body of the jaguar is filled in with a wash of the same substance. Red is sparingly used along the back and tail of the jaguar as well as for the projecting tongue. The markings on the body are not arranged in rosettes as is usually the case in drawings of this animal.



FIG. 85.—Design in bottom of shallow bowl. Collection of Señor Alberto Imery.

If space permitted several other sorts of pottery might be described showing connections to the south. There are examples of shoe-shaped urns and ring base vessels that seem to belong to Nicaragua as well as unpainted ware with pleasing geometric decorations made by incised lines.

An example of the crude boulder carvings that exist in certain

parts of Salvador is given in figure 86, after a rubbing in the possession of Mr Emil Mosonyi.



FIG. 86.—Petroglyph from a rubbing by Señor Emil Mosonyi.

In concluding this preliminary survey of San Salvador the writer needs hardly point out that the problems are hand in glove with those of Nicaragua and Costa Rica on the south, when the succession of Nahua and Maya cultures is clearly reflected in art.

With the multiplying proofs of actual stratification of remains and of natural developments in art, which are nearly as dependable, we should not despair of soon recovering the essentials of ancient American history.

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AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK CITY

THE MAYA DAY SIGN MANIK¹

By STANSBURY HAGAR

IN two former papers the writer has marshalled evidence that the twenty Maya and Mexican day signs represent in sequence twenty constellations located around the circle of the ecliptic or zodiac. In the first paper this deduction was based upon the continuous correspondence between the symbolism of these day signs and that of the month signs, the monthly ritual and the various sequences of zodiacal constellations found in the codices and in the writers of the period following the Conquest, especially Tezozomoc, Sahagun, and Duran. In the second paper the deduction was supported by the correspondence between the rainy and dry seasons on the Mexican plateau and the position of the day signs with respect to these seasons as figured and symbolized in the Codex Vaticanus 3773.² A third verification of the deduction and



FIG. 87.—Manik Glyph,
Dresden Codex, p. 4c.

of the identification of each day sign with a certain zodiacal constellation may be found in the correspondence between some of the names of the day signs and the alignment of the star groups to which they must be assigned in the sequence. The Maya day sign, Manik, offers perhaps the most impressive correspondence of this nature. Its glyph presents the figure of a hand closed as if in the act of grasping, and Dr Seler interprets it as giving in a gesture the invitation to eat³ (fig. 87). Diverse meanings have been attributed to its name but Dr Brinton's explanation of it as "a hand that grasps" from *mach*, to grasp, seems most consistent.⁴ Astro-

¹ Read before the American Anthropological Association at Philadelphia.

² Hagar, *Int. Cong. of Americanists*, 17th Sess. (Mexico), pp. 140-159; 18th Sess., pp. 137-139.

³ Seler, *Bu. of Am. Ethnology*, Bull. 28, p. 30.

⁴ Brinton, *Primer of Mayan Hieroglyphs*, p. 111.

nominally, this day must be assigned to the eastern portion or tail of our constellation of the Scorpion for the symbolism indicates that the preceding day sign must pertain to Scorpio and the following day signs to Sagittarius. Two variants of the Manik glyph in the Books of Chilán Balam present the conventionalized tail and sting of the scorpion.¹ Now a glance at the alignment of the stars of the Scorpion's tail (ϵ to ν) should disclose the plainly marked figure of the grasping hand. But we need not depend upon our imagination in this instance. The Maya recognized the Zinaán ek or Scorpion asterism.² We know that they had so named it in pre-Cortesian times because it is figured in the pre-Cortesian codex Tro-Cortesianus. It is also seen in the wall paintings at Mitla; it is associated with the Maya deity, Ek chuh, Black Scorpion or Star Scorpion; and it is named by Tezozomoc and Sahagun amongst Mexican constellations which show no trace of European influence. We know that it must be identified with our own constellation of the Scorpion because of its position in the sequence of these constellation symbols, because the Maya Uinal period, Tzec or Scorpion, corresponds in time with the entrance of the sun into this sign, and because Sahagun asserts this identification. Indeed the stars of Libra and Scorpio present the figure of a scorpion so unique and conspicuous in the sky as to justify as at least probable an assignment to it without further evidence, of all asterisms bearing the name of that insect.³ If now we examine the representation of the scorpion

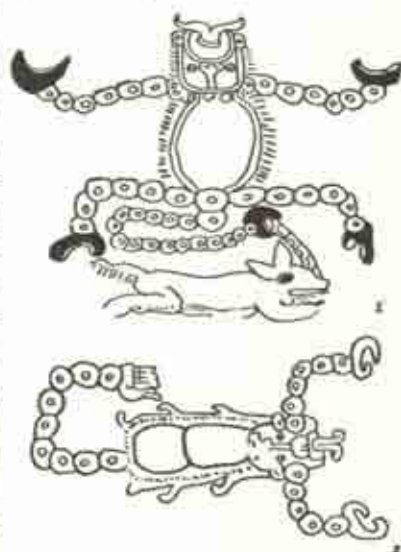


FIG. 88.—The Scorpion in the Codex Tro-Cortesianus (after Tozzer and Allen).

¹ See Bowditch, *Maya Numeration*, Plate II, Nos. 10, 11.

² Brinton, work cited, p. 75.

³ Cf. Hagar in 16th Sess. Int. Cong. of Am., pp. 278-291-292.

on page 48c of the codex Tro-Cortesianus we shall observe that a grasping claw has been substituted for the sting at the tip of the tail. On page 44c of the same codex the sting is replaced by a human hand with fingers closed as in grasping. In fact in the Maya codices the tail of the scorpion usually terminated in a grasping organ (fig. 88).¹ In the first representation the object grasped is a rope to which a deer is fastened below. This is the zodiacal rope or the ecliptic similarly figured at Mitla, Santa Rita, and on page 19 of the same codex. The deer is the symbol of the opposite sign, Taurus; correctly placed with respect to the Scorpion.

Thus we are led to the conclusion that the day sign, Grasping Hand, owes its name to the configuration of the stars of which it was the symbol. Its glyph, contrary to the usual position of Maya glyphs, is horizontal in accord with the aspect of those stars.

Perez gives "that which was" as a possible meaning of Manik and Brasseur de Bourbourg "the breath has passed."² These meanings harmonize very well with the predominant death symbolism of the Maya Scorpio asterism which is associated with the death god, death head, and with the day sign, Cimi, which precedes Manik and has the meaning, dead. Possibly therefore, like the sting of the scorpion which it replaced, Manik was supposed to symbolize the hand of death, and to be pulling the sun downwards into the darkness and death of the winter. But if it was connected with death it certainly also represented resurrection in contrast with the death symbols preceding it.

At Izamal we seem to see a reflection of the Grasping Hand in the temple called Kabul the Working Hand, dedicated to the sign Scorpio. This edifice is said to have contained the image of the hand with which the death god healed the sick and restored the dead to life. Another reflection of this miraculous hand is apparently found in the Maya festival Chich Caban, the Calling Down of the Great Hand. This ritual was celebrated on the last day of the Scorpio uinal or month Xul or End but it evidently pertained to the following uinal Yax Kin. This uinal was also

¹ Tozzer and Allen, *Animal Figures in the Maya Codices*, pp. 305-306. Plate 4.

² See Bowditch, *Maya Numeration*, p. 263.

governed by Scorpio and it held exactly the same position amongst the uinals as did Manik amongst the day signs. In this ritual the Maya celebrated the return to earth of their principal deity Cuculcan who was believed to have ascended to the sky amongst the gods during Xul. The myth probably refers to his death and resurrection, for Xul is the symbol of death and Yax Kin of returning life.¹

Again, the deity Ek Chuh, who occupies the position of Scorpio in the so-called spear-throwers group on page 49 of the Dresden Codex, holds his right hand in the position of the Manik symbol.

Finally, though this is admittedly speculative at present, there may be some connection between this symbolism and that of the mysterious impress of the human hand so often found upon the walls of Maya temples. Was it a prayer to the Death God for restoration of health or preservation of life?

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¹ See Hagar, *Am. Anthropologist*, N.S., Vol. XV, pp. 17-18-24-31.

THE EASTERN ALGONKIAN WABANAKI CONFEDERACY¹

By FRANK G. SPECK

THIS paper deals with the confederacy which formerly existed among the tribes of the extreme eastern United States and Canada, known as the northeastern Algonkian; a confederacy which was manifestly the outgrowth of an organizing tendency shared alike by the native founders of the League of the Iroquois, the Creek Confederacy, the Delaware Confederation, and others of less importance. Historical literature of New England deals too meagerly with the organization of the Wabanaki tribes despite the prominent part it played in the Colonial struggles along the northern frontier. Accordingly our main sources of information come from the tribes themselves where memory still preserves the facts concerning their old alliance even though its actual existence ceased years ago. The material which I present comes primarily from Penobscot sources, foremost among whom is Mr Newell Lyon. The village of the Penobscot at Oldtown, Maine, was the capital of the eastern branch of the confederation, where Mr Lyon was in his youth a witness to its procedures.²

The Algonkian tribes from Maine eastward to the Atlantic and northward to the St Lawrence comprise what is called the northeastern Algonkian or Wabanaki group. This includes the Penobscot of Penobscot bay and river, the Passamaquoddy of Passamaquoddy bay, the Malecite of St John's river, the Micmac of the coast of New Brunswick, Nova Scotia, Prince Edward island, Cape Breton, and Newfoundland, and also the Abenaki of St Francis, Province of Quebec, originally from Maine and embracing several local bands, the Aroosaguntacook, Wawenock, and

¹ Read before the American Anthropological Association at Philadelphia.

² My information is based upon general ethnological work among the Penobscot since 1907, and supplemented by occasional investigations among the other tribes of the group in the last few years in the interests of the Geological Survey of Canada.

some others of unsettled identity. Of these divisions, however, the confederacy in historic times took in only the Penobscot, Passamaquoddy, Malecite, and Micmac.

These four tribes, as we learn from tradition, had from the earliest times suffered more or less from incursions of the Iroquois who were evidently, according to their usual policy, bent upon forcing the Wabanaki tribes to join the League. The eastern Algonkian, however, seem to have felt that Iroquoian hostility was due to innate barbarity. Some Penobscot sources accuse the Mohawk of deliberate cannibalism, while local legends concerning the early Indian wars teem with samples of Mohawk cruelty which, whether they are true or not, tend to keep alive the old feelings of indignation in the minds of the eastern tribes. In a more extensive paper on the ethnology of the Penobscot I have included a number of these anecdotes under the topic of warfare. It is supposed that the Iroquois raided the Wabanaki tribes so long and were defeated so often that the Mohawk asked for arbitration to secure peace. They then started to seek counsel of the Ottawa, who are regarded as the most venerable of the eastern nations. At length their deliberations brought an end to the wars in the foundation of an alliance between the four Wabanaki tribes, headed by the Penobscot, and the Mohawk of Caughnawaga and Oka, together with other neighboring tribes whose fortunes were in different ways linked with those of the principals. From this time onward, still following the general tradition, the confederacy grew in importance; the four Wabanaki tribes forming themselves into an eastern member with their convention headquarters at Oldtown among the Penobscot; and the whole confederated group, embracing the Wabanaki tribes, the Mohawk and the neighboring Algonkian associates with the Ottawa at their head, appointing Caughnawaga as the confederacy capital. Here regular meetings were held among delegates from the allied tribes where their formal relationship was maintained by series of symbolical ceremonies. Incidentally, we can readily see what a profound effect this steady contact with the superior culture of the Iroquois must have had upon the simpler nomadic hunting tribes of the Wabanaki group.

The effect appears clearly in the wampum procedures, the condolence, and the election of chiefs, the sending of delegates, and functions in general which characterized the internal operations of the Wabanaki confederacy, the whole fabric of which was manifestly modeled after the pattern of the Iroquoian League.

Before presenting more detailed matter, let us consider some things bearing upon the possible age of the alliance. While extrinsic evidences are wanting, we can, I think, conservatively estimate the organization of Wabanaki tribes to date back as far as the middle of the eighteenth century. Newell Lyon, our primary informant, wants to claim something over two hundred years for it. Indeed, Caughnawaga, the capital of the Wabanaki confederacy itself, was only founded after 1676 by proselytes to Christianity who had separated from the original League of the Iroquois, with which the Wabanaki alliance had no relations whatsoever. Hence, it becomes apparent that we are dealing with a comparatively recent institution; an alliance among more or less Christianized tribes acting under the constructive political influence of the Mohawk who found themselves recasting in their own way under new conditions the old original principles of the Iroquois League.

Let us now proceed directly to our sources of information. There are, to begin with, two aspects from which to treat the Wabanaki confederacy. Internally, the four eastern constituents had certain proceedings among themselves and a certain national identity as a group, while their actions with the Mohawk and the Algonkian westward form another aspect. As already mentioned the eastern or Wabanaki group proper, *Wabaná'kiak*, "People of the sunrise country," comprised the Penobscot, *Pannawampské-wiak*, "People of where the river widens out;" the Passamaquoddy, *Peskada mó'kantiak*, "People of the pollock fishing grounds;" the Malecite, *Wulástegwiak*, "People of the beautiful river;" and the Micmac, *Mi'kemak* (analysis ?) in their respective order of importance. The western or Mohawk member embraced the Ottawa, *Udá'wak* (meaning ?); the Mohawk, *Mé'gwak*, "Red people (?);" those of Caughnawaga being known as *Ka'nawá'giltona*, and those of the Oka band as *Kanas'atá'giltona*, both terms derived from the

local Iroquois band names; and lastly the Têtes de Boule of St Maurice River, (Province of Quebec), *Ebagotabâdjik*, "Flat foreheads." As a whole, the confederacy had several synonyms. The Passamaquoddy, Malecite, and Micmac called it *Bûduswâgan*, "Convention Council," while the Penobscot used the terms, *Bésegowak*, "Those United into One," and *Gizângowak*, "Completely United." The idea of the confederacy is moreover implied in the group name *Wabanâ'ki* as given above.

Since the arrangement seems more logical we will deal with the somewhat broader international phase of the confederacy first, leaving the internal Wabanaki details until later for attention. Incidentally, it should be remembered that unless otherwise specified the native terms used throughout this paper are the Penobscot forms.

THE INTERNATIONAL ASPECT OF THE CONFEDERACY

The Ottawa, denoting collectively the Algonquin inhabiting the Ottawa river valley, were held in the highest esteem by the tribes of the confederacy. The Penobscot refer to them as *kewi'lanh'wâsena*, "our (inclusive) father," and regard them as the oldest tribe. They are said to have been very fierce, embarking naked and without provisions upon their war expeditions and depending upon the flesh of their fallen enemies for subsistence. Moreover, among the Penobscot at least, they are thought to have retained the use of bows and arrows until only recently. Besides they enjoy a great reputation as magicians. Because they were called upon to mediate between the Wabanaki and the Mohawk, the Ottawa were looked upon as the head of the confederacy, and presided at the meetings of the members. Their position was interestingly symbolical, in that the Great Chief of the Ottawa was represented as the master of the allied tribes, sitting at his village with a whip in his hand to enforce obedience to the common pact. Above all the Ottawa chief appointed the Mohawk village of Caughnawaga to be the capital of the confederacy and required of the tribes to send delegates to a general council held every three years. He made an order that if a tribe failed at any meeting to send the

required delegate, the next time the delegate arrived his head would be cut off and set upon a pole or flagstaff in front of the confederacy council house, as an example. So much for the part played by the Ottawa.

As for the Mohawk, they were given the important duty of guarding the central council fire of the confederacy at their large village of Caughnawaga which became known as *Kiciskwúdek*, "Great Fireplace." Here in the big council house was the place where the representatives of all the tribes met every three years to bring the pledges of their people, and to participate in the ceremonies of renewing the bonds of union. The rites and festivities are said to have often consumed several weeks. When all was over the representatives and their companions would return home bearing replies and messages to their own chiefs. Each tribe sent at least one delegate accompanied by an interpreter to the confederacy meeting. This regular assembly which marked the life of the organization was symbolized as a great fire kindled by all the members in common for the maintenance of the warmth which was essential to their perpetual friendship. Lest the fire burn too low it had to be fed with symbolical firebrands by the tribal delegates at the regular meetings.

We now come to one of the most interesting phases of confederacy life, the function of wampum. All the transactions of the allies were recorded by means of wampum belts and strings, woven or strung, according to certain conventional designs. They served as mnemonic documents to be kept in the council house at Caughnawaga and read over again at each recurring meeting to refresh the memories of the delegates regarding the details of the organization. Then before his return each of the delegates was provided with a smaller belt with emblematical designs representing the confederacy, and at the same time accompanied by a speech from the council which it would be his duty to memorize when receiving the belt and repeat to his home council, conveying the belt as a testimonial. Again, at the next confederacy meeting the delegate would present a belt from his own tribe containing similar conventional symbols of political adherence. Holding it in his hands he would deliver

the words of his home council and offer the belt to the council of the allies. In the center of the council house a large wooden hoop hung suspended from the ceiling. This in effect symbolized the actual council fire of the confederacy. As the delegates presented their belts these were hung up on the hoop. This part of the ceremony was known as *maugwazéni'ge*, "adding brands to the fire," meaning that the fire of the confederacy was being nourished by having "brands," belts, shoved into it by its keepers. For the fire to burn low symbolically represented the decay of the institution.

In the confederacy council the tribal delegates had assigned places according to the rank of their tribe. The representatives of the four Wabanaki tribes occupied one side of the council, while opposite them across the "fire" sat the representatives of the western members. Political prerogatives seem to have rested with the Penobscot on the one side, and with the Ottawa on the other side of the house. Of the part taken by the Têtes de Boule we hear very little. Although I have visited their country my efforts to strike satisfactory sources have so far been unsuccessful. The Penobscot remember them only as ancient enemies. They are said to have had deformed heads, as their Penobscot name attests.

Finally, now the council fire of the confederacy, to use the old simile, has completely burned out. The western members have almost forgotten it. Several visits to the Mohawk both of Caughnawaga and Oka in quest of confederacy material yielded only the vaguest general reminiscences among the old men of my acquaintance. We may, nevertheless, hope for something more later on when more of the field can be covered. Even the wampum, which had become more or less sacred through its national functions, has been completely lost.

THE EASTERN MEMBERS OF THE CONFEDERACY

The eastern or Wabanaki members, however, have on their part been more faithful to the old spirit of the alliance, in memory at least; most of this material having come from the Penobscot, while the Micmac still keep up their solitary part in the ancient program, as we shall see shortly. The Penobscot were the first to dissolve

their associations. We learn that in August, 1862, Attean Orson, having been sent as the Penobscot representative to Caughnawaga, returned to Oldtown and laid the wampum belt which he brought with his speech from the confederacy council upon the table before the Penobscot chief and council. While they were discussing matters one of the councilmen, Nick Sockabesin, suddenly interrupted the proceedings by taking the belt from the table and throwing it out of the door, saying at the same time, *Nodedjá' uq' b'q'bi*, "Throw out the cursed wampum." His move, it seems, was actuated by disgust at further imaginary subservience to the Mohawk, as well as by the fact that the delegations entailed considerable expense to the tribe. As the dishonored belt lay in the dust no one moved to "raise it up again," and the council broke up. Thenceforth all connections with the confederacy were severed. This sudden rupture was possibly the outcome of feelings held by some ten or twelve Penobscot families who in 1857 had migrated to Caughnawaga at the invitation of the Mohawk after spending a winter with them and returned in discontent to Oldtown.

The Passamaquoddy, however, maintained their relations with the Mohawk until much later. Somewhere about 1870 they sent their last delegates to Caughnawaga in the persons of Joe Lola and Sapiel Selmore. The Micmac discontinued at about the same time (1872), although we shall have more to say of their home observances which are still in force. So much for the international aspect of the confederacy concerned with the Iroquois and the western allies.

We now come to the subject of the more internal affairs of the four eastern tribes. As I have already indicated, the Penobscot, Passamaquoddy, Malecite, and Micmac, forming the Wabanaki group, had a certain national identity based, of course, upon their close ethnical relationship. No doubt the political bonds which linked them together existed long before the alliance with the Iroquois and their neighbors. These tribes in common elected each other's chiefs, called upon each other for aid against outside enemies, and held meetings to treat upon matters which affected their common interests. So, apart from their associations with the

confederacy at large, they formed a sort of independent group of allies. As might be expected, too, the documents of their organization consisted of belts and strings of wampum which were held in just as high esteem as among the Iroquois. The essentials of this local eastern Wabanaki institution will now be taken up.

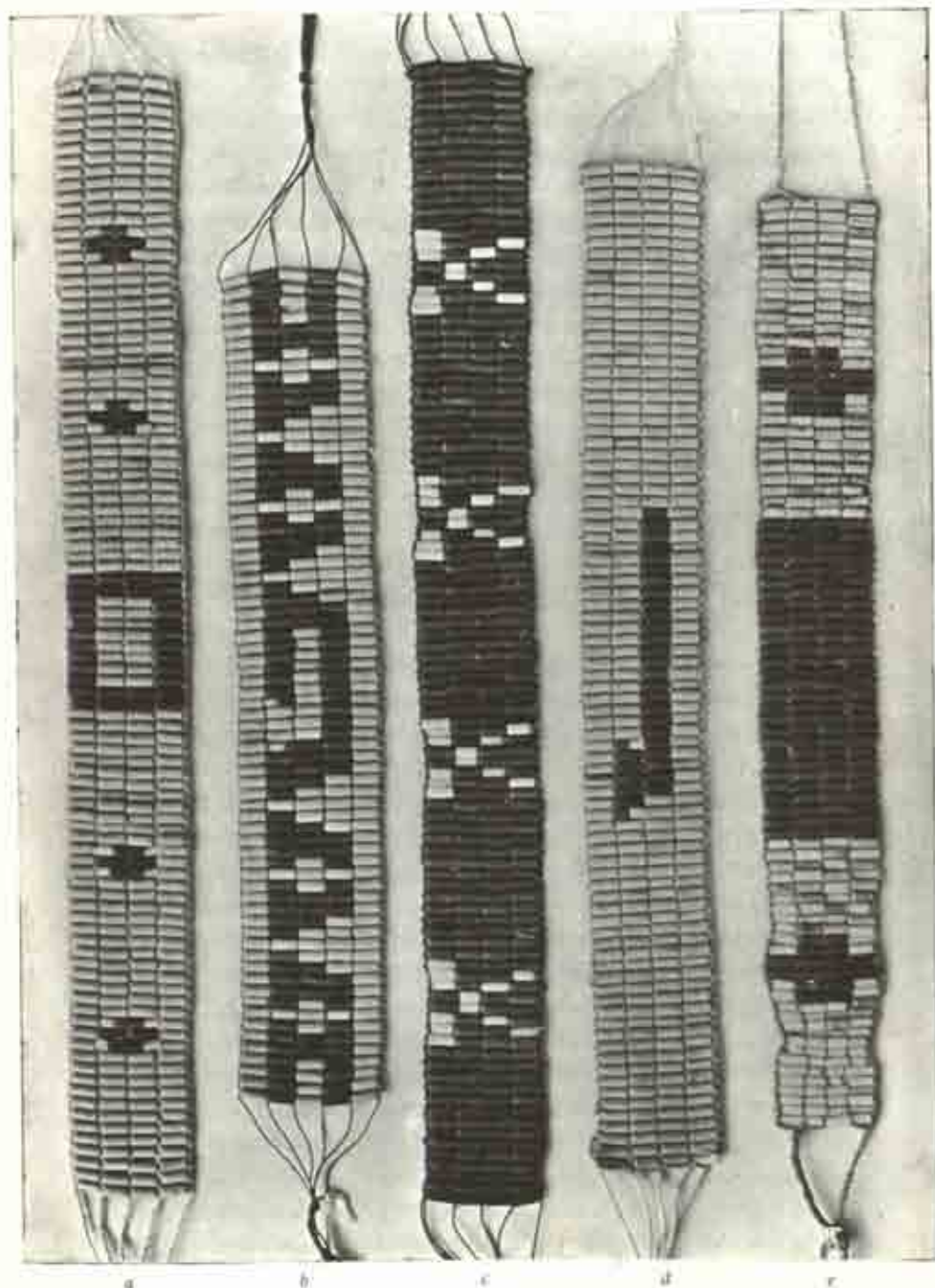
The four tribes, whose native names have been previously given, were graded in the following order. The Penobscot came first and were referred to as *ksés'i'zēna*, "our elder brothers," the Passamaquoddy, Malecite, and Micmac came next, in the order given, under the appellation of *ndo'kani'mi'zēna*, "our younger brothers." Their council fire was at Oldtown, a sort of secondary capital where the Penobscot council house was the central fireplace. The old council house which stood in the center of what is now the town square, near the dance hall, was known as the *gwundá'wvn*, "long house." It had a door at each end while in the middle hung the symbol of the "council fire," a large loop of moosehide from which were suspended the belts of wampum to be used variously as occasion required. This wampum, as in the larger phase of the confederation, symbolized the fire itself. It was displayed at every council meeting where the significance and history of the different belts were recited by the chief as part of the council formalities. At these meetings, moreover, it was customary for the speakers to express themselves in figures and similes. Some of the old men, on account of their skill in the art of metaphor, were known as *nēdulinowak*, "riddle men." Each of the other three tribes also had its head village in which the council house was the repository of its own ceremonial wampum. When occasion arose the four tribes would, as we shall see, congregate at one or the other of these. The head village of the Passamaquoddy was at Pleasant point, *Sí'báyik*, "At the strait," that of the Malecite was at *Ékpo-hak*, "Head of the tide," and later at Tobique, *Nagáwi'teguk*, "Junction of two rivers," and the Micmac had theirs at Digby. At the fire of the Wabanaki confederates the representatives of the four tribes sat facing each other, forming a rectangle about the wampum. The delegates of each tribe here had equal influence. From these generalities let us pass to the various ceremonies which

engaged the attention of the eastern allies and kept their organization alive.

The Penobscot, owing to their proximity to the western frontier seem to have been the chief medium of negotiations between the eastern group and the Iroquois. Consequently, from their village at Oldtown was sent the summons to the other tribes to attend councils for war or peace with outsiders. Since practically all the summons and ceremonies of the allies were accompanied by wampum strings or belts our material naturally assumes the form of a discussion of wampum functions. Although none of the original national belts are at this day extant among the Penobscot or their neighbors, with the exception of the Micmac, I succeeded in having a number of Penobscot facsimiles made by an Indian girl. These were based on specifications as to form and design furnished by Newell Lyon who remembered the actual articles himself from having seen them used in his younger days. These reproductions serve a very valuable purpose in providing us with illustrations of objects and ideas which otherwise would be irrevocably lost. We know that the other three tribes also had their sets of ceremonial wampum which were kept in their council houses in the care of their head chiefs respectively.

Our first example shows the type of belt carried by the Penobscot delegate to the council at Caughnawaga. This is about 15 inches long (pl. xxiv, fig. a). The white ground color symbolizes its peaceful mission, the blue rectangle in the center represents the four Wabanaki tribes grouped about their council fire, while the four small crosses ranged at the sides again denote the four tribes. Another somewhat variant interpretation may be given in which the central rectangle represents the council fire of the confederacy at Caughnawaga, to which the four tribes indicated by the crosses owe their allegiance. The method of procedure in handling this belt has already been dealt with.

Next in importance is perhaps the belt representing the union of the four eastern tribes in their local alliance (pl. xxiv, fig. b). This was a somewhat broader belt with a dark background, denoting former or potential hostility among the tribes, lightened on the margins



REPRODUCTIONS OF PENOBSCOT CEREMONIAL WAMPUM BELTS

with white borders denoting the bonds of friendship that now surround them. The alternating panels of blue and white at the ends are evidently a convention imitated from the Iroquois. The four white triangles are tribal "wigwams," the Penobscot, Passamaquoddy, Malecite, and Micmac. In the center is the pipe which is the symbol of the peace ceremony by which the allies are joined. Such a belt would serve very general purposes in the days of the confederacy. It was a reminder of the confederacy, to be carried by messengers from any council as a testimonial. In going from village to village to deliver the message, whatever it might be, the ordinary method in connection with all the belts, but particularly with this one, was for the messengers to go directly to the council house and there await the coming of the chief and council. When all had assembled the ceremony was opened by lighting a pipe and passing it around the company as a formal pledge of sincerity. Next the head messenger would arise with the belt in his hands before him and deliver his set speech. The presence of the alliance belt was an absolute guarantee of attention. As long as the belt was displayed it commanded respect. The Passamaquoddy and Micmac remember how their councilmen and chiefs would kiss the belt or string that was presented to them. In short the belt had to accompany the message whether it was forwarded by the first carriers or whether it was relayed to the next village. The presentation rite was known as *nimskep'skulé'tame*, "to stop in and light the pipe." When it had gone the rounds of the tribes the belt would be returned to the senders.

In regard to the function of wampum among the eastern tribes as *gelusetóangan* "speech," we do not find so much stress laid upon its mnemonic value as upon a certain set symbolism conveyed by the colors and designs of the belts. With almost religious seriousness the messengers who carried the belts on their missions were instructed in the speeches they were to deliver, the symbols on the belts corresponding to the content of the messages. The belts seem to have earned their names more from the fact that they illustrated the import of the speeches. To say that there was any rigid speech formula accompanying the different belts is, I think,

claiming too much for them. It would hardly accord with our notion of native preciseness of mind. We know, moreover, that belts were often cut up to provide strings for minor purposes and even for decorative ornaments, while on the other hand new belts were occasionally made to symbolize some new concept or message in connection with some particular event. In being borrowed from the Iroquois the wampum ceremonials of the Wabanaki tribes seem to have lost some of their explicit documentary qualities and to have gained dignity as national political symbols.

The information I have given is based principally upon Penobscot sources, but we do not lack correlated data from the other tribes of the group. Passamaquoddy material is available, published by Professor Prince.¹ And again regarding the Micmac, first-hand matter is forthcoming from the tribal headquarters which I visited last summer for the purpose of investigating the confederacy.

When any of the Wabanaki allies were menaced with war it was, of course, their right to call upon the other three for support. For this purpose, when occasion arose, the Penobscot had a war belt and a peace belt of which reproductions are shown. Each chief of the other tribes is also said to have had a similar set. The war belt (pl. XXIV, fig. c), about 15 inches long, had a solid blue background with four pairs of crossed tomahawks across it. The dark background stands for war, the four pairs of axes constitute a call to the four nations to join in taking up the tomahawk in the common cause. To use the informant's phraseology, "If any trouble arose in sight of the chief he would send this belt by runners to the chief of the nearest tribe accompanied by his message stating the circumstances." The receiver would then forward it to the chief of the next tribe, and so on, until the belt would ultimately be returned to its starting place. Holding the belt high in front of him the messenger announced the time and place of gathering in his speech. The mate to this belt was the peace belt, one of about the same size, entirely white with the figure of a pipe in blue in the center (pl. XXIV, fig. d). This was to inform the allies that over-

¹ J. D. Prince, "The Passamaquoddy Wampum Records," *Proceedings of the American Philological Society*, Vol. XXXVI, No. 156, Dec. 1897.

tures of peace had been received from the enemy, and also served as a summons to council to consider the proposals.

The last and most elaborate wampum ceremony that we have to consider among the Penobscot is the series of rites used in the election of a chief. One of the wise provisions of the Wabanaki alliance, which united the tribes by bonds in which each tribe had a share in the making, was the policy of electing each other's head chiefs. Upon the death of the Penobscot chief, and the same is true of the other three tribes, the people went into mourning for a year, after cutting down and burying the flag pole that stood in front of the council house symbolizing the chief's office. At the end of the year of mourning the council of the bereaved tribe would send messengers to the other allies inviting them to come and raise up a new chief to fill the place of the deceased. The whole ceremony was a lengthy and formal one attended by reception rites, dancing and feasting, which have been described in full in my other work. To repeat a few essential details here, the Penobscot, when calling upon the other allies, sent two chiefs as messengers, wearing a black diagonal bar of paint across their faces, and carrying wampum as a sign of mourning and summons. These messengers proceeded by canoe first to the Passamaquoddy, resting at the village near Princeton, then went to the tribal headquarters at Pleasant point. The wampum they carried was either in the form of the Wabanaki alliance belt, the dark one with four white triangles (pl. XXIV, fig. a), or one more specially symbolical. The latter as a mourning belt was smaller than the rest, about twelve inches long, mostly white with a section of blue in the center representing the dead chief, and flanked by two blue crosses denoting the second chiefs or captains in mourning (pl. XXIV, fig. e). An illustration of the style of address delivered with this belt is given by Newell Lyon.

Noli' nidji' é't' uk kébedji' gadawo' bemlébena pí'ldewi' negi' abes' wé'bena

Our good brothers we have come to recently we have become orphans
ask your aid

gitci' alnqbemna gi' b'le ni' kwup ndatewéldamnena kenq'dji
our great man has lain Now we wish you that you come
down.

wanq' genémáwé'nena gitci' alnqbemna.
to raise up for us our great man.

After delivering the belt and speech to the Passamaquoddy chief the Penobscot messengers, having performed their part, returned home.

The Passamaquoddy chief held the belt as a summons and then sent two messengers to the other two tribes carrying a fourfold string of wampum of which the specimen made by Newell Lyon is an example (fig. 89). The symbolism here is as follows. The four looped lengths represent the four tribes of the confederacy; the four sections of blue and white in each length and the four beads of each section all represent the same. The blue sections represent the mourning of the people for the dead chief and the white stands for the rejoicing which will take place when the new chief is raised. The blue ribbon represents mourning. These two messengers then returned to the chief who sent them out and when all the delegates from the four tribes were ready they assembled at the village of the bereaved tribe, returning to the council there the mourning belt which was sent out as the summons in the first place. Such strings as the specimen illustrated (fig. 89) were mere secondary summons and were returned to the party who sent them out. When delivering the message with which they were entrusted the messengers displayed the strings to their hearers in council and held them in their hands before them, while announcing their mission and giving the summons. The string itself was regarded as a sacred proof that the bearers were the authentic message bearers.

When the delegates had assembled at Oldtown for the election ceremony the mourning belt having fulfilled its function would be given back to the Penobscot council. The great ceremony, known as *Nská'wchadin*, "assembly," is said to have sometimes taken up several weeks. One of the events was the raising of a new flag staff for the new chief. The last performance of this kind was in 1861 when the allies held a condolence and election at Oldtown. The visiting contingents from the allied tribes coming in canoes were received at the village landing with a salute of guns, and conducted to the shore amid songs of welcome and responses in a set order. Passing through files of armed Penobscot the visitors were led to assigned places. The ensuing night was given up to dancing

and house-to-house visiting. The next day was devoted to the formal rite of welcome at the council house. The four tribes ranged facing each other in the form of a rectangle, with an open space in the middle where one after another the visiting chiefs danced a sort of parade and sang the greeting chant, a most solemn thing. After the candidate for the chieftaincy had been agreed upon, the chiefs and captains of the four tribes conducted him up and down the hall before the delegates, singing the election chant, and later followed speeches attesting their fidelity to the confederacy, and above all, to each other. Several old women then led the new chief before the assembly and danced at his side in the center of the hall, thus giving the women's ratification. A barbecue followed, and later the native ball or lacrosse game. This program with varying details was enacted as long as the delegates remained in the village. Finally, the tribal wampum treasures were turned over to the new chief's keeping and the formalities concluded. Practically the same general events were carried out in each of the four allied tribes when a new head chief was inaugurated.



FIG. 89.—Penobscot wampum string; used as summons to inauguration of new chief.

THE MICMACS AND THE CONFEDERACY

The Micmac, who were designated in the confederacy as the "younger brothers," owing perhaps to their extreme easterly location and being so widely scattered, seem to have occupied a position somewhat apart from their allies. For this reason I will conclude this brief paper by giving a few notes applying particularly to this tribe.

The Micmac in general seem to have less remembrance of the alliance among the four tribes than either the Penobscot, Passamaquoddy, or the Malecite. They still recognize, however, the force of their confederation with the Mohawk. The interrelation

of the western Micmac of Nova Scotia, where Bear river was the capital, and their Wabanaki neighbors seems to have lapsed before 1840, beyond the memory of the oldest man at the Bear river village. The informant, however, did not remember any more than the mere form of the ceremony by which summons and invitations were conveyed from village to village by means of strings of wampum to command attention and prove the bearer's authenticity. Such strings were kissed by those to whom they were shown. The bearers, it is remembered, would enter the chief's house carrying the wampum in a small birchbark box. Depositing this before the chief he would repeat his message, recalling the different items of his speech by the arrangement of the white and blue beads.

With the dwindling of national life among the western bands of Micmac we find the strength and conservatism of the tribe still maintaining itself in the eastern extreme. In Cape Breton island the old Micmac régime is in complete sway among the Indians. Here resides the Grand Chief John Denys in whose family the life chieftaincy of the tribe is an inheritance. He is the great grandson of Chief Tomah Denys, who fought to aid the French in the battle of Quebec in 1749. After the war he settled in Cape Breton with his band and transferred the capital of the tribe to the Island. The old peace compact with the Mohawk is still a live issue in this interesting band. The wampum documents are religiously preserved by the executive head, and each year are displayed and explained to the people, as all the Wabanaki used to do, at the tribal meetings. An abstract of the information on this head furnished me by Chief John Denys last summer is as follows.

From the earliest times the Mohawk (*Kwé'detck*) had persecuted the Micmac with warfare. Finally, realizing the destruction caused on both sides, the tribes negotiated for a permanent peace. The Mohawk invited the Micmac to send delegates to them at Caughnawaga at stated times in order to renew the agreement. At the conclusion of the first overtures of peace a belt of wampum was sent by the Mohawk to the Micmac chief symbolizing their new relationship. Regularly since that time until 1872 these friendly delegations were sent from *Eskaso'ni*, the headquarters of the chief

in Cape Breton, to Caughnawaga, there to participate in the confederacy peace ceremonies. Upon their return the delegation always brought another belt to be delivered with the message from the confederacy council. At the national reunion of the Micmac on St Ann's day the chief calls the council together and the wampum pledges are exhibited accompanied by the speeches and terms of the treaty. This ceremony requires an entire day. The belts are regarded as sacred and a smoking ceremony precedes the wampum recitations. The belts themselves represent the pledges of the tribe as a body, while a number of single strings of white beads symbolize the wives of the chiefs, the women and the children of the tribes who are also concerned with the alliance, in accordance with the Iroquois notions of suffrage. One of the typical belts is about three feet long with a dark background and a series of light rectangles connected by a line running the entire length of the belt, signifying the tribes joined in the peace alliance. At the ends are beaded figures of the sun denoting perpetuity. On the whole the Micmac seem to have been less intimately united with the other three tribes of the Wabanaki group proper than they were with the Mohawk and the larger aspect of the confederacy.

To conclude this paper with a few general remarks on the wampum which played such an important part in the life of the confederacy, we find that in all the Wabanaki tribes the ceremonial wampum is figuratively termed *galusewa'ngan*, "speech." The loose ends of the warp strings of the belts symbolize emanating words. Merely ornamental objects of wampum from the region, when woven in the form of strips like belts, usually have their ends braided or tied into one strand. The synonyms for wampum in the different Wabanaki dialects are as follows. Penobscot, *wəbq'bi*, "white string," *ká'kə bes*, "old dark string," denoting the blue sort; Malecite and Passamaquoddy, *wáwap'*; Micmac of Bear river, Nova Scotia, *wabé''k'*, Micmac of Cape Breton, *el'nápskuk*, "man's pebbles." These are the common generic terms. Among these tribes, with the exception of the Micmac, wampum was also used in the manufacture of woven ornaments such as women's neckbands, collars, and hair bands, or simply strung for necklaces.

As a precious material it ranked as the property of chiefs and also as wealth. It played an important rôle in the formalities of marriage proposal. Frequent interesting allusions to this almost sacred material occur in the mythology of the whole region. The general subject of wampum, however, comes within the broader scope of a special paper which I am preparing.

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A STUDY OF NEBRASKA CRANIA

By C. W. M. POYNTER

THROUGH the activities of Mr R. F. Gilder the Museum of the University of Nebraska has a collection of over one hundred skulls taken from graves on the bluffs overlooking the Missouri river near Omaha. Interest was first awakened in this region when several skulls of a lower order of development were discovered and described under the title of Nebraska Loess Man, being at first thought to represent an ancient type of man. The University, under Mr Gilder's direction, has carried on a more or less active investigation in the region ever since, and during the past three years the Peabody Museum, Cambridge, Massachusetts, has been represented in the field by Mr Fred H. Sterns. While several of the skulls of this collection, Nebraska Loess Man, have been figured and described, no attempt has so far been made to study the entire group. I was led to undertake the work at this time because of a very recent find of nineteen skeletons in the immediate vicinity where Nebraska Loess Man was discovered.

The conditions under which most of the crania were found have been previously described and need not be repeated here. I will not attempt to discuss the question of the antiquity of these specimens both because they do not furnish sufficient somatological data to warrant more than a speculation and because Hrdlička (14) has exhaustively considered the question. They do, however, represent a number of distinct types which will be studied in the hope that some light may be thrown on the earlier history of man in this region. I have not attempted an exhaustive description of the various skulls but have only selected such features as furnish the most obvious evidence of common relationship in the different groups into which the collection seems to fall. The names employed as designating the various groups are taken arbitrarily simply for convenience of description.

Through the kindness of Doctor E. A. Hooten I have been able to compare these crania with those of the splendid collection in the Peabody Museum, Cambridge, Massachusetts, and some of the comparative tables appearing in the following pages are based on that study. I am also indebted to Professor Barbour, curator of the University Museum, for furnishing me every facility for pursuing this investigation.

WALLACE MOUND GROUP

This group consists of twenty-six skulls sufficiently intact for study; they are of a light color, nonfossilized, in a good state of preservation, and many of them are not crushed. They were found in a burial mound in the Childs Point district south of Omaha, on a narrow high bluff immediately overlooking the Missouri river. The narrowness of the bluff insures perfect drainage and in part, no doubt, accounts for the preservation of the bones found there. The skeletons are found buried at a depth of from three to five feet below the surface in a loose clay which abounds on all the ridges in the district. Two or three types of burial seem to have been employed, for some skeletons are found arranged as if they had been thrown full length into the graves; in other cases the bones are grouped in bundles and several so-called scissors burials have been discovered.

The skulls of this group are strikingly similar in their general characters and the majority of them exhibit artificial deformation in the form of occipital flattening; this is not of an exaggerated type, however, and is frequently slightly more pronounced on the right. The deformation, of course, accentuates the brachycephaly which characterizes all of the group.

The general shape and character of the skulls can be seen from the views in plate xxv, which were taken from an average skull with very slight deformation. The supraorbital ridges are not heavy but tend to meet over the nason, giving the latter the appearance of being slightly depressed. The frontal sinuses are roomy, extending well toward the outer part of the orbit. The forehead is quite well developed but narrow as indicated by the



a



b

SKULL FROM THE WALLACE MOUND. A, SIDE VIEW; B, TOP VIEW



A



B

SKULL FROM THE PLATTSMOUTH GROUP. A, SIDE VIEW; B, TOP VIEW

minimum frontal diameter. All sutures are of an extremely simple pattern in both sexes; only three skulls exhibit wormian bones. With the exception of three specimens which show a slight elevation over the sagittal suture all are well rounded over the parietal and occipital regions and none show prominence of the occiput like that characterizing the Plattsmouth group and illustrated in plate XXVI. At the superior occipital ridge in the normal, as well as in the deformed skulls, the occipital bone makes an abrupt angle between the occipital and the nuchal portions, giving to this portion of the skull a peculiar square appearance. The supraoccipital ridge, while distinct, is not heavy except in two crania of old men. Many of the group show a very indistinct temporal ridge and the absence of pronounced ridges for muscle attachments may be said to characterize the group. The external auditory meatus are all more or less compressed and in the majority the vertical diameter is more than twice the transverse diameter.

The face is regular, the teeth and alveoli show very slight prognathism while the gnathic index is 96, which compares favorably with Europeans. The nasal bones are broad and flat, the orbits regular and the palate presents no special features of interest. The teeth are of medium size and ground flat and in many cases show evidence of extensive ulceration at the roots.

The physical characters of these crania suggest a close relationship to the people from the stone graves of Tennessee in the exhibit in the Peabody Museum and no doubt they are closely related. Some of the skulls from the burial mounds of Kentucky seem to be of the same type, while others are dolichocephalic with low foreheads. It is not surprising to find this type so far north when, as it would seem from Hrdlička's (17) report, there is evidence of the same people in Arkansas.

The following table was compiled from measurements of the Wallace Mound Group skulls of the Peabody Museum collection, and data taken from Hrdlička's report just referred to. It is interesting to note that the cranial index for the Tennessee skulls is slightly different from that obtained by Carr (9) from a study of

eighty-seven specimens. I selected the group yielding these averages to eliminate artificial deformation and this may explain the difference in results, or since the catalogue numbers of the specimens I employed was above 14,000, possibly they were not included in his study.

TABLE OF MEASUREMENTS TO COMPARE WALLACE MOUND CRANIA WITH THOSE FROM THE TENNESSEE STONE GRAVES, KENTUCKY AND ARKANSAS BURIAL MOUNDS

	Number of Skulls	Length	Breadth	Height	Cranial Index	Height-Length Index	Height-Breadth Index
Wallace Mound.....	26						
Average.....		168.4	143.5	139.6	85.2	81.7	93
Maximum.....		180	154	150	92.7		
Minimum.....		151	136	128	80		
Range.....		29	18	22	12		
Tennessee.....	25						
Average.....		168.2	141	143	83	85	101.3
Maximum.....		174	148	153	91		
Minimum.....		151	131	137	80		
Range.....		23	17	16	11		
Kentucky.....	10						
Average.....		164.9	140.7	137.5	85.4	83.5	97.7
Maximum.....		177	148	145	95.3		
Minimum.....		151	136	128	78.5		
Range.....		26	12	17	16.8		
Arkansas.....	6						
Union Co. Average.....		170.1	133.1	138.3	83.3	84.2	103.7
Maximum.....		176	148	141	88		
Minimum.....		167	138	135	82		
Range.....		9	10	6	6		

PLATTSMOUTH GROUP

This collection consists of parts of fifty-five skulls ranging from adolescence to old age and of both sexes. They were found together in a small area not over four by six feet square and only about three feet below the surface. Parts of three skeletons were found with them but no ornaments or flints were discovered in the neighborhood. The bones are all stained a reddish brown and show a good state of preservation, though badly broken in the majority of cases.

Forty-two of the group are sufficiently intact to study and twenty-five can be measured. As in the group just discussed, one is impressed by the similarity of the general characters which

suggest family or tribal relations. Except in possibly one specimen there is no artificial deformation. The supraorbital ridges are not heavy and the frontal sinuses are roomy; in the majority a supraorbital notch takes the place of a foramen and when the latter is present it is in all instances single.

The sutures are complex, possibly not as intricate as in whites, and there is little tendency to elevation over the sagittal suture. A very characteristic feature of the group is the prominent occiput which is frequently accentuated by a depression in the region of the lambdoid suture. This point and other features are well illustrated by the views in plate XXVI, which were taken from one of the more pronounced representatives of the type.

The ridges for muscle attachments are not heavy in any case. The nasal bones are flattened below but pinched together in the form of a "V" at the bridge; the inter-nasal articulation is regular and arched as in the Roman type of nose. The external auditory meatus tend to be round rather than compressed as in the last group. The teeth are large and regular and form a very perfect arch instead of exhibiting an angle at the canines; many specimens show evidence of alveolar abscess. There is slight prognathism; the mandible is heavy but not prominent.

This group of crania is distinctly Indian in character, they, however, suggest a relation to the New England Indians or to some of the Algonkin rather than to any of the Plains Indians with whom I am familiar. The following table of average measurements will present some of the features of the group that the description in the text has neglected.

TABLE OF AVERAGES COMPILED FROM THE DIMENSIONS FURNISHED BY TWENTY-FIVE CRANIA FROM THE PLATTSMOUTH GROUP

	Length	Breadth	Height	Cranial Index	Height- Length Index	Height- Breadth Index	Diam. Frontal Mamm.	Circum- ference maxim. (Above ridges)
Average.....	179	130	139.9	75.9	77	101	93.6	501.4
Maximum.....	190	142	142	80	78	103	101	520
Minimum.....	163	126	134	68	72	98	86	474
Range.....	27	16	8	12	6	5	15	46

FORT LISA GROUP

These skulls were found in a burial mound about twenty miles north of Omaha. This mound has been worked but very little and it is probable that the University will carry on further investigations there this year. There are only six crania in the group but they are so different in general shape from any of the others studied, I have thought it would be best to place them in a separate class awaiting future investigations in the region which will, no doubt, determine whether they are individual variations or examples of a class.

The most characteristic feature of the group is their long narrow shape. The average cranial index is 71.5 while three of the skulls have an index of 69. The minimum frontal diameter average is only 87 mm. The supraorbital ridges are heavy mesial to the supraorbital foramen and the nason is depressed. There are no frontal eminences but moderate frontal vaulting. The suture pattern is very simple and in all skulls there is sagittal elevation; in one case the ridge extends forward almost to the supraorbital ridge but it is evident that the condition is not associated with premature synostosis. The occipital pole is not prominent as in the preceding group and there is no groove in the lambdoid region.

The nasal bones are slender and high and articulate to form a very narrow bridge. Muscle attachments are not heavy and the mastoid processes are underdeveloped. The lack of breadth in the parietal region gives the crania the appearance of slowness and lack of development.

TABLE OF AVERAGE DIMENSIONS OF SIX FORT LISA CRANIA

	Length	Breadth	Height	Cranial Index	Height- Length Index	Height- Breadth Index	Diag. frontal minim.
Average.....	181.5	129.8	134	71.5	72.8	106.1	87
Maximum.....	188	134	130	74.4			95
Minimum.....	175	126	130	68.4			80
Range.....	13	8	6	6			15

The general features of these specimens can be best appreciated from a study of plate xxvii. These very strongly suggest, by



SKULLS FROM THE FORT LISA GROUP, FOUND IN WASHINGTON COUNTY, NEBRASKA

their general shape, the Australian aborigines represented by skulls number 47944 and 47495 in the Peabody Museum. An occasional skull is found among the New England Indians with somewhat similar dimensions.

LONG'S HILL GROUP

The groups so far considered have all been found in single localities or burial places and differ in that respect from the skulls which I have considered in this group. These crania were taken from three burial sites, two being situated on the bluffs on the west bank of the Missouri river and the other on the east bank. The first of these skulls were found on Long's Hill and have been described and figured both as to physical characters and location by Barbour (1, 2, 3, 4), Ward (5, 6), Gilder (11, 12, 13), Osborn (19) and Hrdlička (14). The next specimens were found in Fairmont Park, Council Bluffs, when an excavation was being made for a road. No record was made of this find except a note in the local paper and only five skulls were sent to the Museum; these are badly broken and in all the face bones and the base are lacking. The last specimens were discovered by Mr Perry Toney in November, 1914, and are reported here for the first time. Mr Toney has been engaged for some time with Mr Gilder in carrying on excavations in the house sites along the bluffs both above and below Omaha. While working in such a site located on a bluff about two and one half miles north of Florence and nearly a mile south of Long's Hill, he discovered human bones. These are not usually found in the house sites so he called Mr Gilder and myself and we assisted in the excavation.

The surface appearance of the house site is like that of all the others in the region; it is apparently about thirty feet across and about two feet lower in the center than at the edges. The floor line is about three feet below the surface of the ground and the earth covering it is dark and mixed with charcoal. The flints and broken pottery seem to be of the same type as that described by Gilder and Sterns for these houses.

The human bones were found from one to two feet below the floor in a light-colored loose loess which was entirely free from

charcoal. The earth about the bones had every appearance of being undisturbed. The excavation of an area about eight feet long and six feet wide revealed parts of seventeen skeletons. Two



FIG. 90.—A view of a portion of the excavation of the house site where seventeen skeletons were found below the floor level.

forms of burial seem to have been employed, for some of the bones were found in bundles placed in an upright position and the skulls piled together. The general character of the excavation is illustrated in figure 90 while figure 91 is an enlarged detail which shows the relation of the burial to the floor line which is indicated by the darker color of the earth.

Five bodies were found buried entire with the limbs extended and the head toward the northwest. No flints or implements of any kind were found in the earth about or below the bones. About eight feet north of this group of bones, which were near and beyond the south limit of the

house, the entire skeleton of a young woman was found on the house floor. Near the northwest limit of the house an entire skeleton was found below the floor line but placed at an inclination of about twenty degrees with the head down.

These bones were all so badly preserved that it was difficult to remove them and the skulls were all crushed. Nineteen skeletons may not represent all to be found in this site for less than half of the house has been examined; it may be that with the exception of the young woman found above the floor none of these skeletons bear any relation to the house and its builders.

The group then which I have designated the Long's Hill group consists of ten skulls taken from Long's Hill, five from Fairmont Park, and three recently discovered by Mr Toney. Since the group contains the specimens so frequently referred to (see literature list) as Nebraska Loess Man number 6 and 8, I will speak of these particularly when they present features differing from the others. All the crania are badly broken and the bone is soft though not chalky or showing any appreciable fossilization. All of the group conform to a type in shape which may be best expressed as ovoid when viewed from the top or side, the greater mass being in the parieto-occipital region. The forehead is extremely low and in the greater number of the skulls there is entire absence of frontal eminences. The minimum frontal diameter is relatively short but this is not as important as the absence of frontal vaulting in giving the specimens the appearance of a low order of development.

The supraorbital development is pronounced in all of the group but is not comparable with that of Nebraska Loess Man 6 and 8. I know of no other specimen of man discovered in America exhibiting such a heavy ridge; there is, however, in both skulls a clearly distinguishable *sulcus supraorbitalis*, and their difference from the others of the group being only one of degree inclines one to the view that this feature in these two cases is an individual variation rather than the indication of different racial or tribal origin.



FIG. 91.—An enlarged detail of the excavation shown in figure 90 illustrating one of the bone bundles in position and showing the relation of the burial to the floor level. The earth in which the bones were found is much lighter in color than that filling the house and is unmixed with charcoal.

As has been pointed out, the frontal sinuses bear no relation to the supraorbital development; this is well illustrated in comparing this group with the Wallace Mound group. These skulls have very small sinuses that do not extend laterally to any extent and are bounded in front by a very heavy wall. The sutures show a simple pattern of serration but are more complex than the Wallace Mound group. There is no sagittal elevation and the occiput is not prominent as in the Plattsmouth group, none of the skulls show artificial deformation. The temporal ridges are in all cases slight but the nuchal line is heavy and joins a very pronounced external occipital protuberance. The planum nuchale is very rough and irregular. Compared with the nuchal ridge the mastoid processes are underdeveloped. The characteristic parieto-occipital convexity and other features can be best appreciated from an examination of plates XXVIII and XXIX.

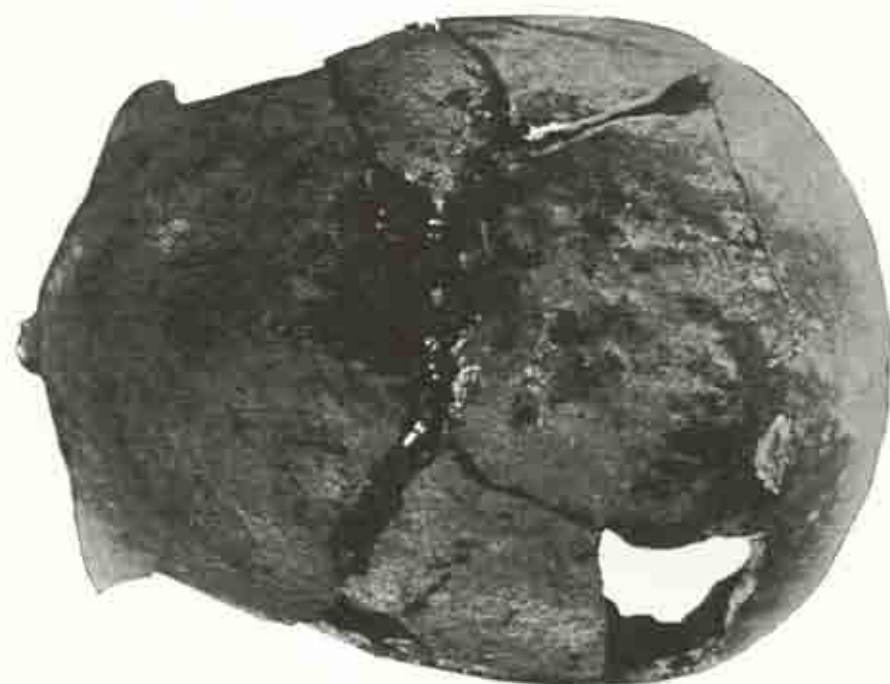
Those specimens having sufficient portions of the face bones uninjured for study indicate no unusual characters; the nose is not flat, there is little prognathism and the lower jaw while well developed is not massive. The teeth present the usual flattened surfaces but are in no way extraordinary.

As a group these crania are characterized by an inferior frontal development and may be considered as belonging to a low order racially. In the case of the Nebraska Loess Man number 6 and 8 this feature, together with the heavy supraorbital ridges, has suggested great antiquity for the specimens. We must, however, depend on the geological evidence in determining the age of these or other crania found in America rather than on the physical characters as uncertain as these are bound to be in the light of our present knowledge of the American Indians.

The following figures representing the antero-posterior arcs illustrate better than description certain comparisons which I wish to emphasize. As will be seen I have used Nebraska Loess Man in all of these figures for reasons already pointed out. Figure 92 illustrates the similarity in specimens of the group from the different localities being made up of Loess Man number 6, a Fairmont Park skull and one from the most recent find. In figure



A



B

SKULL FROM FAIRMONT PARK, COUNCIL BLUFFS, IOWA. A, SIDE VIEW; B, TOP VIEW



A



B

SKULL FOUND BY MR. TONEY, NEAR LONG'S HILL. A, SIDE VIEW; B, TOP VIEW

93 a second specimen from Fairmont Park is used with Loess Man number 8 and one of the skulls from the Kentucky burial mounds, number 8087 in the Peabody Museum collection.

In figure 94 Nebraska Loess Man number 6 is compared with a New England Indian number 57383 and a skull from Kentucky number 11342 of the Peabody Museum. Figure 95 is presented to show the difference between the two Nebraska Loess Men number 6 and 8 and a third skull from Fairmont Park.

In the following table, giving the measurements for the group, I have introduced additional data for the purpose of comparison with crania many of which have characters in common with these. The averages for the Dakota Mound Builders was taken from the Check List of the Army Medical Museum by Geo. A. Otis, 1876; the Santa Barbara Islanders and the New England Indians from Carr's report (8-10); the Algonkin from the same source, the Huron from Dr Wilson's (21) study. Montgomery (18) says of the Dakota Mound Builders: "They differ very much from the prehistoric people of Utah and the Southwest. They are akin in culture to the Mound Builders of the Mississippi valley. . . . Measurements of many show the Mississippi index." Hrdlička (15) suggests a relationship between the Long's Hill group, those from Missouri and along the Illinois river.

TABLE COMPARING THE LONG'S HILL GROUP WITH THE DAKOTA MOUND BUILDERS, SANTA BARBARA ISLANDERS, NEW ENGLAND INDIANS, HURON, AND ALGONKIN

	Length	Breadth	Height	Cranio-Index	Height- Length- Index	Height- Breadth- Index
Long's Hill Group:						
Average	184.4	139	139	75.4	75	100
Maximum	186	147	147	79	77	106
Minimum	171	133	133	73	73	98
Range	15	14	14	6	4	8
Dakota Mound Builders:						
Average	180	138	134	76.2	74	100.7
Santa Barbara Islanders:						
Average	181.1	137	131	76.3	72	95
New England Indians:						
Average	175	132	131	75.2	75.8	100.7
Huron:						
Average	186	139	136	74.3	74.3	100
Algonkin:						
Average	182	140	138	76.9	75.8	98.5

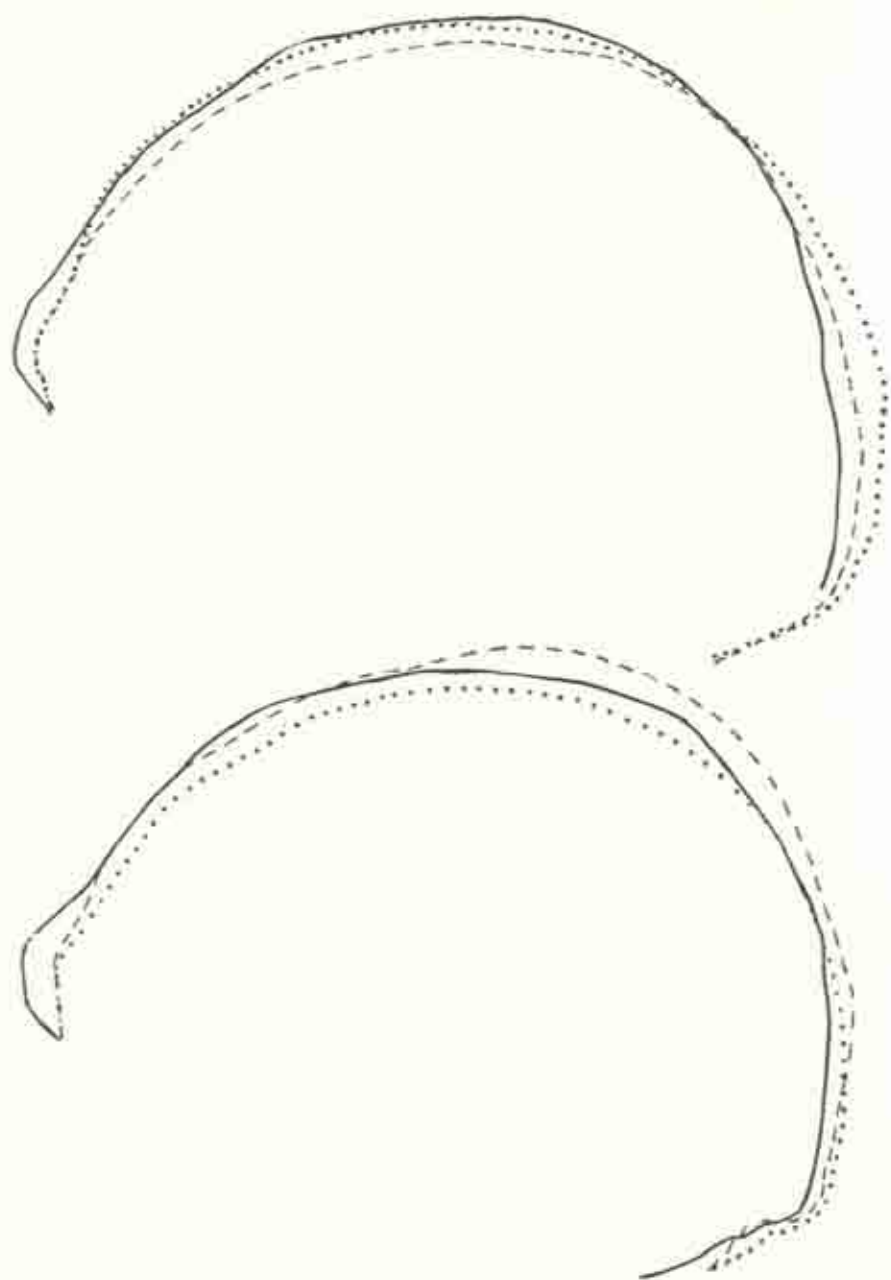


FIG. 92.—Antero-posterior arcs of skulls of the Long's Hill Group. Nebraska: Loess Man No. 6; Fairmont Park No. 1; Toney Skull.

FIG. 93.—Antero-posterior arcs of Nebraska Loess Man No. 8; Fairmont Park No. 1; Kentucky Mound No. 8287.

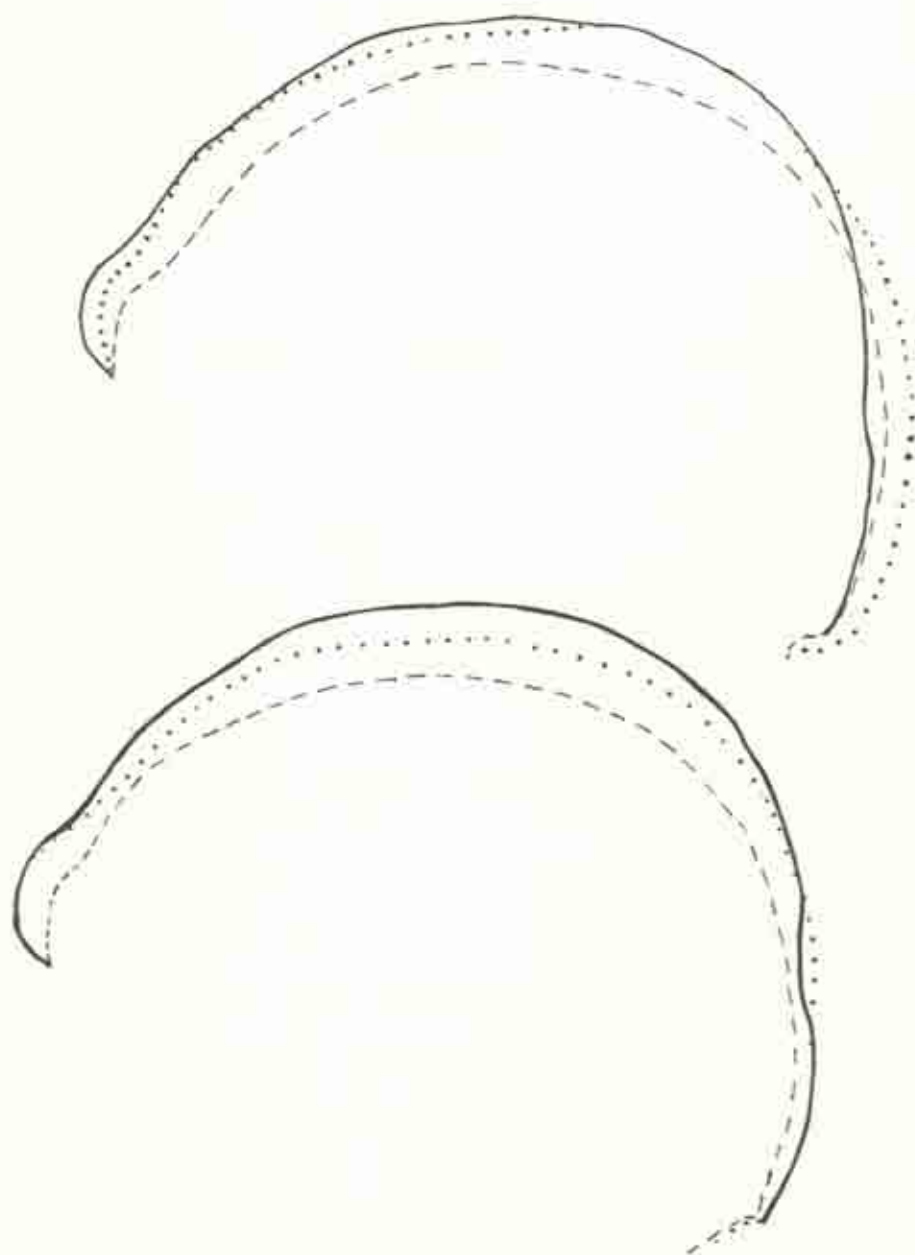


FIG. 94.—Antero-posterior arcs of Nebraska Loess Man No. 6; New England Indian No. 57383; Kentucky Mound No. 11342.

FIG. 95.—Antero-posterior arcs of Nebraska Loess Man No. 6; Loess Man No. 8; Fairmont Park No. 3.

A STUDY OF PHYSIOGNOMY

This method of study of physiognomy has been developed by European anatomists who first used it to determine the identity of supposed skulls of illustrious men, notably Kant, Schiller, Bach, and Raphael. The average thickness of the soft parts of the face was obtained by measurements from bodies of persons who had died in sound bodily condition, using a large number of bodies and selecting a sufficient number of points over the bony part of the face to establish the general contour. By markers of some sort, indicating the proper heights, attached to a skull at various fixed points it is possible to fill in over the skull with clay or plastina and so restore the physiognomy. While this method has its limitations, it is of undoubted value in suggesting racial characters for it translates the individuality of the bony face into features with which we are all familiar. It is not necessary to farther review the work or quote the results of the various investigators for Doctor Wilder has very fully covered the subject in his paper on the Indians of southern New England (20).

I employed for this study a skull from the Wallace Mound, one from Long's Mill together with that of an Oto or Pawnee Indian. Miss Warner, the department artist, did the reconstruction and we used the measurements employed by Doctor Wilder but slightly modified his procedure. Thin zinc strips were employed for markers and we found that their greater rigidity made them more satisfactory than paper. The skulls were photographed before beginning the work and points of muscle attachments and other important features were marked on the prints for reference during the reconstruction. The musculature was first built up in the position indicated by the various bony ridges; a dissection from the laboratory was used in this connection as a guide, then the whole was covered to the depth indicated by the markers.

The result of the work can be seen in plates xxx and xxxi. In both the order of arrangement is the same, first on the left the Indian, the Wallace Mound man in the middle and the Long's Hill man on the right. In plate xxxi the side view of the heads is given to bring out certain features not so well illustrated in the



PLASTINA RECONSTRUCTIONS TO COMPARE TWO OF THE GROUPS WITH A MODERN INDIAN. INDIAN ON THE LEFT; WALLACE MOUND HEAD IN THE MIDDLE; HEAD FROM LONG'S HILL ON THE RIGHT



10



11

other plate, and the skulls on which the restorations were made are also given below the several heads. While the features of the Wallace Mound and Long's Hill faces are somewhat more rugged than those of the Indian it seems to me that a racial relationship is very strongly suggested and we have a right to assume that these peoples if not Indians were very closely related to them.

CONCLUSIONS

So far as the evidence of the graves is concerned, with the possible exception of the deeper crania of Long's Hill, there is no reason to consider these as separate races or to assign to them a great antiquity. No one, however, can examine these crania without being convinced that these remains belonged to different tribes. The lines of demarkation are too constant and particular to be explained as individual variation and the characters of each group are quite distinctive of that group.

Judged by craniometric standards these groups have, as I have indicated, a very close relationship to peoples found in other parts of America; considering the fact that this is in the midst of the Plains region with no natural barriers in any direction, this is to be expected and in time such data may aid in the clearer understanding of the earlier movements of man in this country. All of the evidence, as I interpret it, is in favor of considering that these groups belong to the same family from which the Indians sprung if indeed there is not a closer affinity.

It is not necessarily true that geologically ancient man must present a more primitive type of development than that exhibited by the Long's Hill group, but since their somatological characters do not satisfy our ideal of primitive man we must await undisputed geological evidence to establish the type.

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THE GROWTH OF THE HEAD AND FACE IN AMERICAN (WHITE), GERMAN-AMERICAN AND FILIPINO CHILDREN¹

By ROBERT BENNETT BEAN

MATERIALS

146 Filipino girls	}	Manila, Philippine Islands.
579 Filipino boys		
309 German girls	}	Ann Arbor, Michigan.
324 German boys		
412 American girls		
415 American boys		
<u>2,185</u> Total.		

THE GROWTH OF THE HEAD DIAMETERS²

Between the ages of six and sixteen the head grows in length least, 0.9 cm., in the American girls, and most, 1.6 cm., in the Filipino boys; in breadth least, 0.5 cm., in the American girls, and most, 1.1 cm., in the German boys; and in height least, 0.5 cm., in the German and American girls, and most, 1.1 cm., in the Filipino boys. The heads of the Filipinos grow more rapidly in length between six and eleven years of age than between eleven and sixteen years of age, whereas the heads of the Germans and Americans grow more rapidly in the latter than in the former period. What is true of the Germans and Americans in relation to the Filipinos is also true of the boys in relation to the girls.

The head size as represented by the module (length plus breadth plus height) increases least, nineteen points, in the American girls and most, thirty-five points, in the Filipino boys.

At six years of age the heads of the Americans of both sexes are the largest, the heads of the Filipinos are the smallest, and the

¹ Presented first at the New Orleans Academy of Sciences in 1914; read by title before the Anthropological Association at Philadelphia.

² Length, breadth, and height.

heads of the Germans are nearly as large as those of the Americans. At sixteen years of age the heads of the Filipinos are the smallest, and the heads of the Americans are nearly as large as those of the Germans.

The cephalic index decreases with age for the length breadth index least, 0.0, for the Filipino girls, and most, 3.3, for the Filipino boys; and for the length height index least, 0.4, for the Filipino boys, and most, 2.7, for the German girls.

GROWTH OF HEAD CIRCUMFERENCES¹

The forehead and occipital regions are large in the boys and in the Americans, the frontal and parietal regions are large in the girls and in the Germans and Filipinos. The forehead and frontal regions together are large in the girls and in the older children and the occipital and parietal regions together are large in the boys and in the younger children.

From six to sixteen years of age, the forehead, frontal, and parietal regions grow most in the Filipinos, less in the Germans, and least in the Americans, but the reverse is true of the occipital region. The forehead, frontal and occipital regions grow more in the boys than in the girls, and this is especially true of the occipital region, whereas the parietal region grows more in the girls than in the boys.

It is notable that, in relation to each of the other regions, the forehead increases in size and the parietal region decreases with age.

The large size and greater growth of the parietal region are characteristic of the girls and of the young children, and the large size and greater growth of the occipital region are characteristic of the boys and of the older children. The Filipinos resemble the girls in this respect, and the Americans resemble the boys, whereas the Germans are more or less intermediate.

The Hypo- types are like the Filipinos, the Hyper- types are like the Americans and the Meso- types are like the Germans.

THE GROWTH OF THE FACE²

The growth of the face as a whole may be considered by taking the product of the length and breadth. From this standpoint the

¹ Frontal, forehead, parietal, and occipital.

² Length, breadth, and facial angle.

growth from six to sixteen years is least in the Filipino girls, greatest in the American boys, with the others in between, the boys greater than the girls. The face increases about 33 per cent. in the girls and about 50 per cent. in the boys during the ten year period.

The face length increases with age about 2 centimeters in ten years. The girl's face grows more from six to eleven years and the boy's from eleven to sixteen years. The face of the Filipino is shorter than that of the German and American, about 1 centimeter at sixteen years and about 0.3 centimeter at six years. The face of the Filipino grows less in length than that of the German and American from six to sixteen years.

The face breadth increases with age from 11.3 centimeters at 6 years to 13.1 at sixteen years. The face breadth of the girls grows more rapidly from six to eleven and that of the boys from eleven to sixteen. The face of the Filipino is as broad as that of the German and broader than that of the American, and the growth of face is about the same in breadth for the three peoples.

The face index increases with age, the face becomes longer relative to its width, and this increase is greatest in the Americans, less in the Germans, and least in the Filipinos. The increase in the Germans is greatest from six to eleven years and in the Americans it is greatest from eleven to sixteen years.

The facial angle represents the projection of the maxilla, and with increase of age this is greater in the American boys and less in the Filipino boys than is apparent in the German and American girls and the German boys. The Filipino girls have no records made of the facial angle.

CEPHALO-FACIAL INDEX¹

This represents the size of the face in terms of the head, the latter always 100. The face grows relatively more than the head from six to sixteen years, relatively more from six to eleven in the Germans and Americans and relatively more from eleven to sixteen in the Filipinos. At six years the Filipinos have relatively the largest faces, and the Americans relatively the smallest, with the

¹ Originated by the author.

AM. ANTH., N. S., 17-24

Germans in between, at eleven this is reversed, and at sixteen all are about the same.

The cephalic index decreases with age, and it decreases from the Filipinos through the Germans to the Americans. The face index increases with age, and it increases from the Filipinos through the Germans to the Americans. If the process of development recapitulates the progress of evolution then the Americans represent in evolution what the adult represents in development, and the Germans and Filipinos are less mature stages. The Filipinos represent what I have called Hypo-phylo-morphs, the Germans Meso-phylo-morphs (?), and the Americans Hyper-phylo-morphs. In each group may be found adult individuals with varying degrees of development in head and face form, and these I would classify as Hypo-onto-morph, Meso-onto-morph, and Hyper-onto-morph, depending upon the extent of development. Crossing of races has introduced the Phylo- types into nearly all peoples, therefore the six forms may be distinguished among almost all mixed races. Among the white peoples the Hypo- types are rare, but among the Filipinos the Hyper- types are abundant. More white peoples have mixed with the Filipinos than Filipinos with the white peoples.

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SOME EARS AND TYPES OF MEN¹

BY ROBERT BENNETT BEAN

MATERIALS

- 1,325 American whites.
- 2,039 American negroes.
- 73 American Indians.
- 171 Alaskan Eskimos.
- 94 Manila Filipinos.

The present study is a continuation of those made previously on the external ear and physical form of man, and it is more detailed and specific than former studies. It corroborates them in general and in particular, and adds racial distinctions to type differences.

The most important result is the segregation of the Hyper-, Meso-, and Hypo- types from each group, both by the ear form and by other anatomical characteristics. The other result of importance is the differentiation of the races by their ear form. Incidentally skin lines were discovered on all ears, lines that represent the folded over skin tip of the ear, the skin tip which should overlie the cartilaginous tip (Darwin's tubercle) but does not always do so.

The segregation of the types, Hyper-, Meso-, and Hypo-, is accomplished by determining for each ear whether the helix is prominent or not, whether the anthelix is depressed or not, whether the lower helix and lobule turn towards the head or away from it, and whether the tragus and antitragus are everted or depressed. After having determined to which type the ear belongs, then the cephalic index, nasal index, and facial index, of the individual are calculated. The results are found below.

TYPE DIFFERENCES

Hyper.—In this type of ear the helix is depressed toward the head, the anthelix is prominent—projects beyond the helix—the

¹ Presented first at the New Orleans Academy of Sciences in 1914, read by title before the Anthropological Association at Philadelphia.

lower helix and lobule turn toward the head, and the tragus and antitragus are everted and prominent—project beyond their surroundings. The nasal index, facial index, and cephalic index indicate that the type of individual associated with this type of ear has a long, narrow nose, a long, narrow face, and a long narrow head as a rule.

Hypo.—In this type of ear the helix is prominent, the anthelix depressed, the lower helix and lobule turn out from the head in the form of a shelf, and the tragus and antitragus are depressed below their surroundings. The nasal index, facial index, and cephalic index indicate that the type of individual associated with this type of ear has as a rule a short, broad nose, a short broad face, and a short broad head.

Meso.—In this type of ear the helix and anthelix are both prominent, thus forming a double roll near the dorsal margin of the ear, the lower helix and lobule turn out from the head in the form of a shelf, but not to the same extent as in the *Hypo*-ear, and the shelf, instead of being horizontal, has a gentle slope forward or may be precipitous, and finally the tragus and antitragus have an intermediate position, are neither prominent nor depressed. The nasal index, facial index, and cephalic index indicate that the type of individual associated with this type of ear has a nose, face, and head of intermediate form between the *Hyper*- and the *Hypo*-, although the face is larger than either of the two.

Each of the three types may be subdivided into onto and phylo forms, the phylo, the primordial form, and the onto, the derived form. The *Hyper*-onto-morph, the *Meso*-onto-morph, and very rarely the *Hypo*-onto-morph are European, or white, types; whereas the *Hypo*-phylo-morph, the *Meso*-phylo-morph, and rarely the *Hyper*-phylo-morph are types of the negroes, Indians, Eskimos, Filipinos, and other primitive peoples.

At birth the white child is a *Hypo*-phylo-morph, and as the child develops it passes consecutively through the stages of the *Hypo*-onto-morph, *Meso*-phylo-morph, *Meso*-onto-morph, *Hyper*-phylo-morph and *Hyper*-onto-morph, unless development stops at or between one or the other of the types.

There is little doubt that the Hyper-onto-morph is the end product of a hyperactive thyroid gland, the result of rapid differentiation, with slight growth, resulting in a small, active, nervous individual. The Hypo-phylo-morph is probably the end product of great thymus activity, resulting in a more or less complete retention of the infantile condition, whereas the Meso-phylo-morph has great activity of the gonads. The other types are variants of the three mentioned, composites, mixtures, blends or mosaics.

RACE DIFFERENCES

The race differences are of two kinds, measured and descriptive. Only the racial differences of the ear will be considered here.

Measured differences: These are divided into differences in the living and differences in the dead. The ears of only three groups of dead people were measured, American negroes, American whites and Filipinos. By measurements of the total ear length, total ear breadth, ear base, true ear length (Schwalbe), concha length and concha breadth, it is found that the negro ear is short and broad, the white ear is long and narrow, and the Filipino ear is relatively longer and narrower than the white ear.

The ear length and the index of the ear of both the living and the dead are as follows:

DEAD				
Group	Ear Length		Ear Index	
	Male	Female	Male	Female
American white.....	64.18	—	58.0	—
American negro.....	58.58	58.32	64.0	60.8
Manila Filipino.....	58.80	57.43	56.8	57.5

LIVING				
Group	Ear Length		Ear Index	
	Male	Female	Male	Female
New Orleans student.....	63.9	—	57.4	—
American "old" white ¹	66.9	61.3	55.9	56.0
American Indian.....	72.3	—	52.6	—
Alaskan Eskimo.....	73.8	67.1	54.4	53.0
American negro.....	60.8	58.0	60.9	60.2

Foetuses, new-born and young infants, male and female:

¹"Old" whites are those who have been in this country for three generations or more.

Ear index, white.....	68.8
Ear index, negro.....	64.5

No other measurements are given because racial differences are more pronounced in the ear length and the ear index. The Indian and Eskimo have long ears, the negro and Filipino have short ears and the ears of the white people are intermediate. This accounts in part for the fact that the ear index of the negro is high, that of the Indian and Eskimo is low, and that of the white is intermediate, but it does not account for the low index of the Filipino. The reason for this is that the ear of the Filipino is short and also narrow, it is a small ear. The negro ear is not only short, but it is also broad.

The ear increases its size with age, to seventy years or later, but the increase in length is greater than that in breadth, therefore the index decreases with age.

Descriptive Differences.—The true negro ear is small, almost flat, close to the head, and the helix is broad as if much folded over. The upper part of the helix is almost horizontal and passes directly backward from the upper end of the ear base to join the vertical dorsal portion of the helix at a right or acute angle in a rounded point at the upper outer extremity of the ear. The superior and dorsal borders of the helix are separated by a depression above Darwin's tubercle, where the helix is thin or absent. The dorsal border passes downward and turns forward at an obtuse angle to form the inferior border of the ear which enters the cheek almost at right angles, with no lobule or a very small one which is nearly flat. The Satyr tubercle is well marked and Darwin's tubercle is small or absent. The skin lines formed by the overfolding of the helix are less distinct on the negro ear than on the white, and they usually converge on the negro ear over Darwin's tubercle. The true negro ear is not seen in great numbers among American negroes. It occurred 245 times among 1,478 New Orleans negroes (16.6 per cent.), men, women and children, chiefly of the laboring classes. There is another form of ear that is found frequently among the negroes, but it is also found not rarely among other peoples, even among the whites, and I have called this the involuted ear, because it seems to represent an advanced stage in retrograde

development and evolution. It has a gnarled appearance, as if the ear had been burned around the border and had contracted irregularly in healing, leaving a thick, irregular helix. This ear type was at first thought to be due to accidental causes, but the presence of the skin lines of the ear tip in regular order proved the ear to be a true type. It was found 601 times in 1,478 New Orleans Negroes (40.7 per cent.) and 52 times among 857 New Orleans whites (6.1 per cent.).

The details of the ears of the negro and white are different as follows: The negro ears are glabrous, the white ears are hirsute; the Satyr tubercle is large in the negro ear, small in the white; Darwin's tubercle is more difficult to find in the negro ear than in the white; the skin lines converge about Darwin's tubercle in the negro ear, and between Darwin's tubercle and the Satyr tubercle in the white; the helix is broad in the negro ear, narrow in the white; the anthelix is more prominent in the white ear than in the negro; the posterior auricular sulcus is deeper in the negro ear than in the white, and in the negro ear the sulcus dips into the concha, whereas in the white it turns out over the helix or lobule.

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THE NA-DENE LANGUAGES, A PRELIMINARY REPORT¹

By E. SAPIR

THE problem attacked in this paper is that of the genetic relationship of Athabaskan, Haida, and Tlingit. Important morphological, to a less extent also lexical, resemblances between Haida and Tlingit have long been pointed out by Boas and Swanton, resemblances which have led them to assume, though rather hesitatingly, genetic relationship between these languages. Boas has also somewhat vaguely hinted at fundamental resemblances in structure between Athabaskan and Haida-Tlingit, but no concrete evidence has been given on this point. A full presentation of the comparative lexical, phonological, and morphological evidence that serves to show, beyond all reasonable doubt, that Athabaskan, Haida, and Tlingit are indeed but divergent representatives of a common prototype is given in an extensive paper on "The Na-dene Languages" now in course of preparation as a memoir of the Anthropological Series of the Geological Survey of Canada. The present sketch, prepared at the request of Dr P. E. Goddard, is merely a rapid abstract of some of the leading points involved. I wish expressly to emphasize the fact that it does not present all the evidence at my disposal. While, however, it does not constitute the complete demonstration of my thesis, I believe that enough is here given to remove this thesis beyond the realm of the merely probable. The term "Na-dene," which has been chosen to designate the hypothetical prototype of Athabaskan, Haida, and Tlingit, will be explained in the latter part of the paper.

1. MORPHOLOGICAL FEATURES

Stem and Word Form.—The most typical and doubtless historically primary type of stem form found in the Na-dene languages is the monosyllabic stem consisting of consonant plus vowel; in

¹ Read in substance before the Anthropological Association at Philadelphia.

Haida (H.) the consonant may be replaced by a cluster of two consonants which, in cognate words, appears contracted to a single consonant in Athabaskan (Ath.) and Tlingit (Tl.). Examples are: Ath. **tsi*¹ "daughter," **t'o* "water," **tllo* "grass," **k'e* "foot," **-ne* "to speak," **-ya* "to stand (plur. subj.)," **'a* "to find," **-ya* "for," **-na* "around," **na-* "again;" H. *tel'u* "cedar," *qla* "harpoon," *stla* "foot," *lga* "rock," *t'a* "to eat," *qla* "to sleep," *xa* "to follow," *sa* "above," *ga* "at," *q'o-* "by means of the teeth;" Tl. *t'a* "stone," *na* "fort," *xa* "enemy," *ka* "to dig," *q'a* "to say," *ci* "to hunt for," *l'a* "behind," *k'a* "on," *dji-* "quickly." Many, perhaps all, elements consisting of a single consonant (or cluster of two consonants) are phonetically reduced owing to the loss of a vowel; e.g., Ath. **-n*, **-ŋ* "person" < **-ne*; H. *stla-* "with the fingers" < *stlla* "hand;" Tl. *t* "to" < *de*.

In all Na-dene languages, however, a large number of stems is found consisting of consonant plus vowel plus consonant; e.g., Ath. **tsl'en* "bone," **tlas* "to cut;" H. *k'un* "point," *sgol* "to hide;" Tl. *l'is* "moon," *tsi'n* "to be strong." In a very large number of cases there is clear internal evidence to show that the final consonant is an old suffixed element whose original meaning has doubtless generally been lost. Examples of such "petrified" suffixes are: Kato *lets* "clay," Navaho *le'c* "dirt, ground," cf. Navaho *le-* in compounds; Anvik *t'al* "bed" (< Ath. **t'el*), Hupa *-l'et* "several lie," cf. Hupa *-l'e* "to lie (sing.)," past definite *-l'en*; H. (Masset) *s'ail* "to weep," cf. *s'ai-ga*; H. *xal-* "by means of fire acting from without," cf. *xai* "sunshine;" Tl. *t'in* "to see," *t'i'sl* "to look for." While a considerable number of such stem finals correspond in Athabaskan and Haida or Tlingit (e.g. Ath. **-del* "several go," H. *dal* "many persons go by land;" Ath. **-klan* "to burn," Tl. *qla'n* "fire"), numerous cases are found of stems that cor-

¹ Forms given as Ath. are reconstructed on the basis of the actual forms found in various Athabaskan dialects. The general methodology of linguistic reconstruction and the sounds reconstructed for Athabaskan specifically are dealt with in the longer paper above referred to. The phonetic system employed in this paper is the one worked out by the Phonetic Committee of the American Anthropological Association; this report will be published in the near future.

* Indicates reconstructed forms.

respond according to regular phonetic law except for the final consonant; sometimes two of the three Na-dene languages agree as against the other; often the simple vocalic stem is found in one or two, but extended by a final consonant in the other. Examples of these cases are: H. *t'a't* "year," Tl. *t'a'k* "year;" Chipewyan *θ'al* "moss," Louch. *telek*, Tl. *slatc* (Chip. *θla-* and Louch. *tele-* point to Ath. **ts/a-*, which points, with Tl. *sla-*, to Na-dene **ts/a-*); Ath. **-lad* "end," H. *θlan* "end;" Ath. **-yel* "night passes," H. *ga'l* "night," Tl. *get* "to get dark;" Ath. **-ca*, **-cal* "to catch with a hook," H. *djd* "bait," Tl. *cat* "to seize;" Ath. **xes* "mountain," Tl. *ca* "mountain;" Ath. **-t'an* "to eat," H. *t'a* "to eat;" Ath. **-t/o* "to shoot," Tl. *tuk* "to shoot." Examples of this sort make it fairly obvious that many of the stems with final consonants that are yielded by a purely descriptive analysis are ultimately reducible to vocalic stems followed by what was originally a suffixed element. That all Na-dene stems with final consonants are of such origin cannot be demonstrated, but it does not seem at all improbable. The characteristic Na-dene stem may thus be symbolized by *cv*, of which *c* and *cv-c* are further developments.

Reduplication is a grammatical process that is conspicuous in Na-dene by its absence. It is found neither as a word-forming nor purely grammatical device. The only possible widespread Athabaskan exception that I have been able to find is the demonstrative stem *didi* "this," alongside of unreduplicated *di*. With this it is interesting to compare the probably reduplicated Haida interrogative stem *gu'gu-s* "what?" A negative feature of this sort is not in itself very indicative, but gains in weight when the Na-dene languages are contrasted with the Tsimshian, Kwakiutl-Nootka, and Salish languages to the south, in all of which reduplication plays an extremely important part.

The typical Na-dene word is built up of a number of monosyllabic elements (in most cases of form *cv*), one of which is the main stem, about which cluster a number of subsidiary etymological and grammatical elements that may be termed prefixes and suffixes. The various elements of a word, aside from certain ones that are perhaps best considered as proclitic and enclitic particles, make up a

coherent enough morphological unit, but are far from welding together in a manner suggestive of such form units as we are accustomed to in Indo-germanic or are found also in many American Indian languages (e. g., Kwakiutl, Eskimo, Yana, Southern Paiute). Most of the elements preserve a considerable share of individuality, while many can, indeed, be shown to be identical in origin with or specialized forms of independent stems. Thus, an Athabaskan word like Kato *l'aya'o'naŋ* "let them drink" readily falls apart into four perfectly distinct elements: the main stem *-naŋ* "to drink" and three subsidiary elements that may be described as prefixes, but which are far from fusing either among themselves or with this stem into a close morphological unit; the prefixes are *l'a-*, an element having reference to water (cf. independent forms Kato *l'o* "water," Montagnais¹ *l'a* "billow"), a demonstrative element *ya'*- indicating the plurality of the implied (but not definitely expressed) third personal subject of the verb, and *o'-*, a hortatory or "future imperative" modal element: "water-they-shall-drink." The "word" *l'aya'o'naŋ* feels decidedly like an old "sentence" of monosyllabic constituents, *l'a ya' o' naŋ*, the first three elements of which have lost their absolute independence and all four of which have settled down to a rigidly prescribed order relatively to each other. This same type of sentence-word (we may either think of it as very closely knit sentence or, as we are more accustomed to do, as relatively loosely knit word composed of easily analyzed elements) can be abundantly illustrated also in Haida and Tlingit. A Haida example is *l'latgu'ldayan* "(she) had put (it) (on her son) as a blanket," consisting of a primary stem *-lgu'l-* "to go around, to be wrapped about," an instrumental prefix *tl-* denoting activity with the hands (identical with the verb stem *tl* "to touch"), a classifying nominal prefix *l'a-* which defines the object of the verb as belonging to the class of flexible things thought of as crossing or coiled (cf. *l'a-da* "to wear;" an original Haida stem **l'a* "blanket"

¹ Another name for Chipewyan. I use "Montagnais" to indicate that I am quoting from Petitot. "Chipewyan" from Goddard. All other Athabaskan forms are quoted from Goddard and The Franciscan Fathers; all Haida and Tlingit forms, from Swanton.

becomes very probable on reference to Ath. **l'e* "blanket"), a causative suffix or auxiliary verb stem *-da* "to cause, to have as," and two temporal-modal elements, a perfective *-y-* (or *-i-*) and a suffix *-aŋ* indicating that the statement is not made on one's own authority: hand-blanket-be wrapped about-cause-d-as experienced by others. Finally, a typical Tlingit example is afforded by *q/a-o-di-sa* "(he) blew (upon the raft)." As in the Athabaskan example given above, the main stem, *sa* "to blow," comes at the end of the word; it is preceded by three elements, an instrumental prefix *q/a-* "with the mouth" (identical with the noun stem *q/a* "mouth"), a modal element *o-* whose exact significance is unknown (it seems to be found only in active past temporal forms with third personal subject), and another modal or "aspect" suffix *di-* of apparently inceptive or momentaneous force: mouth—in past time (?)—momentaneously—blow.

One of the incidental consequences of this type of structure is that, while the analysis of the word into its parts is in most cases easily undertaken, a just idea of the actual value or content of the word as a whole cannot be obtained by merely summing the values of the analyzed elements. There is, equally in Athabaskan, Haida, and Tlingit, a great deal of idiomatic usage involved; in many cases all we can say is that it is customary for a certain perfectly definite idea to be expressed by a stem of fairly wide range of significance preceded by such and such not always evidently applicable prefixed elements. Thus, the purely etymological analysis of the Hupa *da: ma(k)-kla-i na-si-ŋ-a* "not-it-after over surface of ground-continuously-thou-have in possession" conveys as good as no notion of the actually well determined idea conveyed: "thou didst not want to (go home)." Similarly, the Haida verb *k'wa-lgi'-sta-sga-* "in a stream-large cylindrical objects-remove from (a place)-toward an open place" really means "(olachens) run in a stream toward the sea."

Noun and Verb.—The relation between noun and verb is quite parallel in all three languages. While verbal and substantival forms are throughout clearly kept apart (verb forms may be substantivized in various ways), the radical element of a word may often

be indifferently used as predicating or denominating stem. Thus, the Haida stem *na* indicates both "house" and "to dwell," *go't* is used either as a noun meaning "buttocks" or an adjectival verb "to be last." In Tlingit this elasticity of usage is apparently less marked, though examples occur (e. g., *sa* "voice, name; to name, call;" *ɛ* "song; to sing"). Denominative verbs of this sort are particularly common in Athabaskan, e. g., Kato *k'ən* "withes," *-k'ən* "to twist;" Chipewyan *ɣal* "club," *-ɣal* "to use a club;" Hupa *il'o* "grass," *-il'o* "to make baskets;" Chipewyan *t'an* "ice," Kato *-t'an* "to be cold;" Navaho *si'l* "steam," Kato *-si'l* "to steam." Under these circumstances it is perfectly natural that stems which are found used only as nouns in one of the Na-dene languages have become specialized as verbs in another. Examples are: H. *xao* "liquid," Ath. **-k'a* "liquid has position;" Tl. *q'a'n* "fire," Ath. **-k'lan* "to build a fire, to burn;" Ath. **t'e'el* "steam," H. *sgal* "to steam;" H. *das* "live coals," Ath. **-das* "to burn, to singe;" Ath. **ts'ai*, **ts/a* "dish," Tl. *s/q'l* "dish," H. *sq'lao* "to put in a dish."

A peculiarity of many Na-dene verb stems is that they are limited in their range to a particular class or number of objects. The simplest type of these is formed by verbs applying specifically to a singular, dual, or plural subject or object; e. g., Tl. *g'u* "to go (one person)," *at* "to go (plur.);" H. *q'a* "to go (one person)," *dal* "to go (plur.);" *t'ia* "to kill one person," *il'da* "to kill several;" Ath. **-ya* "one person goes," **-del* "several go;" Hupa *-ye'n* "to stand (sing.)," *-ya* (plur.); *-a* "one object is in position," *-el* "several objects are in position." Still more characteristic are distinctions based on the shape of the object affected; e. g., Tl. *t'an* "to carry a long thing," *t'ɛ* "to carry a round thing;" Hupa *-t'an* "to handle or move a long object," *-b'a* "to handle or move anything that is flat and flexible;" Navaho *-t'e* "to lead (by a rope) a pair of animals," *-lox* "to lead (by a rope) a single animal;" *-t'le* "to act upon an animate object," *-djol* "to act upon such objects as hay, wool, or hair." In Haida such verbs do not seem to be found, but it is interesting psychologically to observe that corresponding classifications are here expressed by another means,

namely by the use of a long series of classifying nominal prefixes; e.g., *té/is-* "cubic objects, such as boxes," *sq/a-* "long objects, like sticks and paddles," *ga-* "flat objects."

Verb Structure.—In all Na-dene languages the verb consists of a series of elements, which may be grouped into certain classes that have fixed position in the complex relatively to each other; the verb stem gravitates towards the end of the complex, particularly in Athabaskan and Tlingit. The typical Athabaskan verb may be analyzed as consisting of: adverbial prefix (including original noun stems,¹ local postpositions,² petrified demonstrative stems of chiefly objective reference,³ and certain other elements which do not occur in other connections⁴) + objective pronominal prefix + demonstrative element referring to subject of verb + "first modal" element + "second modal" element⁵ + pronominal subject + "third modal" element⁶ + verb stem + temporal-modal suffix + syntactic suffix (these are best considered as enclitic particles). Any of these elements but the stem may, in a particular form, be missing; two or more of the same general type may be exemplified in a single form. The order of elements as given above varies slightly for different dialects.

Quite similar in its general features to the structure of Athabaskan verb forms is that of corresponding forms in Tlingit. The analysis may be given as: pronominal object (best considered as proclitic to verb form) + nominal prefix of instrumental signifi-

¹ E. g., Hupa *t'a-* "water," *sa-* "mouth."

² E. g., Hupa *ye-* "into," *wa-* "to," *xa-* "after."

³ E. g., Hupa *a-* used as indefinite object with verbs of saying and doing, *ea-* "same as before."

⁴ E. g., Hupa *da-* "resting on," *no-* "coming to rest," *na-* denoting indefinite movement over surface, *na-* "again." At least some of these may be independent verb or other stems in origin. With *da-* cf. Ath. verb **da* "to sit (sing. subject)"; *na-* may be identical with **na-* "two" (found, alongside of absolute **nak'e*, in, e. g., Hupa *na-di* "twice," *na-nin* "two men").

⁵ These two sets of "modal" elements are not easy to define. They are best considered as indicating certain "aspects," i. e., as defining range of activity with reference to such notions as inception, continuation, distribution, cessation, and indefiniteness of object.

⁶ These "modal" elements also are difficult to define and, like "first" and "second modal" elements, are largely bound up in usage with idiomatic factors. Their primary significance is to define *voice*, i. e., such notions as transitive, intransitive, and passive.

cance¹ + "first modal" prefix² + pronominal subject + "second modal" prefix + "third modal" prefix³ + verb stem + quasi-temporal suffix + syntactic suffix.

Differing more widely from the Athabaskan pattern of verb structure is that of Haida. In Haida the pronominal subject and object are not as closely welded into the verbal framework as in Athabaskan and Tlingit and are best considered as independent elements of speech. However, as they occupy definitely determined positions immediately before the verb form proper, their structural difference from the corresponding elements of Athabaskan and Tlingit is more apparent than real. There is involved here merely a difference of degree of coalescence of originally distinct elements. The Haida verbal scheme may be represented as follows: pronominal object + pronominal subject + instrumental prefix (most of which are in origin noun and verb stems capable of being used independently) + classifying nominal prefix (several of which, perhaps all, are old noun stems) + prefixed adverbial element⁴ + main verb stem + auxiliary verb stem (doubtless independent verb stems in origin which have become specialized as quasi-suffixes) + adverbial element (in origin independent noun, verb, adjective, or adverb stems)⁵ + locative suffix + temporal-modal suffix.

This analysis of the Haida verb is not complete. It should

¹ E. g., *q/a-* "mouth," *la-* "nose, point."

² These elements do not form a well-defined class. They embrace such notions as causation, aspect, voice, tense, and indefiniteness of subject. They correspond, in Athabaskan, partly to certain adverbial prefixes, partly perhaps to "first modal" elements.

³ These two sets of "modal" prefixes seem primarily to define various aspects (perfective, progressive, completive, inceptive, repetitive, momentaneous, transitional). They correspond to Athabaskan "first modal" and more particularly to "second modal" elements. As far as known, Athabaskan "third modal" elements find no counterpart in Tlingit.

⁴ These elements, of which Swanton lists four, are termed by him "stems in initial position." It does not seem to me that there is any real necessity for the setting up of this class. Two of the elements are best regarded as nominal classifiers, one as an instrumental prefix, the other as a verb stem regularly compounded with other stems (see below).

⁵ Swanton classifies these into three groups of "stems in terminal position," but this sub-classification, even if justified, is of no particular consequence here.

be observed, first of all, that the order of elements fluctuates in accordance with their logical relation to each other; thus, locative suffixes directly follow the main stem and are followed by auxiliary verb stems, if the locative element does not logically apply to the latter (e. g., *q'a-dl-da* "to take aboard," literally "to go-into canoe-cause"). Secondly, two or more independent verb stems may combine into a compound verb which is held together by the preposed pronoun (or pronouns) and the suffixed temporal-modal suffix (or suffixes) at the end of the complex. Each member of the compound may be itself attended by derivative prefixes or suffixes (including even certain temporal-modal elements, like continuative *-gaŋ-*). If we assume, as internal Haida evidence makes more than probable, that all auxiliary verb stems and suffixed adverbial elements are nothing but compounded originally independent stems, we may reduce the above analysis of verb forms to: pronominal object + pronominal subject + I. + II. + ... + temporal-modal element, in which I., II., ... stand for complexes of type: instrumental prefix + classifying nominal prefix + verb stem + locative suffix + continuative suffix).

Naturally, in any given verb form only a comparatively small number of theoretically possible positions are filled. I. generally contains the predominant stem of the whole verb form. Haida verb composition in its present form is doubtless largely a specialized development, though probably based on Na-dene processes. For this reason the typical Haida verb form in its older form must be defined, eliminating II., . . . , as: pronominal object + pronominal subject + instrumental prefix + classifying nominal prefix + verb stem + locative suffix + temporal-modal element. This scheme, despite its peculiar features, more nearly resembles the Athabaskan and Tlingit schemes than the one first given.¹

Comparing the three verbal analyses given, we find that the Na-dene languages have several important traits of verb morphology in common. These are:

¹ I do not, of course, mean to imply that all instrumental and classifying nominal prefixes are older, as verbal elements, than all "stems of terminal position." Analogy always operates to feed a type already in existence.

1. Noun stems are included as prefixes in the verb complex. They are partly of instrumental (or local) significance, partly, more particularly in Haida, general classifiers of subject or object.

2. Both pronominal subject and object elements regularly precede the verb stem. Of these, the object comes first in the complex. In Haida the degree of coalescence of pronominal elements with the verb complex is much less than in Athabaskan and Tlingit. In these languages the subjective pronominal element is an integral part of the verb-form, being often separated from the objective element by an adverbial prefix.

3. Local affixes are found in both Haida and Athabaskan, though they are suffixed in the former, prefixed in the latter. At least some of the Athabaskan local prefixes are postpositions in origin; these, as regards their position after pronominal objects, offer striking analogies with corresponding elements in Haida and Tlingit, as we shall see later.

4. Athabaskan and Tlingit possess a large number of prefixed "modal" elements, which define adverbial notions, to a less extent temporal ideas, but primarily aspects. They are divisible into several position-classes, according to whether they precede or follow pronominal object and subject. These elements are in some respects the most characteristic of Na-dene morphology, though their presence is hardly traceable in Haida.

5. The verb stem is a generally monosyllabic element clearly marked off from the rest of the verb complex. It is nearly always preceded by a number of originally independent modifying elements. In Athabaskan it undergoes internal phonetic and morphologic changes as it passes from one tense (present and past, definite and indefinite) to another. Such changes have not been indicated by Swanton for either Haida or Tlingit. Dr Boas, however, on the basis of material recently secured from a Chilcat Indian, informs me that internal stem changes for tense, analogous to those found in Athabaskan, are characteristic also of Tlingit.

6. A series of temporal-modal elements is found suffixed to the verb stem. Some of these are firmly united with the verb stem (e. g., continuative *-l* in Hupa *tc'u-we-l-t'-e-l* "he was bringing;"

usitative *-ic* in Tlingit *u-q'ox-ic* "he kept coming in;" perfective *-y-* in Haida *su-da-y-agan* "had said"), others are more in the nature of enclitic particles (e. g., emphatic *-he* in Hupa *do' a-du-wan-ne-he* "don't say that!" imperative *-de* in Tlingit *na-at-de* "(for firewood) go!" Haida hortatory *-djan* in *l gix-gat-djan* "let me adorn [you]!").

7. Still more loosely suffixed, in most cases, to the verb form is a series of syntactic particles, largely used to subordinate it in various ways. In part these elements, as we shall see, are postpositions in origin.

8. While compounding of verb stems is most luxuriantly developed in Haida, indications are not lacking of the presence of the process also in Tlingit and Athabaskan. Thus, the Tlingit verb stem *ci* "to desire" may be prefixed to another verb stem to form its desiderative (e. g., *ci-t'an* "to desire to pick berries"); cf. such Haida compounds as *gi-da-yu'an-siη-ga* "to wish to give much food," in which the auxiliary verb stem *-siη* "to wish," however, is suffixed to the main stem. Nearer the Haida type is the class of Athabaskan verbs in **-tsle* (cf. independent verb stem **-tsle* "to hear"), indicating that the action of the main verb is heard or otherwise perceived (e. g., Hupa *-t'uw-tsle* "to hear one splitting logs," Chipewyan *-ni-θ'e* "to hear one say"). Differing morphologically from, yet psychologically similar to, the Haida type of verb composition is the use in Tlingit and Athabaskan of two independent verb forms to form a logical unit; e. g., Tl. *gax gax-γi'-sa-t'i* "cry you-will-be," i. e., "you will cry" (cf. such Haida compounds as *t'a'-ga* "to eat-be," i. e., "to eat"), and Hupa *tc'i[n]-ni-η-ya wi-n-tle* "he-came he-was-(thus)," i. e., "he always came."

9. A highly important feature found in all Na-dene languages is the use of subjective or objective pronominal elements, according to the nature of the verb, to indicate its logical subject. This feature will be referred to again in connexion with the pronouns.

More important than any of the specific features we have named is the similar manner in which the various elements going to make up a verb-complex are linked together. The resulting structure may be termed a sentence in miniature, not only psychologically, but, as is much less often the case in America, also morphologically.

Noun Structure.—There are a large number of monosyllabic noun stems, which may be used absolutely, in all three Na-dene languages. These are both of type *cv* and *cvc*.

They often enter into composition, the qualifying noun regularly preceding (e. g., Chipewyan *lla-bee* "grass-knife, mowing machine;" Tl. *ga't-s/a'x* "root-hat"). In Haida, however, simple composition of noun stems does not seem to be often found (in such compounds as Masset *i'll'adas 'ai* "chief's blood," possessive *-i* or *-a* seems to have contracted with the final vowel of the second noun). Another type of composition which is particularly characteristic of Na-dene is the suffixing of a possessive element (Ath. **-e*, **-ye*, **-ye*; Tl. *-i*, *-yi*, *-u*, *-wu*; H. *-ga*, *-i*, *-a*) to the second member of the compound; this element indicates that the second noun governs the first, in other words that the first is genitively related to it (e. g., Chipewyan *k'a-t'uwe* "goose-lake;" Tl. *slatc a'n-i* "moss town;" H. *xe'ya lhu-ga* "raven's canoe, beans"). It is important to observe that finite verb forms may be nominalized or turned into relative clauses in Athabaskan and Tlingit by the suffixing of this possessive (better relative) element (its different forms in Athabaskan and Tlingit are due to phonetic factors); cf. Montagnais *th'ai gay-e* "plate which-is-white" with Tl. *at-ci'-yi* "those who can sing."

Possessive pronouns are prefixed to nouns; they are identical in form with the objective forms used with verbs. Most nouns but terms of relationship and, generally speaking, those indicating parts of the body are in Athabaskan followed by the relative particle discussed above (e. g., Chipewyan *be-thi* "his head" but *be'-ay-e* "his snowshoes"). Similarly in Tlingit the relative suffix is regularly used with a possessive prefix except in the case of terms of relationship and, though not consistently, body part nouns (e. g., Tl. *du-lla* "his mother" but *du-le'u'n-i* "his dream"). Haida possessive constructions are on the whole analogous to those of the other two Na-dene languages, the relative suffixes *-ga* and *-i*, *-a* being used in some cases, omitted in others (e. g., *l dja'-ga* "his wife," Masset *l ila'l* "her husband," Masset *l klu'g-i* "its heart").

Derivative affixes (aside from nominalized verb forms) are quite sparingly used in Na-dene. A diminutive suffix is found in both

Athabaskan and Tlingit (e. g., Hupa *djelo'-te* "small storage-basket," Tl. *a'-k/s* "little lake"). Noun plurals (aside from Tl. collective *-q/*) are not often formed, though special plural forms for terms denoting human beings are found here and there (e. g., Kato *sk'i'-k'* "boys," Tl. *du-k'a'ni-γen* "his brothers-in-law," H. *k/wai-ga-lan* "elder brothers").

Pronouns.—There are two classes of pronouns in Na-dene. Subjective pronouns are used as the subjects of active verbs (in Athabaskan of most verbs generally); objective pronouns as the objects of transitive verbs, subjects of neuter verbs (which may best be interpreted as objects of impersonal verbs), and possessive prefixes with nouns. While the two series are distinct as such, not all the respective forms are etymologically unrelated; in Tlingit there are one or two minor differences between the objective and possessive series. In both Athabaskan and Tlingit, as we have seen, the subjective and objective pronominal elements are integral parts of the verb complex, the possessive elements of the noun complex; in Haida the pronominal elements may be considered as independent words or, at least in part, as proclitic elements. A third series of pronouns is found in Athabaskan and Tlingit; these are independent denominative terms, which, however, have no influence on the form of the verb or noun.

The employment of objective pronouns with verbs denoting states has been rather obscured in Athabaskan by the spread of subjective forms, but there are enough cases to make it clear that the impersonal verbs with objective pronominal elements characteristic of Haida and Tlingit were at one time better represented also in Athabaskan.

The contrast between verb forms with subjective and objective pronominal subject is exemplified, e. g., by Tl. *gu-γ-t'u-si't* "we will cook it" (with subjective pronominal element *t'u-* "we") and *ha-k'-gu-wa-tla* "we will be warm" (with objective pronominal element *ha-* "us": "it will be warm to us"); by H. *l q'a-t'al-gan* "I got off" (with subjective pronominal element *l* "I") and *di-sk'istl-djidi'-ga* "I am truly full" (with objective pronominal element *di-* "me": "it is truly full to me"); and by Hupa *a-η-xai* "thou

art buying" (with subjective pronominal element *-ŋ* "thou") and *ni[k]-ḡl-o-waŋ* "go to sleep!" (with objective pronominal element *ni-* "thee": "let it sleep to thee!"). That the verb forms with objective pronominal subject are indeed impersonals with pronominal object is made clear by comparing them with such transitive forms as Tl. *ha-u-si-ne'x* "they have cured us;" H. *dī dalaŋ* *tl-gaxa-gd-ga* "you tire me with your handling;" and Hupa *ya[n]-ni-l-t'ɪŋ* "he picks thee up." The possessive use of objective pronominal elements is illustrated by Tl. *ha-q'aha'gu* "our eggs;" H. *dī-gi-da* "my daughter"; Hupa *ni[t]-t'ai* "thy paternal uncle."

Postpositions.—Very characteristic of Haida, Tlingit, and Athabaskan is a set of local and relational elements which regularly follow the noun or pronoun that limits them (e. g., H. *st'al-ai st'a* "the cliff from;" Tl. *xa'na-de* "evening-towards;" Hupa *nan-tc'ɪŋ* "ground-toward"). These postpositions offer remarkable morphological and etymological analogies in the three languages. No less than about thirty-five Athabaskan postpositions and local verb prefixes (which, as we shall see, are in all probability postpositions in origin) can be more or less confidently stated to be cognate with corresponding Haida, Tlingit, or Haida-Tlingit elements. Out of twenty-five Hupa postpositions listed by Goddard, at least fifteen seem to be related to similar elements in Tlingit, Haida, or both. These facts show that the postpositional elements of Na-dene reach back, aside from certain later dialectic developments, into the earliest period of Na-dene linguistic history that it is impossible to arrive at by comparative evidence.

In some cases it is possible to show that postpositions are nouns in origin, the complex of noun + postposition forming originally a compound noun. Thus, Hupa and Kato-*-lai*, Chipewyan-*-laye* "on top of" is simply the noun stem for "end, top" compounded with the preceding element; Chipewyan *-bɪ* "around," the similarly employed stem for "edge" (Ath. **maŋ*, **man*). With Tlingit *l'a* "behind," Haida *l'al* "behind, back of," and Tl. *k'a* "on" compare respectively Chipewyan *-l'a-ze* "back" (body-part), Kato-*-l'a* "tail," and Navaho *-k'a* "surface." Hence it is intelligible that the same noun stem may in some cases have developed inde-

pendently into distinct postpositions in different Na-dene languages; e. g., Ath. **man*, Tl. *wan* "edge" means "around" as Athabaskan postposition, "close to" as corresponding Tlingit element. The nominal origin of postpositions is further made very probable by the fact that they are frequently preceded by possessive pronouns: Hupa *mi-yə* "under it" (originally perhaps "its bottom") like *mi(n)-nən* "its face;" Tl. *hasdu-q'a-nax* "after them" (originally perhaps "their following") like *hasdu-ca-yi-na-yi* "their anchor;" H. *dí' gá* "to me" (originally perhaps "my vicinity") like *dí' gə'ŋ-ga* "my father." Whether we shall ever be able actually to demonstrate the nominal origin of all Na-dene postpositions is doubtful, but there can be little doubt of the correctness of this view.

Postpositions often occur compounded among themselves. In some cases the analysis is evident (e. g., Chasta Costa *-mē-q'ē* "inside of" < "therein-at;" Tl. *-k'a-q'* "on" < "on-at;" H. *gei-si'a* "out of" < "in-from"); in others the two (or more) elements have grown into a unit that can be analyzed only by comparative evidence (e. g., Tl. *l'a-yi* "under" contains Tl. *yi* "down in," but *l'a* does not occur alone; comparison with Tl. *l'a-k* "in the middle of," *l'a-n* "with," and particularly Ath. **l'a* "among," shows *l'a-yi* to have originally meant "down among").

Postpositions combine with verb forms in two ways, as local or relational prefixes and as syntactic suffixes. We have already indicated that several of the local prefixes of Athabaskan are merely postpositions in origin that have become somewhat firmly attached to the verb complex. Thus, Hupa *xa-* in *xa-n-i'* "look for it!" is evidently etymologically identical with *-xa* in *no'-xa* "after us." In some cases the postposition comes after elements which can hardly be disconnected from the verb form, e. g., *a-ya-l-icli[t]-den-nē* "he told them" (here *-i* "with" appears immersed in the verb, which demands the indefinite objective *a-* "it" as constant prefix; morphologically parallel is Tl. *da-* "to" in verbs of saying, e. g., *ye da-ya-du-q'a* "thus to-him-spoke" like Ath. *a-l-*, which is doubtless identical in origin with postpositive *-de* "to," Masset *da* "to," Ath. **-d*, **-dē*, **dē-n* "to, at"). These facts are not surprising when we bear in mind that the indirect object, nominal or

pronominal, precedes the verb and is followed by its postposition (e. g., Hupa $\text{xo'-xa } l'e\eta\text{'in-l'e}$ "him-for thou-wilt-look;" Tl. $a\text{'da } a\text{'o-ti-l'aq!}$ "it-around they-drifted;" H. $la\text{'gei } la\text{'sk'it-nanan-xida-i-as}$ "it-into he began-to-chop-up"). It needs only the removal of the object (which then remains understood) from the postposition to bring the latter into closer touch with the verb. In the last Hupa example the removal of the expressed object (xo' -) leads to a form like the xa-n-l'e first quoted. In Tlingit this use of the postposition as verb prefix with unexpressed object does not seem to be common, but examples abound in Haida, e. g., $gei\text{' } la\text{' } q'a\text{'-tc/i-gan}$ "into he went-in." In the last example gei is morphologically, as well as etymologically, parallel to Hupa verb prefix ye - "into" (cf. Chipewyan postposition $-ye$ "in"). Here again we observe that Haida has allowed distinct elements to coalesce to a less extent than Athabaskan. In view of the tendency in Athabaskan for postpositions to become specialized as verb prefixes, it is not surprising if we find cases of such prefixes, no longer used as postpositions, corresponding etymologically to Haida postpositive elements. Such an example is Ath. $*ts\delta$ -, $*ts\delta\text{'}\eta$ - "away from, out of;" H. $st'a$ "from, after" (for H. st' : Ath. ts , cf. also H. $st'a$ -classifier for ring-shaped objects: Navaho $tsa\text{'-bp's}$ "ceremonial hoop," $yo\text{'-s-tsa}$ "ring").

A verb form as such is sometimes conceived of as nominalized and is followed by a postposition which serves to subordinate it. Thus, in a Chipewyan form like $hi\text{'-l-tc/i-t/a}$ "because he was angry," postpositive $-t/a$ "with, on account of" (cf. $be\text{'-t/a}$ "with it") nominalizes and subordinates $hi\text{'-l-tc/i}$ "he was angry" ("he-was-angry because-of," "because of his being angry"). Such syntactical developments have taken place independently in the Na-dene languages, to some extent even in the various Athabaskan dialects. This is indicated, among other things, by the fact that even where two Na-dene languages have employed the same postposition for syntactic purposes, the use to which it is put is different (e. g., Ath. $*\text{-de}$ "if" and Tl. $-t$ "in order to" both go back to Na-dene postpositive $*\text{-da}$ "to, at"). Tl. $-\gamma a$ and $-n$, which make subordinate clauses out of verb forms (e. g., $has\text{' } a\text{'-ga-ca-n}$ "when they marry;"

a-t'e'-x-ya "when she slept"), are doubtless identical with postpositive *-ya* "in the neighbourhood of" and *-n* "with, at."¹ In Haida temporal clauses are formed by nominalizing verb forms by means of suffixed demonstrative (*g*)*ai* "the," these being then followed by postpositive *dlu'*. Subordinate clauses formed by means of postpositions without preceding (*g*)*ai* also occur (e. g., Masset *l klota'l-an 3d-e-t* "after he died," literally "he died place-the-to"). The degree of coalescence of postposition and verb is again much less in Haida than in Tlingit and Athabaskan.

Summary.—It has become evident that the morphologies of Haida, Tlingit, and Athabaskan present numerous and significant points of comparison. Despite not unimportant differences of detail, the same fundamental characteristics are illustrated in all three. In not a few cases elements (or even processes) which are thoroughly alive in one of the languages linger on merely as survivals in another (e. g., *-xa*, freely used in Haida as distributive suffix with numerals, postpositions, and nouns, lingers on in Tlingit as compounded *-na-x* after numerals and as sporadic noun plural **-k'*, **-k'e*, **-k'ai* in Athabaskan).

Considerable specialization must, of course, be allowed for. Peculiar to Haida are the development of a large class of nominal classifiers, a great exuberance of composition of verb stems, the development of a set of local suffixes in the verb, and greater looseness in the treatment of pronominal elements and postpositions. The synthetic tendency has gone farthest in Athabaskan, in which, e. g., pronominal subject and "modal" element often unite inextricably (there are, however, analogies to this in Tlingit). Tlingit, on the whole, seems to have the smallest number of purely distinctive morphologic features. It shares with Athabaskan a lesser degree of independence of pronominal elements, a great development of verb prefixes denoting aspects and, it would seem, the employment of internal stem changes for tense differences. As in Haida, the distinction between active verbs with subjective pronouns and static verbs with objective pronouns is better preserved than in Athabaskan.

¹ My interpretation of Tl. *-t*, *-ya*, and *-n* as syntactically specialized postpositions differs from Swanton's, at least as far as expressed in his grammatical sketch.

II. COMPARATIVE VOCABULARY

The lexical evidence bearing on the genetic relationship of Athabaskan with Haida and Tlingit comprises, at the moment of writing, over three hundred distinct Athabaskan stems and grammatical elements which can be, with greater or less probability, assigned to the reconstructed Na-dene language. Only a selection, comprising less than one third, of this lexical material is here presented. The arrangement is alphabetical, from the point of view of Athabaskan.

ATHABASKAN.	HAIDA	TLINGIT
1. <i>a-</i> demonstrative stem	<i>a-</i> dit.	<i>a-</i> dit.
2. <i>-ade</i> "elder sister"		<i>a't</i> "father's sister, father's sister's daughter"
3. <i>-ca-η</i> obligatory future	<i>-sa-η</i> infallible future	
4. <i>-ca-</i> , <i>-cal</i> "to catch with a hook"	<i>dʒil</i> "bait"	<i>cat</i> "to seize"
5. <i>-d-</i> , <i>-de</i> "at, to"	<i>-da</i> "to"	<i>-t-</i> , <i>-de</i> "to"
6. <i>da</i> "what?"		<i>da</i> "what?"
7. <i>-da-</i> , <i>-dal</i> "to go, to travel"	<i>-dal</i> "to move along"	
8. <i>-daη</i> "to drink"		<i>dana</i> "to drink"
9. <i>-das</i> "to burn"	<i>da'dʒ</i> , (<i>das</i>) "live coals"	
10. <i>-del</i> "several go"	<i>dal</i> "several go by land"	<i>at</i> "several go"
11. <i>del</i> "crane"	<i>dɪ'les</i> dit.	<i>du'l</i> dit.
12. <i>di</i> "this"	<i>dei</i> "just that way"	<i>de</i> "now"
13. <i>-dʒa</i> hortatory	<i>-dʒa-η</i> dit.	
14. <i>dʒaη</i> "mud"	<i>tc'a'n</i> dit.	
15. <i>-gaη</i> "to be mouldy"	<i>gu'na</i> "decayed"	
16. <i>-go</i> "toward"	<i>gua</i> , <i>gui</i> dit.	
17. <i>-gid-</i> , <i>-yid</i> "to dive"	<i>gi</i> dit.	
18. <i>-ya</i> "for," <i>-yan</i> "to"	<i>ga</i> "to," <i>gan</i> "for"	<i>ga</i> "for"
19. <i>-ya</i> "to go"	<i>-ga</i> "to go in order to"	<i>-ya</i> "to go to"
20. <i>-ye</i> , <i>xe</i> "grease"		<i>e'x</i> "grease"
21. <i>-yed</i> "to run"	<i>ga't</i> dit.	
22. <i>-yel</i> "to be dark, night passes"	<i>ga'l</i> "night"	<i>get</i> "to get dark"

ATHABASKAN	HAIDA	TLINGIT
23. -ye, -yel "to kill, to fight"	gail "to fight"	
24. -yico "tooth"		ux "tooth"
25. <i>has</i> "that"	kao "that"	he "this"
26. <i>he</i> , <i>xe</i> "they"		has "they"
27. <i>xo</i> , <i>hē</i> "he, him"		hu "he"
28. -k'a "liquid has position"	ɣao "liquid"	
29. -k'an, -k'a "to fish with a net"	ɣao "to fish"	
30. -k'a "on"		-k'a "on"
31. -k'e personal noun plural	-ɣa distributive suffix	-na-ɣ distributive numeral suffix
32. <i>k'ene</i> "friend"		ɣo'n "friend"
33. <i>k'a</i> "arrow"	q/a "harpoon"	q/a "point"
34. <i>k'ēn</i> "withes"	q'an "grass"	
35. -k'an "to burn"		q/a'n "fire"
36. -kle "on"		-q/ "at"
37. -k'os, k'es "to tie"	k'u "to tie"	
38. -l "with"	al "with"	
39. <i>l</i> , <i>la</i> negative		l negative
40. <i>la</i> "one"	la- "the first"	le- "one"
41. -la "to jump"	la- "to dive"	
42. -lad "end"	lan "end"	
43. <i>lo</i> , <i>loh</i> "fish"		ll'u'kl "cohoes"
44. -lla "butt; behind"	-dlga "after"	
45. <i>mē</i> "he, it"	wa- "that"	we "that"
46. <i>man</i> "edge"		wan "edge"
47. <i>mēs</i> "cheek"		wac "cheek"
48. -n, -ŋ local postposition	-n, -ŋ general postposition	-n "with," also local postposition
49. -na "to die"		na "to die"
50. -nan "to drink"	nial, ni'l dit.	
51. -ne, -n "person, people"	na "to live; house"	na "people"
52. -nēg, -lēg "to relate"		nik "to tell"
53. -ne "to play"	naŋ dit.	
54. -ni "to touch, to do with one's hands"		ni "to put"
55. <i>no</i> "place of retreat, island"		nu "fort"
56. -onay(e) "older brother"		hunx "man's older brother"
57. <i>s-</i> durative verb prefix		s- modal prefix

ATHABASKAN	HAIDA	TLINGIT
58. -sēn "to hide"		sn "to hide"
59. sil "steam," -sil "to steam"	sil "to steam"	stl "to cook"
60. -t'a "among"	t'a-pən "along-side of"	-t'a-kʷ "in the middle of"
61. t'a "wave" t'a- verb prefix referring to water	t'a-qa "sea-water"	
62. -t'an "to eat"	t'a dit.	t'a-ql "to chew"
63. -t'e "to look for," -t'an "to look"		t'iln "to see"
64. -t'e "to be cold," t'en "ice"	t'al "cold"	t'a-dj "cold"
65. -t'e "to lie"	t'ai, t'i "to lie"	t'ai "to lie," t'a "to sleep"
66. t'en "night"		t'a-t "night"
67. -t'a "because of"	-t'a dit.	
68. t'a "feather," -t'a "to fly"	t'agun "feather," t'ao- "feather-like object"	t'a-wn "feather"
69. -t'a "tail," t'a-q "back-wards"	-t'al "back of"	-t'a "behind"
70. -t'et "to step"	t'a "to step"	
71. -t'a "to shoot"		t'uk "to shoot"
72. -t'od "to rub"		t'us "to rub"
73. tsa "ring-like object"	st'a- "ring-shaped object"	
74. ts'ai "dish"	sq'ao "to put in a dish"	st'ql "dish"
75. -ts'en "bone"		st'a-q "bone"
76. tsi "again"		ts'ln "again"
77. -t'e's "grandfather"	tc'n dit.	
78. t'e'on "mother-in-law"	djo'n dit.	tc'a'n dit.
79. t'ela "hat"		st'a-x "hat"
80. t'elo "fir, spruce"	tc'ju "cedar"	
81. -xa "for"		-x-a-n "to"
82. xa "up, out of"	k'ua-gi "above"	k'e "upward"
83. xa "goose"	xaku "mallard"	
84. xa-q "quickly"	xao- "to do a thing quickly"	
85. -xan, -yan "to grow up," xan "old age"		can "old person"
86. x'in "song"		c'i "song"
87. -ya "to stand" (plur.)	ga "to stand"	
88. -yan "to eat"		ya'n "to eat"

ATHABASKAN	HAIDA	TLINGIT
89. <i>ye</i> "that," <i>y</i> "he"	<i>gaí</i> "this, that, the"	<i>ya</i> "this"
90. <i>-ye</i> "at the foot of, under"		<i>-yi</i> "down in"
91. <i>-yē</i> personal noun plural		<i>-ye-n</i> plural of terms of relationship
92. <i>ye</i> "supernatural being," <i>-yēn</i> "to practice shamanism"		<i>ye'k</i> "supernatural helper"
93. <i>-ye</i> "in"	<i>-gei</i> "into"	<i>-ge'</i> "inside of," <i>-yi-k</i> "inside"
94. <i>-ye</i> suffix making relative clause		<i>-yi</i> suffix making relative clause
95. <i>yo</i> "that yonder"	<i>gu</i> "there"	<i>yu</i> "that yonder"
96. <i>-a</i> "to go"	<i>g'a</i> "to walk"	
97. <i>-a</i> "to tell, to sing"		<i>q'a</i> "to say"
98. <i>-in</i> "to see, to look"	<i>q'in</i> dit.	<i>gen</i> dit.

III. PHONOLOGY

The phonetic systems of Athabaskan, Haida, and Tlingit, despite a good many differences of detail, present important points of similarity. Three types of stops are found in each: intermediate (or sonant), aspirated surd, and glottalized (fortis). Sibilants and sibilant affricatives, *k*-spirants, and laterals are well developed. A remarkable phonetic feature held in common by the three Na-dene languages is the paucity of labials; *b*, *p'*, and *p'* were clearly not found in Na-dene (*b* and *p'* are rare Haida sounds), *m* existed only doubtfully (Ath. *m*, whence *b* in certain dialects, is not equivalent to Haida *m*, but to Haida-Tlingit *w*), while *w* was certainly found. Athabaskan has lost the old velar series of stops as such, while Haida and Tlingit have preserved them; on the other hand, the Na-dene anterior palatals, best preserved in Haida, have been lost as such in Tlingit.

In the more elaborate paper on the Na-dene languages in course of preparation, the historical relationship of the Athabaskan sounds to their Na-dene prototypes and Haida and Tlingit correspondents is systematically worked out on the basis of all the evidence available. Here it will suffice to point out some of the more important correspondences, referring to the numbered entries of the comparative vocabulary for illustrative examples.

Stopped Consonants

1. Ath. *d*: H. *d*, -*d*: Tl. *d*, -*d* (nos. 2, 5, 6, 7, 8, 9, 10, 11, 12, 21)
2. Ath. *t*: H. *t*: Tl. *t* (nos. 60, 61, 62, 63, 64, 65, 66)
3. Ath. *tl*: H. *tl*: Tl. *tl* (nos. 67, 68, 69, 70, 71, 72)
4. Ath. *g*: H. *g*: Tl. *g*, -*k* (nos. 15, 16, 52)
5. Ath. *k*: Tl. *k* (no. 30)
6. Ath. *k'*: H. *ɣ*: Tl. *ɣ* (nos. 28, 29, 31, 32)
7. Ath. *ɣ*: H. *k'(w)*: Tl. *k'* (no. 82)
8. Ath. *k̥*: H. *k̥* (no. 37)
9. Ath. *ɣ̥*: H. *g̥* (nos. 17, 87)
10. Ath. *k'l*: H. *q'l*: Tl. *q'l* (nos. 33, 34, 35, 36)
11. Ath. *q*: H. *q'*: Tl. *q'* (nos. 96, 97, 98)
12. Ath. *ɣ*: H. *g*: Tl. *g* (nos. 18, 21, 22, 23)
13. Ath. *ɣ*: H. *g*: Tl. *g*, *ɣ* (no. 93)

Continuants

14. Ath. *w*: H. *w*: Tl. *w* (nos. 45, 46, 47)
15. Ath. *n*, -*ɲ*: H. *n*, -*ɲ*: Tl. *n* (nos. 3, 8, 14, 15, 32, 34, 35, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 58, 63, 78, 85, 88, 98)
16. Ath. *l*, *l̥*: H. *l*, *l̥*: Tl. *l* (nos. 4, 7, 10, 11, 22, 23, 38, 39, 59)
17. Ath. *s*: H. *s*, *dj*: Tl. *s* (nos. 9, 57, 58, 59)
18. Ath. *c* (*s*): H. *s*, *dj*: Tl. *c* (nos. 3, 4, 47)
19. Ath. *ɕ* (> *c* in most dialects): Tl. *c* (nos. 85, 86)
20. Ath. *y*: H. *g*: Tl. *y* (nos. 88, 89, 95)
21. Ath. *y* (before front vowel): H. *g̊* (*ɕ̊*): Tl. *ɣ* (nos. 90, 91, 92, 93, 94)
22. Ath. *ɣ*: H. *ɣ*, *x*: Tl. *ɣ* (nos. 20, 81, 83, 84)
23. Ath. *h*, *ɣ*: H. *h*: Tl. *h* (nos. 25, 26, 27)
24. Ath. *ɣ*: H. *g*: Tl. *ɣ*, -*ɣ* (nos. 19, 20, 24, 56)

Affricatives

25. Ath. *tl*: H. *tl*: Tl. *tl* (nos. 40, 41, 42, 43)
26. Ath. *dj*: H. *dj*, *tc'* (nos. 13, 14)
27. Ath. *tc'*: H. *tc'*, *dj*: Tl. *tc'* (nos. 77, 78)
28. Ath. *tc'l*: H. *tc'l*: Tl. *sl* (nos. 79, 80)
29. Ath. *tsl*: Tl. *tsl*, *sl* (nos. 75, 76)
30. Ath. *tsl*: H. *tl*: Tl. *tl* (e. g., Ath. **tsle* "penis"; Tl. *tlle'l* dit.; Ath. **tsls* "to sit [plur. subj.]" : H. *tl/a-(o-)* dit.)

Consonant Clusters.—The study of Na-dene sibilants and sibilant affricatives is rather involved and presents several difficulties. The summary given above (17, 18, 19, 26, 27, 28, 29, 30) exhibits some of the main developments. An important group of cases is afforded by Haida stems or elements beginning with consonant clusters whose first element is a lateral (*l*, *tl*, *dl*) or a sibilant (*s*). Swanton, in

commenting on these clusters, surmised that they were perhaps due to the prefixing of an old morphological element (e. g., *l-*, *s-*). There is, however, no evidence whatever to support this. On the other hand, I have at my disposal upwards of twenty such examples which point clearly to the inference that these Haida clusters were found in Na-dene and correspond to lateral and sibilant affricatives in Athabaskan and Tlingit. The following relations can be established:

- A. 31. H. *lg-*: Ath. *ll-* (?)
 32. H. *lq'-*: Ath. *ll-*
 33. H. *dlg-*: Ath. *ll-* (no. 44)
 34. H. *lt'-*: Ath. *tc'-*
 35. H. *llfz-*: Ath. *tcf-* (?)
 36. H. *lld-*: Ath. *tsl-* (cf. 30.)
 B. 37. H. *sg-*: Ath. *ts-* (?)
 38. H. *sql-*: Ath. *tsl-*; Tl. *sl-* (no. 74)
 39. H. *sg-*, (*sk'w-*): Ath. *tc'-*; Tl. *tc'-*
 40. H. *sqlw-*: Ath. *tcf-*
 41. H. *st'-*: Ath. *ts-* (*tsl-*): Tl. *t'-*
 42. H. *st'-*: Ath. *tc'-*
 43. H. *stl-*: Ath. *tcf-*

Vowels.—The great majority of vowel correspondences is perfectly intelligible; a certain number of unsolved problems still remain. In comparing Tlingit with Haida and Athabaskan forms, it is necessary to bear in mind that, under as yet undetermined circumstances, Tlingit *a* has developed to *e* (e. g., Tl. *xa* "to eat": *a-xe'-x* "he ate"; Tl. *de-x* "two": *da-xa-ducu* "two plus five, seven"; Tl. *t'a* "stone": *t'e-ql'* "stones"). A more important problem is presented by Ath. *e* (doubtless open in quality), which is not to be directly compared with Tl. *e*. It is clear, both from internal Athabaskan evidence (e. g., Ath. **-t'e* and **-t'a* "to look for"; Ath. **t'e'* "in the water," **t'a-* "water") and, still more, from comparison with Haida and Tlingit, that Ath. *e* (which must be assumed for the earliest Athabaskan period) has developed from Na-dene *a*; less frequently Ath. *e* goes back to Na-dene *i*. Under what phonetic circumstances, however, Na-dene *a* has remained as such in Athabaskan or become *e* is not clear for the present. This I believe to be one of the most important problems of Na-dene phonology.

Some of the more important vocalic correspondences are:

44. Ath. *a*: H. *a*, *a'*: Tl. *a*, *a'*, *α*, (*e*) (nos. 1, 2, 3, 4, 6, 7, 8, 9, 13, 14, 18, 19, 25, 28, 29, 30, 33, 35, 40, 41, 42, 44, 46, 49, 60, 61, 62, 67, 68, 69, 73, 74, 79, 81, 82, 83, 84, 85, 87, 88, 96, 97)
 45. Ath. *e* (sometimes reduced to *ɛ*¹): H. *a*, *a'*, *α*: Tl. *a*, *a'*, *α*, (*e*) (nos. 5, 10, 20, 21, 22, 26, 31, 34, 45, 47, 51, 53, 64, 65, 66, 70, 75, 89, 92)
 46. Ath. *i*: H. *i*, *i'*, *ι*, *ei*: Tl. *i'*, *ε* *e* (nos. 12, 17, 54, 59, 77, 86, 98)
 47. Ath. *o*: H. *u*, *o'*: Tl. *u*, *u'* (nos. 16, 24, 27, 37, 43, 55, 56, 71, 72, 78, 80, 95)

Whether or not Na-dene possessed pitch accent must remain undecided for the present. Its presence in Tlingit and a few remarks by Morice and Legoff as to its possible existence in Athabaskan make this not improbable. Should this prove to be the case, some of the phonological difficulties in Athabaskan and Tlingit vocalism may be solved (e. g., Ath. *e* < Na-dene *ā*, Ath. *a* < Na-dene *ā*). All this, however, is quite vague as yet.

IV. CONCLUSION

The main conclusion to be derived from the selected morphological, lexical, and phonological evidence that we have passed in review is, I believe, obvious. Athabaskan, Haida, and Tlingit must be considered genetically related. The correspondences are of so intimate a character that mutual borrowing of words and morphological features seems out of the question. It is, however, no less obvious that each of these languages is very distinctive and represents a highly differentiated form of the Na-dene prototype. In no sense can Haida, Tlingit, and Athabaskan be said to form a continuum comparable to that of the Athabaskan dialects when these are compared among themselves. Each Na-dene language has evidently passed through a very long period of development in linguistic isolation from its sister languages. It would be rash, in the present state of our knowledge, to dogmatize on the relative conservatism of the Na-dene languages. I would venture to suggest, however, that Haida has remained the most faithful to the original sound system of Na-dene, but that, on the whole, the original morphological features are best preserved in Tlingit.

¹ This weak vowel is differently colored in different dialects; e. g., Hupa *ɛ* (less frequently *α*), Carrier *α*, Navaho *i*.

Several facts suggest that Tlingit and Athabaskan may have had a common linguistic history after Haida had become differentiated, but too much should not be made of this.

The name that I have chosen for the stock, Na-dene, may be justified by reference to no. 51 of the comparative vocabulary. "Dene," in various dialectic forms, is a wide-spread Athabaskan term for "person, people"; the element **-ne* (**-n*, **-ŋ*) which forms part of it is an old stem for "person, people" which, as suffix or prefix, is frequently used in Athabaskan in that sense. It is cognate with H. *na* "to dwell; house" and Tl. *na* "people." The compound term "Na-dene" thus designates by means of native stems the speakers of the three languages concerned, besides continuing the use of the old term Dene for the Athabaskan branch of the stock.

An important ethnological consequence of our linguistic results is that a demonstration is at last given of the northern provenience of the Athabaskan-speaking peoples. So long as Athabaskan was counted a separate linguistic stock, there was no conclusive *à priori* reason for considering its Pacific and Southern branches as having spread out from the northern group. Under the present circumstances a southern drift of Athabaskan-speaking tribes cannot seriously be doubted. The center of gravity of the Na-dene languages is clearly in the northwest, in southern Alaska and adjacent parts of northern British Columbia and southern Yukon Territory. Owing to the great linguistic gulf separating Haida and Tlingit, I should be inclined to consider the coast of southern Alaska, the present home of the Tlingit Indians, as the most likely region in which the Na-dene languages developed. The Athabaskan branch of the stock undoubtedly formed a relatively undifferentiated unit long after Haida and Tlingit had become differentiated from each other. The Athabaskan dialects have so many distinctive traits in common that it is perfectly evident they have had a long history in common. They may be considered a specialized interior offshoot, just as Haida is a specialized island offshoot.

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CHASTA COSTA AND THE DENE LANGUAGES OF THE NORTH¹

By A. G. MORICE, O.M.I.

ALL English scholars are familiar with the fact that the growth of a language is evidenced not only by the alterations in the material make-up, the morphology, of its component parts, but by the remarkable evolution which those parts occasionally undergo in their meaning while they remain unaltered in their structure. For instance, the word "villain" had in Chaucer's time a quite different value from that which modern usage attributes to it. No Christian of our days would feel flattered by being called the "villain of the Lord," an expression which originally meant the "servant of the Lord."

Likewise, instances of such alterations in the meaning of words are not wanting in American aboriginal philology, though said alterations may not be the result of time, but rather due to other circumstances such as, for instance, linguistic borrowing or changed cultural environment.

An example will make my meaning clearer. There never was any buffalo within British Columbia. When Cree-speaking half-breeds reached the northern interior of that region, in the wake of the Northwest Company traders, they told the natives of a wonderful animal they called *mustus*, which roamed by the million over the immense plains east of the Rockies. Later on, domestic cattle were introduced in the same country and dubbed *mæstus* by analogy with the game the natives had heard so much about—the *u* of *mus* being altered to *æ* conformably to the requirements of the Déné law of phonetic sequence.

So that with time *mæstus* came to be universally understood of domestic cattle, instead of the buffalo to which alone the name is

¹ A further discussion of *Notes on Chasta Costa Phonology and Morphology*, by Edward Sapir. See p. 347 above.

strictly speaking applicable, and when the Carrier had to refer to the latter they called it *łłokæt məstus*, or prairie cattle (lit. grass-on cattle). Meantime, buffalo remained *mustus* to the Cree who, in turn, gave the name of *awokhāni-mustus*, slave ox, to domestic cattle.

Here we have, therefore, signficatory evolution resulting from the importation of a loan word. In Dr Sapir's "Notes on Chasta Costa Philology and Morphology," there are several terms or roots the meaning of which seems to have undergone an analogous transformation, through the action of time, contact with alien populations or the shifting of environment, unless, of course, we choose to ascribe it to imperfect information on the part of the essayist.

A characteristic instance of this I find in the word *telac*,¹ which Sapir gives us as the equivalent of the English term "bird." This is evidently none other than the Carrier *łšaxš*, which in that language means not "bird" but "feather-down." Is it possible that in this instance a part of one thing should have come to represent the whole thing? This seems to be all the more likely as that one thing is too well known to have ever been taken for another by Dr Sapir's informant.

Color would also seem to be lent to this probability by the fact that *pæn*, which means "roof" in Carrier, denotes a whole house in Chasta Costa. However, it would require no great flight of the imagination to see in that word something like a reminiscence of the time when a Déné habitation consisted almost entirely of a double shelter in the shape of a roof squatting on the ground, as we still see some in the recesses of the North.

A still more curious terminological mutation, which affects both the structure and the sense of a word and is perhaps the result of accident or of growth along lines unknown in the latter regions, is to be found in the Chasta Costa possessive form of the term for "dog," *łi*, whose variants are everywhere unimportant. In the

¹ The exclamation mark denotes the "click" in Dr Sapir's texts, and with him as with me *ɛ* = *ək*. Dr Sapir's *ə* is my *æ*, almost the sound of *u* in "but," more exactly that of *e* in the French *je, te, le*.

South as in the North, the sibilant *l* is converted by the possessive into a common *l*; but the analogy does not go any further. According to Sapir, this possessive entails in Chasta Costa the accretion of a sort of suffix which he writes *tc/e*, the equivalent of my *l̥se*. Now *l̥t̥se* means in Carrier, not somebody's dog, but she-dog! Is this again a mere accident, the result of word development or of some other cause?

Another change of meaning in a vocable, coupled, this time, with an anomalous formation, which is perfectly recognizable to a Carrier I find on p. 311 of Dr Sapir's "Notes." There he gives us *l̥en'lat* as the equivalent of the English "you drown," and to this he adds, by way of comparison, the verb *tc'nnállat*, which he represents as the Kato synonym of "it floated there." This circumstance is virtually a voucher that our author is conscious of a diversity of significations: to drown is evidently not to float.

But if we turn to the Carrier of the North we meet with a somewhat homonymous counterpart of the former term in *thénállat*, which means not "you drown," or "you float," but "you sink," or rather "thou sinkest."

This may not be the exact synonym of Dr Sapir's verb, though it is nearest to it in meaning; but how are we to explain that the act of drowning is rendered in Chasta Costa by a word the two roots of which seem self-exclusive, while the principal one refers to an act which is the opposite of drowning, namely that of floating?

Thé- and *-lat* are self-exclusive, I have said. For the former, at least in the North, does not merely mean "in the water," as Sapir would have it—*tha-* p. 302, which he gives as "referring to the water,"¹ has really that signification—but it hints at the "bottom of the water" (from the Carrier *ther*, "water-bottom"), while *-lat*, as we have seen, is expressive of the act of staying on the surface of the same.

Thénállat, on the other hand, is easy of explanation and of quite logical construction. The desinence *-llat* refers to any pre-

¹ Carrier *nucya*, "I walk along;" *na-tha-dacya*, "I walk in the water, I wade." Compare: *tha-kat*, "deep" (water); *thé-hutKa*, "shallow" (may be analyzed: the bottom, *thé*, near the surface, *-Ka*).

cipitate action, and, closely analyzed, the whole verb amounts to thou art precipitately brought to the bottom, that is, thou sinkest. "I drown" is said in Carrier *thū səzəwreh*, "water kills me."

Apropos of water, Sapir gives the verbal stems *-əl* and *-al* as representing the acts of bathing and coming, respectively, while to him the desinence *-ya* is synonymous of going or coming.¹ There must be a slight inaccuracy here. The first of those desinential radicals (*-əl*) certainly wants the initial hiatus ('); for his *nadaγiləl*, "we are bathing," is none other than the Carrier *natšəl'il*, which has the same value.

As to the verbal stem *-al*, which he believes to mean "to come," I more than suspect that it is but a corresponding form of *-ya*, which he represents as expressing the idea of "going, coming," and should be *-yal*. In the first place, the difference between going and coming flows in Déné from the apposition of locative adverbs, or results from a diversity of prefixes, not of a dissimilarity of desinential roots. The suffix *-ya* denotes merely the action of moving about on both feet as a man (there is another for the walk of birds). Such is the meaning in Carrier of the word *nəcyə*.

But another form of the same verb, which I call the actualizing form, changes this term and its characteristic desinence into *əcyəl*, which means "I am actually walking" (with both legs). This form is also commonly used in connection with locative adverbs, as in the phrases: *líz inyal*, "come here"; *hwəz inyal*, "go there"; *'ən inyal*, go on (which recalls Sapir's *an γi'al*, the equivalent, he claims, of "come on").

Dr Sapir furthermore quotes the verb stem *-llo* (*-lo*) as denotive of the act of swimming, while, according to him, that of paddling is rendered by the radical *-xe* (*-xe*). Now, in most northern Déné dialects, the former (*-lo*) refers to paddling, while the latter indicates the act of navigating, or moving about in a canoe. Are those roots, with their changed value, new evidence of evolution in the meaning of words?

¹ P. 323 of his essay.

The verbal stem *-lal*, or rather *-l^hal*,¹ to which our author attributes the sense of "to sleep," has in Carrier the value of "to dream of" (with a complement). Might not Dr Sapir's informant have misunderstood his questioner and thus unwittingly misled him? If not, such changes in the meaning of words or roots otherwise so closely related are well worth a moment's reflection.

If Dr Sapir will allow me, I will also observe that the desinence *-te'ac* (*-thac*), which he gives as a distinct verbal element,² is nothing else than the plural stem of the same verb *nanisthi*, whose derivative *nthæsthih* effectively means "to lie down, go to bed." That plural stem is in Carrier *-thés* for the present, *-thés* for the past, and *-thas* for the proximate future.

Likewise, Sapir's verbal desinence *th/i* (*tš/i*) is simply the plural form of the verbal stem *-ta*, "to sit," which he gives elsewhere as *-dā*.

Our essayist very properly represents³ the root *-xwi* (*-xwi*) as denoting the idea of vomiting, and compares it with the Carrier substantive *xu*, "vomiting." He will be pleased to learn that the former is *-xwe* in the Lower Carrier dialect.

Elsewhere he speculates on the value of the verbal elements *l* and *l̥*, and, p. 332, he goes to some trouble in order to explain the passive form of the Chasta Costa verbs. Unless I am very much mistaken, what he adduces as the equivalent of "I am seen, you are seen, he is seen," etc., really means simply: "people see me" (French: *on me voit*), "people see thee," etc.

It may be of interest to state that in Carrier the passive form

¹ As may be seen by Sapir's rendering: *l̥^hal*, p. 315. The double consonants *ll* and *ts* (both of which may be affected by a click) are of frequent occurrence in Déné and form as many indivisible groups. The syllables of all Sapir's verbs in the first person plural are wrongly cut up: the *l* which he attributes to the penultimate syllable should commence the last one: *-l^hal*, *-tšal*, *-ilat*, *-thac*, etc. Hence several of his verb stems on pp. 323-26 are incomplete. For instance, *-se*, "to cry," should be *-tšic* (Carrier *-tso*, though the first person singular of the verb is in *-so*); *-si*, "to cause," should be *-tsi* (Carrier *-tsi*, same remark as to first person sing.); *-lo*, "to laugh," cannot be understood without its *l*, as is shown even by the examples the Doctor adduces in explanation. Were he familiar with the Dénés' syllabic way of writing their own language, he would have been spared this little inaccuracy.

² P. 326.

³ P. 325.

very often results from a mere change from the second to the third conjugation. Here is an example:

Active	Passive
<i>as'en</i> , I do (something)	<i>as'en</i> , I am done, etc.
<i>if'en</i> , thou doest	<i>if'en</i>
<i>a(ya)'en</i> , he does it	<i>al'en</i>
<i>atʔaʔ'en</i> , we do	<i>atʔaʔ'en</i>
<i>al'en</i> , you do	<i>al'en</i>
<i>aRa(ya)'en</i> , they do it	<i>araʔ'en</i>
<i>if'en</i> , both of us do	<i>if'en</i>

When the verb under its active form belongs to the first conjugation, its passive is sometimes represented by a verb which has nothing but the radical desinence in common with the active, and which offers the strange characteristic of being at the same time pluripersonal and unipersonal. The following will be clearer than all possible explanations:

Active	Passive
<i>ukwéssi</i> , I love him	<i>sʔéidintsí</i> , I am loved, etc.
<i>ukwéintsí</i> , thou lovest him	<i>nʔéidintsí</i>
<i>yaʔentsí</i> , he loves him	<i>ukwéidintsí</i>
<i>ukwéʔintsí</i> , we love him	<i>neʔéidintsí</i>
<i>ukwéhtsi</i> , you love him	<i>nuʔwéidintsí</i>
<i>niʔentsí</i> , they love him	<i>ʔaʔéidintsí</i>
<i>ukwéintsí</i> , both of us love him	<i>neʔéidintsí</i>
<i>ukwa'dasni</i> , I call him, etc.	<i>ska'hwotni</i> , I am called, etc.

In the first verb *u-* is the third personal pronoun in the singular, which is here the complement of the verb *-késí*, which cannot stand alone;¹ *ké* is the postposition *ké*, "by attraction to," inflected into *kwe* by the stronger vowel *u*; the first of the two *s* represents the first person singular present (which would be *as*, were it not for the contact with the stronger vowel *e* immediately before); the same pronominal element of the first person (*s*) in turn modifies into *-si* the verbal stem *-tsi*, denoting badness, avarice. This verb, therefore, stands for *ukwéastsí*, and, considered in its component parts, yields the literal meaning of: "by attrac-

¹ Unless it is immediately preceded by its complement, formed of a single word.

tion to him I am bad," or avaricious, that is, I feel so much inclined towards him that I cannot share him with others.

As to the passive form of this verb, it is in reality a regular phrase commencing by the personal pronouns (*s-*, *n-*, *u-*, *ne-*, *nuh-*, *pu-*), to which is added a unipersonal verb. For instance, the first person can be thus decomposed: *s-*, "me;" *ké-*, "by attraction to," *idintsí*, "one is avaricious."¹

The same analysis applies to *ukwa'dæsní* (lit., him for-the-want-of I-say something) and to *ska'hwołní* (me-for one-says something—with a very impersonal meaning), in both of which verbs the reader will not fail to remark the elision of initial *æ-* of *ædæsní* and *æhwołní* represented as usual by the hiatus.

Such passives, however, are not very numerous in Carrier. Their verbal part *-idintsí*, *-hwołní*, varies alone according to the tense: past, *skéidantsí*, *ska'hwodani*; proximate future, *skéidathłtsí*, *ska'hwodathłatnít*; eventual, *skéidutśí*, *ska'hwodóní*. The negative furthermore affects not only those verbal forms, but even the postposition *-ké* of the first. *Skéidintsí* then becomes *skéleidtsí*, etc. But enough of this. Entering into the question of the intricacies and niceties of the Carrier verbs would lead us too far.

Lastly, many other verbs obtain their passive merely by changing the second conjugation into the first. Ex.: *nainælnéh*, he distinguishes it; *naniśno*, it is extinguished. It is only right to remark that in such cases the equivalent of our passive is just as much of a primary form as that of our active, both being independent of each other.

If we are to believe Dr Sapir, the Chasta Costa radical *-to* expresses the ideas of both swimming and sucking. The former is rendered by *-pe*, *-pi* in Carrier and the latter by *-fuk* (which is an instance of onomatopoeia). According to the same authority, *-na* represents as well the act of drinking as that of lying on. In Carrier "I drink" is said *æsnai* when the verb is transitive, while the same language boasts an infinity of roots corresponding to the English "he or it lies on," which change according to the nature of the

¹ The *d* of *dintsí* refers to self-interest, and belongs to a characteristic form which affects most of the Carrier verbs.

subject. We are also told that in Chasta Costa the desinence *-lec* does duty for "to wager" and "to smoke." In the first case, the Carrier equivalent is *-le*, if the verb is intransitive, and, as to the second, it all depends on what is meant by smoking. If this refers to the favorite pastime of the votaries of the pipe, the Carriers have the root *-lat* (another case of onomatopoeia) therefor. If Dr Sapir means the act of treating with smoke, for instance, meat, those Indians then say: *tsal essi*, "I make, or cause to be, soot;" if the complement is a skin, they change this into *lat pe astlêh*, literally smoke with I make.

To the root *-ya* our essayist attributes an even larger number of significations. It refers, he says, to locomotion, manducation, and the feeling of shame. Normal human locomotion on both legs is, in fact, expressed by *-ya* in Carrier; but the act of eating is rendered by the desinence *-al* among the northern half of the tribe, while the southern part of the same replace it by the root *-yi*. On the other hand, the Chilcotin word for eatable is *tsiyan*, and the general root for manducation is *-yan* in that idiom.

As to the verb "to be ashamed," it is in Carrier one of the two or three whose structure exactly tallies with the English synonym. *Yuya astli*, "ashamed I am," is what they say, and in some compounds the root for shame (substantive, not verb) is *ya*.

With regard to the plural of verbs Dr E. Sapir writes: "Among deictic elements are further to be reckoned certain prefixes that serve to indicate either plurality as such or more specifically third personal plurality."¹ Whereupon he gives us a few examples of verbs commencing in *ya-*. A word or two on this subject, such as we find it in the Carrier and other Déné dialects of British Columbia may be of interest to him, and possibly to others as well.

In the first place, the third personal plural of all the Carrier verbs is rendered by the particle *k-*, *kw-* or *kî-* prefixed to, or coalescing with, the pronominal element—the equivalents of the Chilcotin *qe-* and *qæ-*. Added to this is the particular inflexion of the desinential radical for each of the three plural persons when it is a question of a verb of human locomotion on both legs (*-ya* = *-tîl*

¹ "Notes," p. 306.

in the plural), of locomotion on all fours (-*kret* = -*as*), of running (-*kraih* = -*ras*), of station (-*ta* = -*tse*), of cubation (-*thi* = -*thés*), of natation (-*pi* = -*il*, first conjugation for the singular, third for the plural), of navigation (-*ke* = -*il*, first conjugation for both singular and plural), of physical feeling (to suffer, to swoon: -*zit* = -*téh*), of ejection with a human complement (to throw: -*neh* = -*til*, first conjugation for the singular, second for the plural), of bursting into laughter (-*tsit* = -*xæk*). The verbs of flotation make their plural as the verbs of navigation.

All of these plural desinences, and indeed the singular desinences as well, furthermore undergo material changes according to the tense.

Then there are the objective verbs, some of which have for all their tenses a desinential plural of their own. Ex.: *nenas'aih*, "I put (in a certain place) a single object with no special characteristics;" *nenastle*, "I put many such (in the same way)."
Adi'ni, "it (a single unspecialized object) is put in a hole;" *adilya*, "several such objects are put in the same place."¹

We now come to the real verbs of plurality. They are characterized by the element *næ-* (*nē-* and sometimes *no-*, when in direct contact with stronger vowels) introduced before the pronominal syllable, the reduplicative prefix, or again the negative particle. Here are a few instances:

Common Verbs	Verbs of Plurality
<i>tha-dassel</i> , I cut up in various lengths with an axe	<i>thana-dassel</i>
<i>thanna-skras</i> , I wash (linen, skins)	<i>thannana-skras</i>
<i>pe'-dastcas</i> , I bind it	<i>pane'-dastcas</i>
<i>ltzé-sæ'a</i> , it is straight	<i>ltzéna-sæ'a</i>

As may be seen in the case of *thannaskras*, the pluralizing form sometimes affect the verbal desinence. It changes that of the present, and the two futures into that of the past, which then remains unchangeable.

¹ It will be noticed that the plural-forming particle of the third person is wanting in this verb. It is used only in connection with human subjects, and even then it disappears whenever the subject is itself in the plural. Ex.: *tedakul tyiyauk hwenli*, "all the girls went away" (instead of *hwenantli*).

Should the subject or complement be evidently plural or imply such number, the verb of plurality is not resorted to, unless one wants to draw attention to the fact that he refers to a multiple object or several persons.

Another kind of pluralizing verbs, which are perhaps the ones Dr Sapir had in mind when he penned the above quoted remark, do indeed commence with the prefix *ya-*; but they mean much more than the common verbs of plurality of which I have just given a few instances. They refer not merely to several, but to all. In other words, they imply totality rather than simple plurality. The very substantive verb to be (*astli*, I am) can be thus affected. *ainli*, "they are;" *yaainli*, "they are all, or at least in very large numbers."¹

Sometimes the prefix *ya-* denotes also a repeated action (especially if followed by the crement *-das-*) rather than a plural complement. Examples:

Common Verbs	Verbs of Totality
<i>astah</i> , I cut with a knife in a slashing way	<i>yaastah</i> , I cut to pieces with a knife
<i>asqul</i> , I tear	<i>yaasqul</i> , I tear to pieces
<i>thaskai</i> , I throw away with a shovel	<i>yaidaskai</i> , I throw away on all sides with a shovel, I scatter, etc.
<i>dasnat</i> , I split	<i>yaidasnat</i> , I split in very many places

Oftentimes these verbs combine the crement *na-* indicative of plurality with the prefix *ya-* which denotes a large number, or even totality, and may furthermore take the pluralizing particle *ra-* proper to the third person plural, as may be seen in the following:

<i>litan</i> , she is with child	<i>yanoltean</i> (contraction of <i>yananaitcan</i>), they are all with child
<i>ucyul</i> , I blow repeatedly on (as a shaman)	<i>yanapucyul</i> , I blow repeatedly on all

The desinence of the first verb means "womb" in Carrier. Déné phonetics always contract *arai-* into *o-*; hence the peculiar form of totality noticeable in that verb. In *ucyul*, the real signification

¹ Strictly speaking, they imply totality, but the Indians are so addicted to the practice of exaggerating that such verbs practically refer to large numbers only.

of which is "I exorcize" in English, we have still another category of verbs, the frequentative. The original form of the same is *æcyul*, "I blow." When one is told that the pretended exorcism of the shamans consists in incessant blowing on the part of the body which is affected by disease, he will realize the appropriateness of the frequentative form to express the nature of their operations.

In *yanæpucyul* we have a further instance of a weak vowel (*æ* of *pæ*, "them") disappearing under the influence of a stronger vowel (initial *u* of *ucyul*). That compound stands for *yanæpæucyul*.¹

Very often also the verbs have not only a pluralizing but a totalizing form, as is the case in the following: *thæxænišnai*, "they are drunk;" *thanonišnai*, "many are drunk;" *yathaxinatnai*, they are all drunk; *æxæništæt*, "they are drunk with tobacco;" *noništæt*, "many are drunk with tobacco," *yaxinatæt*, "they are all drunk with tobacco."

The dissection of these two series of verbs is quite interesting. The desinence *-nai* of the first denotes the act of drinking, while the prefix *thæ-* indicates that something stronger than milk, namely "fire-water," has been absorbed. *æx-* is the usual particle of the third person plural, and *-niš-* shows that the above mentioned potations have been excessive, being attended with fatal results.² The reader will not fail to remark how this accretion *-niš-* is converted into *-na-* under the influence of initial *ya-* of totality (*yathaxinatnai*).

In the second verb *-tæt* is onomatopœic. It denotes the act of smoking, and is intended to reproduce the peculiar noise made by the lips when pulling at a pipe. As to *noništæt* the reader will have guessed that it is a contraction of *næxæništæt*, prompted by the phonetic rule already alluded to.

Before dismissing the question of the verbs in *ya-* referred to

¹ Were not the frequentative form intended, the sequence of two vowels in *a* would be against the principles of Carrier phonetics.

² These verbs belong to still another class, that of the verbs of error, which denotes an action with unforeseen, or fatal, results. Almost all the Carrier verbs can be clothed with this significant form, which, in common with the frequentative and other forms, constitutes a new series of verbs.

by Dr Sapir, it may be worth the while to observe that, independently from the value of that prefix as a multiplicative element, it is also the root of numerous verbs meaning "to land, to go (or take) ashore." Here are some examples illustrating that new rôle:

- yasaskeh*, I land in a boat.
yasacyaih, I land on foot (as on the ice).
yasazkruih, I land while running.
yasaskuh, I land in a sleigh.
yasastuul, I land while skating.
yasazkret, I land on all fours.
yasazkuh, I land on one leg.
yasastlat, I land floating on the water.
yasaspik, I land swimming.
yasavlah, I land in a balloon, flying.
yasastzas, I land hopping about like a bird.
ya'nes'as, I land while limping about.
yadanquh, I land while throwing out the throwing stick (game).
yasasqeh, I land under the influence of anger.
yasastcih, I land with head erect.¹
yasastlas, I land on crutches.²
yadasthis, I land with a walking stick.³
yasastsil, I land while chasing large game,
 etc., etc.
ya-tsi'-das'aih, I, being a worthless fellow, land on foot.⁴
ya-ke-nas'ih, I land by stealth.⁵
ya-can-dijyah, I land on foot and while singing.⁶
ya-tso-dijyah, I land on foot while crying.⁷
ya-tse-sastles, I land nodding right and left.⁸
ya-kwa-disthh, I land on my knees.⁹

¹ The desinence *-cih* of the present becomes in the past *-ciam*, which means "stick, tree," and hints at the subject of the verb landing while "stuck up" as the trunk of a tree.

² From the root *-ha*, "posterior," because in such a case the person seems to an Indian to be walking with his posterior instead of his legs.

³ From *thaz*, "walking stick," which is the desinence assumed by the verb for the past tense.

⁴ From the root *-tsi'*, which, as we have already seen, is the Carrier for "bad."

⁵ Literally: I land hiding (*nas'ih*) my feet (*ke*).

⁶ *Can* means "song."

⁷ From the root *tso*, "crying."

⁸ From *tse*, equivalent in compounds of *-tsi*, "head," and *-dlat*, stem of the verb "to throw."

⁹ From *-kwat*, "knee."

- ya-ket-uwaxekh*, I land in a canoe with the intention of buying.¹
ya-tse-nastaih, I land on foot under the influence of fear.²
ya-na-tse-nastaih, I land again on foot under the influence of fear.³
ya-na-hwe-naxga, I commenced again to land on foot.⁴
 etc., etc., etc.

The compound, *dō-at-ti*,⁵ leads me to remark on the evident inferiority of the Chasta Costa compared with the northern Déné languages, especially those of British Columbia. "Not-wife-he has" appears almost childishly simple in construction by the side of the negative forms prevailing there. Indeed, this phrase recalls to mind the similarly inelegant mode of expressing themselves adopted by the Sekanais of Bear lake (Fort Connolly), British Columbia, when they attempt to speak Carrier. *Awontuh 'at æti*, "no a wife he has," they would then say instead of the classical *au 'at liti*, which contains three distinct negative elements: first, *au*, "not;" second, *li*, made up of negative *l* and pronominal element *a* inflected into *i*; and, third, the verbal stem *-ti* altered into *-ti* by the same negative prefix.⁶

Moreover, if, as is well known, the natural tendency of languages is to disintegrate with time their constitutive elements, that is, to pass from synthesis to analysis, the material presented to the public by Dr Sapir, meagre as it may be, suffices to prove that the Chasta Costa dialect is much less primitive, because more analytic, than the Déné idioms of the Canadian North.

To mention but one point of the grammar of the latter, they form their futures by means of particular inflections, or even

¹ From *kæt*, which denotes the act of buying. The *uwa-* of the verb furthermore indicates that the person has "arrived" at the place.

² This is one of the verbs of error, as can be seen by the particle *tse-*, which inflects the *-yakh* of *naxyakh* into *-staih* (*nastaih*).

³ The reduplicative prefix *na-* is here introduced.

⁴ To the reduplicative particle the initiative prefix *hwe-* is here added. The verb is in the past tense (*-ga* instead of *-taih*, which is itself altered from *-yakh* by *na-*), because such verbs are never used in the present tense.

⁵ See footnote 82, p. 337.

⁶ Strange to say, while, considered in its constitutive elements, this compound should mean "he has no wife, he is unmarried" in Carrier as well as in Chasta Costa, usage has given it the sense of "he did not get married" in the former dialect, since "he got married" is said *'a-ti* (with a contraction similar to that of the Chasta Costa).

excrecences, of the pronominal crements. Thus the proximate future of the Carriers changes the present *æx'æx*, "I sneeze," into *æthls'æx*.

Quite often also, the desinential radical of said verbs undergoes itself a characteristic transformation indicative of the new meaning assumed. For instance, *dæsnî*, "I say," becomes *dæthasnil* in that same future.

On the other hand, the Chasta Costa decomposes and scatters, as it were, the elements of its verbs, much after the way the modern Romance languages have treated the parent Latin. Thus to form the above mentioned future it simply adds the suffix, or rather separate particle, *thê* to the present.¹ No more any of the two or three original inflections of the Déné negative, no more any internal growth, but instead an independent monosyllable, for the future: such are, indeed, unmistakable tokens of analytic disintegration which bespeaks unfavorable ground or unpropitious environment for the life of the language.

SAINT BONIFACE,
MANITOBA, CANADA

¹ The words Sapir gives as synonymous of "I shall sneeze, I shall look at him," etc., should be translated: "If I sneeze, if I look at him," etc., in Carrier, *thê* and *te* being in that language the conjunction *if*.

BOOK REVIEWS

METHODS AND PRINCIPLES

America's Greatest Problem: The Negro. By R. W. SHUFELDT, M.D.
Philadelphia: F. A. Davis Company, Publishers, 1915. 8°, XII,
377 pp. 52 illustrations, cloth.

If the deportation of the negroes could be effected, I, for one, would not care a straw, whether they liked it or not. I should be for sending them away all the same and for keeping them away afterward, just as the Federal Government keeps the Chinese away. I should be in favor of shipping every negro back to the region whence they came, whether it pleased them or not. I am so loyal to anything that will sustain the purity of the best white blood in the United States; drain it of superstition of all kinds; purge it of crime and immorality and preserve its integrity, that I would see every negro in America transported to the desert of the Soudan, rather than allow them, for any consideration whatever, to jeopardize by race intermixture the race and civilization it has taken us centuries to establish.

Leprosy is no worse a disease, than what the presence of the negro stands for in this country today, and especially in the South. The only trouble is: This Government is a bad physician in a case demanding—long demanding—prompt and very different treatment from that which it has heretofore received. We know that the parasite is gnawing at the patient's vitals, but our procrastination and moral cowardice prevent us from applying the proper treatment, that's all.

Men like Booker T. Washington and W. E. D. Du Bois are traitors to their race in this country, and are the worst enemies the negroes in the United States have today.

The concubinal white man is a lecherous being and the Negro concubine a human without the least trace of moral sense. Offsprings from such unions swarm the Southern States. What is to prevent this progeny from being worse than animal? Such creatures are more dangerous to society than wild beasts; for these last can easily be hunted and shot, while the former go on procreating their lecherous kind without hindrance.

The foregoing paragraphs are quoted literally. Their number could easily have been tripled and quadrupled, but they are quite sufficient to show the tendency of the book and the sentiments of the author. In fact the whole volume, however excellently letterpressed, abounds in similar sentimental phrases and boundless exaggerations. I looked in vain for one single new or interesting statement. The author's name on

the title page is followed by nineteen lines, recording his membership in scientific societies, but the few—very few—scientific pages of his book are singularly antiquated. About fifty years ago one used to call the hair of the Negro "woolly"; now anthropologists are well aware that it would be difficult to find a greater difference in hair than there is between the hard, thick, and spiralic hair of the real African and the soft, thin, and wavy wool of a sheep.

Really grotesque in this respect are figs. 7 and 8, which are intended to show the difference between the cranial sutures of "Caucasian" and Negro children about the time of puberty. Both skulls are equally metopic, but the sutures of the "Caucasian" are drawn wide apart as is the case with the skull of a newborn baby.

Equally characteristic of the author's entire lack of scientific training and discernment is fig. 12, giving two grotesque caricatures under the title "Comparison of the Physiognomy of a Congo Negro and Caesar." Such drawings were permissible a hundred years ago; nowadays they are ridiculous.

A significant feature of the book is the great quantity of old newspaper clippings and private letters reproduced; perhaps one third of the volume being in this way printed in quotation marks. How lavish the author is in the use of quotations, could be illustrated by dozens of examples; but the absurdity of many of them is well characterized in the reproduction of a letter, written by a lady in Georgia, stating that

No white woman dares walk alone and unprotected on the country road or even in the Southern village, when the shadows fall. . . . Briefly, then, I am writing under the nervous tension of expecting to be strangled at any moment, as there is a negro man in the house with me and I am—alone.

Certainly the colored man is a serious problem for the United States, but sooner or later the problem will be solved, just as well, as sooner or later, modern society will be forced, in Europe no less than in America, to revise its old social ideas and its old criminal laws. Certainly there are criminals and persons with inferior morality and inferior intellect in every human group, white and colored; but we shall sooner or later learn to eliminate them. This *can* be done and *will* be done, but certainly not in the way Dr Shufeldt tries to suggest to us.

FELIX VON LUSCHAN

Ancient Hunters and their Modern Representatives. By W. J. SOLLAS.
Second edition. The Macmillan Co. (66 Fifth Avenue): New York,
1915. XXIV, 591 pp., 2 pls., 314 figs. (Price \$4.50.)

As Professor MacCurdy pointed out in his review of the first edition (*Current Anthropological Literature*, vol. 1, pp. 9-12), this book supplies a deficiency long felt by the English-reading public. It forms a charmingly written and amply illustrated introduction to the study of Paleolithic man, which has doubtless proved no less serviceable to the general reader than to the beginner in anthropology. In the present edition Professor Sollas has brought his volume up-to-date, including even a discussion of the Piltdown find (p. 49 *et seq.*), in regard to which he adopts Dr Smith Woodward's interpretation. Throughout the consummate pedagogical skill displayed by the author rouses our admiration; only when dealing with geological facts he seems to assume more knowledge than seems advisable.

Among the distinctive features of the book is the view that in Paleolithic cultures there is "little evidence of indigenous evolution, but much that suggests the influence of migrating races" (p. vii). This thoroughly modern position is well developed in regard to the Chellean industry (p. 148), and the maps indicating the geographical range of the Lower Paleolithic, Aurignacian, etc., sites are highly suggestive. Another peculiarity of Professor Sollas's treatment, foreshadowed in the title, is the correlation of modern with ancient races. Whatever skepticism may be exercised regarding the assumption of a blood-relationship between the Negroid Aurignacians and the Bushmen, or the Magdalenians and the Eskimo, the interpretation of cultural conditions of which our knowledge is necessarily fragmentary by means of our fuller information on corresponding cultures of living peoples is certainly the best, if not the only, way of infusing some human interest into the dry-as-dust collections of archeological curiosities.

It is only when he touches some of the problems of cultural resemblances and the more elusive phases of culture that Professor Sollas's touch betrays the weakness or at least one-sidedness of the "distinguished foreigner." Ethnologists as a rule would hardly regard an "ancient common origin" as the most satisfactory explanation of Australian and North American platform burial (p. 270), and similarly would probably account for the practice of finger-amputation by independent development rather than by the great antiquity of the custom (p. 352). To be sure, these are problems to which different ethnologists seem to react very differently, and Graebner's virtual identification of resemblance

with genetic relationship must be misleading to the outsider. But as regards fundamental principles there is as yet so little understanding among professional ethnologists that Professor Sallas's one-sidedness in these questions appears as a venial fault. On the whole his new edition is sure to rival the old in popularity and will doubtless be followed by further revisions.

ROBERT H. LOWIE

NORTH AMERICA

Sacred Bundles of the Sac and Fox Indians. By M. R. HARRINGTON. (Philadelphia: The University Museum Anthropological Publications, vol. IV, no. 2; 1914.)

The chief merits of this publication are the beautiful photogravures, and the detailed, painstaking descriptions of the contents of the bundles. On the whole, it must be admitted that the information on the uses of the bundles, the legends connected with them, etc., is inadequate. It has been the reviewer's experience that, difficult as the information is to obtain, if it can be obtained at all, it is very extensive. However, we should judge Mr Harrington's work by what he has given us, rather than find fault with what he has not given us. Accordingly we are very grateful for the "Myths of Origin," pp. 136-155; the account of the naming bundles, p. 156; the account of Co'kwiwa's bundle, pp. 187, 188; the information on a general medicine bundle, pp. 211-221; the accounts of two fetish bundles, pp. 227-236.

It is to be regretted that the chapter on historical references to the sacred bundles shows that the author has but little command of the literature on the subject. We miss citations to the Jesuit Relations, Perrot, Marston, Forsyth, Galland, Busby, and Owen.

This same lack of knowledge of the literature on the subject is met in Harrington's observations on Sauk and Fox social organization. Thus on page 131 there are no references to Marston, Forsyth, Jones, and Michelson regarding the tribal dual division; similarly on page 160 the clan lists of Marston, Forsyth, Galland, Busby, and Owen are passed over in silence (incidentally there should be a cross-reference to p. 131). It may perhaps be noted that the reviewer has a clan list of the Sauk proper by U. S. Grant (obtained in 1911) and a number of such lists of the Fox by a number of informants, none of which entirely agrees with the published versions. The reasons for the discrepancies are not clear.

The statement on page 164 that in clan-feasts the invited sit on the south side of the lodge does not seem to harmonize with the information (p. 162) that in naming ceremonies the Kishko people sit on the south side, and the Skushi on the north side; and is opposed to the reviewer's information regarding the Fox proper (*American Anthropologist*, N.S., 15, p. 692; among the Fox Tō'kân corresponds to Skushi, though an equivalent of the latter is also known). That "the performers—all sit on the north side of the lodge" is exactly opposite to what takes place among the Tama Fox.

There is an amusing account of how a love charm worked on page 214.

The reviewer cannot find any reference to a pouch in the passage of Jones's *Fox Texts* referred to on page 249.

The translations of the songs, so far as the reviewer is able to control them, in every case reproduce the substance of their Indian originals, though they are rarely close renditions. It is a pity that their esoteric meaning could not be obtained.

In closing it is to be regretted that Mr Harrington, confessedly not a linguist, did not employ Dr Jones's phonetic scheme or use the ordinary syllabary, for the system employed is very deficient and perplexing.

TRUMAN MICHELSON

From early colonial times until the present it has been more or less generally known that the Indians of the Central Algonkin group, among others, possessed highly specialized collections of charms and fetishes, together with rituals for their use in war, hunting, witchcraft, gambling, and naming. These collections are sacredly and secretly kept and guarded, and about them hinge many dramatic and spectacular rites and ceremonies. In fact among some of the tribes the loss of these bundles and their rituals would bring much social, all military, and most religious life to a standstill. Indeed, so important a part do they play in the native life of the people that until very recently, when cessation of intertribal war and the disintegration of ancient customs and environment have loosened the tongues of the elders, only inklings had been gathered as to their appearance and usage.

Nicolas Perrot¹ gives a description of a "warriors pouch," or *Pindikossan* (presumably from the Ottawa, though he neglects to state the tribe), of which he says: "In this will be found the skins of owls, of

¹ See Miss Blair's translation, *Indian Tribes of the Upper Mississippi and Lake Region*, Vol. I, p. 50.

snakes, of white swans, of perroquets and magpies, or of other animals that are very rare. They also carry therein roots or powders which serve them as medicines," and describes one of the accompanying feasts and ceremonies with which it was used.

Although Thomas Forsyth, William Jones, Rev. Cutting Marsh¹ and others refer to the sacred bundles of the Sauk, no detailed accounts of such objects among any Central tribe had been printed until the writer's² discussion of the subject in connection with the Menomini, which is now followed by Harrington's paper on the Sauk and Fox. Mr Harrington enumerates the following tribes as users of medicine bundles or related objects: Sauk, Fox, Potawatomi, Kickapoo, Delaware, Shawnee, Osage, Kaw, Iowa, Oto, Quapaw, Caddo, Wichita, Comanche, Kiowa, Chiricahua Apache, Seminole, Creek, and Choctaw. He states that they are rare among the last three. One might add to his list, which only includes the tribes from which he collected specimens, the Menomini, Ottawa, Ojibwa, Winnebago, Pawnee, Ponca, Omaha, Arikara, Mandan, Hidatsa, Crow, and Blackfoot. Of course, many variants in use and contents are found.

The Central Algonkin type of bundle is confined to the Sauk, Fox, Kickapoo, Menomini, Ottawa, Ojibwa, Potawatomi, Winnebago, Iowa, and Oto, with perhaps Ponca and Omaha. The Pawnee form is also perhaps a near relative, while the Osage and Kaw bundles are in another group. Not enough is known of the medicine bundles of the Village tribes to classify them. The Blackfoot stand distinct.³

Among the Fox, Harrington finds three types of bundles: naming or clan bundles, war bundles, and medicine or charm bundles, including minor charms for use in hunting, love, gambling, and witchcraft. These are all known to the Menomini, except the first, for the Menomini have nothing to correspond with the naming or clan bundle. The use of this type may have been developed among the Fox from contact with the Iowa, where all bundles are connected with the clans. Among the Menomini all are private and personal property. The Menomini, however, have more elaborately developed hunting and witchcraft bundles than have the Sauk and Fox.

Several types of bundles known to the Iowa and other Tciwere

¹ Forsyth, Thomas, See Blair, vol. II, p. 195; William Jones, *Fox Texts*, pp. 168-315, etc.; Rev. Cutting Marsh, *Wisconsin Historical Collections*, vol. XV, p. 120.

² *Anthropological Papers, American Museum of Natural History*, Vol. XIII, part 1, 1913.

³ See Wissler, "Ceremonial Bundles of the Blackfoot Indians," *Anthropological Papers, American Museum of Natural History*, vol. VII, part 2.

Siouan are not found among the Sauk and Menomini. According to my information in the field, these are: tattooing, buffalo doctors, and oath or ordeal bundles. It is, however, Mr Harrington's intention to publish his notes on these later on.

In connection with the bundles Mr Harrington enumerates and defines several terms of classification which he uses—namely, fetish, amulet, and charm, with some good data, and gives a poor sketch of Sauk and Fox material culture, with some excellent general remarks on the bundles (pp. 132, 157), while some fragmentary data on historical references occur on page 134. It may here be remarked that the arrangement of the monograph lacks unity and makes reading difficult.

Mr Harrington then gives some very satisfactory observations on the myths of origin of the bundles. Here the greatest difference is found between the Sauk and Fox and their neighbors. Nowhere, in use, ritual, or contents is the difference—say between the Sauk and Iowa and Menomini—more striking than in the contents of these traditions. All alike find their origin in dreams, brought on as a rule by fasting, and all bundles came as gifts from supernatural powers, but the gist of the tales varies widely.

The use of the clan or naming bundles, kept by the clan in a special house or repository, is well described and war bundles are correspondingly treated. The contents of twenty-two war bundles are described with painstaking care, and the more important pieces shown in exquisite photogravures. General medicine bundles and charms are dwelt upon later.

Students must be grateful to Mr Harrington for his presentation of this exceedingly difficult subject. All will look forward expectantly to the publication of his material on other tribes, hoping that he will spend more pains on arrangement and discussion of material and give more comparative and historical data, but glad to have anything from the pen of so experienced and careful a collector.

ALANSON SKINNER

The Myths of the North American Indians. By LOUIS SPENCE, F.R.A.I.
Thomas Y. Crowell Co.: New York, 1914.

As the author states in the preface, "the primary object of this volume is to furnish the reader with a general view of the mythologies of the Red Man of North America, accompanied by such historical and ethnological information as will assist him in gauging the real conditions under which this most interesting section of humanity existed."

In this pretentious undertaking the author has succeeded fairly well. At the beginning he wisely gives an historical summary of Indian and European contact with especial reference to the strange theories as to Indian origin that were once so prevalent. Treating in turn the hypotheses of the Indians as Jews and Welsh, he adds another stone to the cairns over the graves of these theories and then takes up the ever-fascinating problem of man's antiquity in America. The American archeologist will marvel somewhat at his selection of evidence from the material at hand,—his rejection of the Trenton evidence in favor of other more nebulous data, but his final conclusions agree with the accepted platform of one school of American workers, at least. With regard to later man his all-too brief statement is not open to criticism, but in the section on "Evidence of Asiatic Intercourse" while we are willing to admit his thesis, the evidence which our author produces is, on the whole, not convincing.

A longer account of Norse contact on the northeastern coast of America is more in accord with accepted theories, and the passages on the mounds and their builders are not open to criticism.

When Spence takes up the linguistic stocks and tribes of North America we find him at his best, giving a sound, correct account that follows accepted lines, although the emphasis is not always rightly placed and probably few would care to receive the statement that the Algonkin were more advanced and intelligent than the Iroquois.

The historical summary suffers from the lack of proportion that is the chief fault of the entire work. In this case undue stress is laid on romantic individual instances which make good reading. The remarks on dwellings are taken from Lewis H. Morgan and so far as they go are good, as are the succeeding sections on Hunting, Costume, etc., all being compilations and not original work. The sections on Art and War are not so good, but those on Indian life and early training are for the most part well handled, though some statements—including one to the effect that monogamy on the whole prevailed throughout the continent—might well be challenged. Where the author is less speculative and sticks to authorities in dealing with totemism, his treatment is good, but he might have handled the matter more carefully and extensively. This also applies to his remarks on fetishism, but the succeeding views on theology are not satisfactory.

The main body of the work is made up of mythology and folklore. Most of the selections are standard tales and well known, but the author's comments are frequently open to the objection that they tend

too much to mysticism. The stories that follow as retold by Spence are well done, though one would be better pleased if he gave their origin more definitely. This is the more lamentable since when actual data are given they are sometimes erroneous. In the story of the Dog Dance (p. 190) we learn that it was obtained by the Pawnee from the Cree! Of course, the Ree, better known as Arikara, are meant. One wonders where some of the legends were obtained. Especially is this the case with the Iowa stories, since very little Iowa material of this sort has been published. Mr Spence misuses the term "Sioux," using it instead of "Siouan."

The author is unnecessarily credulous of the stories of the pygmies, for he says (p. 248): "This story is interesting as a record of what were perhaps the last vestiges of a pigmy folk who at one time inhabited the eastern portion of North America."

The book is concluded by a good bibliography, which includes many little-known titles while some standard authorities, such as Wissler, are omitted. The illustrations throughout, though often clever in conception, show the artist's complete lack of knowledge of North American material culture and ethnology.

ALANSON SKINNER

The Quarterly Journal of the Society of American Indians, Vol. III, No. 1.

A. C. PARKER, Editor General. Washington, D. C.

The Quarterly Journal of the Society of American Indians is again with us. It is unnecessary in a review of this nature to comment on the value and importance of the work of this most worthy society, the annals of which will be found in the Journal. The main purpose of this notice is to call attention to the policy of the society, always held but now openly avowed, to publish in the Journal ethnological data and folklore contributed by its Indian subscribers.

The current number contains the origin myth of the Seneca Little-Waters Medicine Society, by Edward Cornplanter, together with a well executed native illustration. From now on the Journal will prove of increasing interest and value to ethnologists, and no one engaged in North American research can afford to ignore its contributions.

ALANSON SKINNER

The Indians of Greater New York. By ALANSON SKINNER. Torch Press: Cedar Rapids, 1915. Pp. 150, map. (\$1.00 net.)

There has existed in recent years a constantly growing demand from New Yorkers for a popular exposition of the life of the erstwhile

inhabitants of their city. In this book Mr Skinner has given a unified and consistent ethnological account of these now extinct people. He has made judicious use of all available sources, chiefly historical, checked them by the results of archeological excavation, and wisely interpreted the whole in the light of the ethnology of living Algonkian tribes.

A concise statement of the identity and tribal affiliations of the ancient inhabitants of this territory is given; clearing in the mind of the layman a point which has hitherto been unnecessarily obscured. The material culture of these Indians is presented chiefly by means of quotations from the colonial writers; the more important contributions, many of which are inaccessible to the general public, being given at length. The social organization and religious customs were of necessity only obtainable from the living Delaware. Finally, there is presented an excellent account of the war which led to the extermination of these Indians, and of its despicable causes and conduct.

The remainder of the book, dealing with the archeology of this region, is invaluable to the local collector. The location of sites, the remains obtained from them, and the methods of conducting excavation are briefly described. The evaluation of some of the extraneous cultural influences, whose presence is hinted at by Mr Skinner, would undoubtedly have improved this otherwise adequate summary.

LESLIE SPIER

The Voyages of the Norsemen to America. WILLIAM HOVGAARD. New York: The American Scandinavian Foundation, 1914. 8°, 304 pp., 83 ill., 7 maps.

Surely this,—the Saga of Eric the Ruddy, containing the episode of the attempted settlement of Vinland or Wineland of Thorfinn Karlsefni, his wife Gudrid and their one hundred and sixty colonists—will always be unique in its interest. There can hardly be a question of its title to priority, for we still possess the manuscript copied between the years 1300 and 1334 into the compilation known as Hauksbook by Hauk Erlendsson, knight of Norway, with the assistance of two secretaries. This, it will be observed, is about a hundred years before the birth of Columbus, to say nothing of the dates of his writings and voyages; also rather more than seventy years before the dubious adventure of Earl Sinclair and the Zeni, the narrative of which, recast long afterward, purports to tell us something at second-hand of the dwellers in Estotiland and Drogio,—perhaps Newfoundland and Cape Breton Island. Thus, if the Icelandic saga dated only from the time of Hauk's transcribing,

it would have a very respectable priority in its own especial line: and whatever items we may find in it which could not probably be conjectured and are true to American facts must be given their full face value as contributions to geography and ethnology.

But there is no question that the composition of the record is much earlier than this transcription. It even embodies verses which belong to the eleventh century, as the most expert judges tell us, by diction and meter. In other words, they were composed either during the three years' expedition (about 1003 to 1006) as they purport to have been, or at some time when the national memory of its details would still be warm and vivid in a tradition-loving country. It happens that some of these verses deal with a native of the New World which they had visited. The prose parts of the saga, which make up nearly all of it, contain fuller and more precise accounts, as by eyewitnesses, of the strange dark people encountered by them—unpleasantly surprising to Norsemen in hair and eyes and features, in their curious simplicity, turning on the instant into extravagant fierceness; in their unheard-of customs and properties too, and their divers uncanny ways.

Two or three generations later, another manuscript of this voyage saga was copied, apparently not from the same original as that chosen by Hauk for his copying, but from another, differing only in minor details, which require close observation or the divergencies will escape notice. Numerous later manuscripts of this saga exist on parchment or paper but Reeves, by painstaking investigation, satisfied himself that nearly all had been copied from the two surviving ones above mentioned, usually with slight changes, which occasionally are of some importance.

The exceptions consist of the celebrated Flatey-book manuscript dating from 1375 or 1380 at the earliest (and probably somewhat later), and the few copies which follow it. This Flatey-book version multiplies the number of the voyages to Wineland, crediting one to nearly every conspicuous member of Karlsefni's party and multiplying coincidences and improbabilities; but it adds a few items concerning the so-called Skraelings, which have a certain air of verity and might have come down by independent tradition.

Ever since Dr Storm's "Studies on the Vinland Voyages," the world has looked askance on the Flatey-book version, especially where the two accounts are in conflict. Probably the most distinctive, though not the most valuable and helpful, feature of Professor Hovgaard's monograph is his dissent from this judgment. He goes so far as to hold that both narratives are historic and stand upon an equal footing. He ex-

plains their worst inconsistencies by supposing that they deal in part with distinct voyages and that all the expeditions named in either, with one exception, occurred as related. His scheme of American exploration labors under a heavy burden in this problem of conservation and harmony.

Both versions agree as to repeated visits of natives, at first friendly, afterward bitterly hostile, in the most southerly home which the Norse colonists attempted to make for themselves. They were beaten off with difficulty and some loss of life among the white men; who could not hope to be reinforced for a long time and wisely withdrew soon afterward rather than incur the continued hostility and repeated onsets of its inhabitants.

Both versions also tell of several natives who were found asleep beside their boats and incidentally killed in a matter-of-course way; but this occurrence is presented at two distinct stages of the narrative and with differences of detail.

Both versions relate the death of Thorvald Ericsson by an arrow shot into his body; only the Flatey-book makes the missile one of a flight directed on the ship and the shield-wall above the gunwale; whereas the Hauksbook, in the earliest bit of composition offered by these sagas, insists that it came from a lone archer whom they thought abnormal and wizardly, and therefore called him a one-footer or uniped, accepting for truth a rumor of primitive fancy.

In addition the Hauksbook version relates the surprise of another party of Skraelings in Markland on the way homeward and the capture of two boys, who were carried to Iceland and taught to speak, as the saga man puts it, supplying some dubious information concerning their own language, people, and neighbors. Naturally, this has been much discussed, with little agreement and very uncertain profit.

Professor Hovgaard is of those who think these Markland people Eskimo; but we have nothing of them professedly at first-hand except the fact that one of them was bearded and the promptness of their vanishing underground. The names are most probably corruptions of European words, their account of processions in a neighboring region—conjectured to be Great Ireland—seems an echo of current belief among their captors; and their account of government by kings, if not similarly derived, would suit Indians much better than Eskimo. Furthermore, a forest land (Markland) is surely an unpromising land to look for the latter. It was, however, the sole home of the Beothuk, so far as we know, and this episode should probably be taken as the first experience

of white men with these insular people, if not altogether mythical—and indeed it has something of that air.

Professor Hovgaard however discovers his Beothuk in the Indians who first traded and afterward fought at Hóp, so effectually thwarting the purposes of the expedition; distinguishing between them and the men killed on the shore (as he supposes) of Cape Cod—who must have been either Algonkian of some kind or their unknown possible predecessors.

This grows out of the supposed need to accept and reconcile the two versions, resulting in an odd duplication of places as well as voyages. Thus we have two Vinlands, each with its especial Hóp,—the Vinland and Hóp of Leif beside Nantucket sound and the Vinland and Hóp of Karlsefni on the east front of northern Newfoundland; also two Marklands, two Hellulands, two Kjallarnesses—rather widely distributed. We even seem to have an attempt to conserve the uniped—as a misunderstood Beothuk, without giving up the Cape Cod bay killers of Thorvald. But the chief excuse for the uniped, his chief reason for being, so far as concerns the saga, was surely to discharge that fatal arrow. We cannot well think of him without his distinctive achievement. Yet Thorvald can hardly have been killed twice. The reconciliation of contradictions appears in danger of breaking down.

A simpler way out is to recognize the names of Helluland, Markland, and Wineland as representing the three great natural divisions of the American coastal country, according to the classification of Norse needs and wishes—the bleak treeless Arctic and sub-Arctic expanse, yielding furs only; the forest land full of game next below it; the warmer country still farther below, where fruits of the soil became more abundantly available—above all, the wine grapes, which more than any other product stood for unlimited sunny fruitfulness throughout all northern Europe. Thus rather widely separated localities might well be included in Wineland and the visitors who reached one part of its territory might well be disappointed by the lack of attractions reported from another. Recognizing certain confusions, distortions and inventions in the later narrative and the propriety of adhering to the earlier one in the main, the story becomes more reasonable as well as more simple.

Excepting the uniped and the Marklanders where the mythical element is rather pronounced, all the natives of the saga seem to have been Indians of one tribe or another and not unlikely Algonkian. Only two items militate against this in any degree—their skin boats and their great noisy projectile used in battle. These may very well have been

worked in long afterward by some narrator or copyist, the former representing his idea, derived from Greenland, of what was proper to a Skraelling, the latter introduced from accounts of Norse warfare, for decoration and the enlivening of the narrative. They certainly cannot outweigh the numerous characteristics described, which are very much more Indian than Eskimo. It is unnecessary to repeat these; reference may be made to Reeves facsimile copies and translation of the text and the very full consideration of it by Nansen and other recent writers.

Professor Hovgaard devotes an appendix to the elaborate comparison of lacrosse and the Norse game of *Knattleikr*, as described, with some notable differences, by Hertzberg and Bjarnason. Certain variations in the Indian games from which the standard lacrosse has developed are also considered: as well as a ball game found among the Greenland Eskimo when Hans Egede visited them. His verdict is that:

On the whole, the evidence brought to light by a study of these games favors the theory that Lacrosse came to the Indians through the Norsemen; but we find nothing in the sagas to show that such frequent and intimate intercourse which this theory presupposes took place between the two peoples.

Perhaps a graver objection might be found in the lack of evidence of its transmission from the northeast American coast to more south-western interior regions and of evidence excluding a contrary movement.

Professor Hovgaard speculates interestingly as to the origin of Stefánsson's blonde Eskimo and other Central Arctic Innuít who are reported to show signs of white blood. He thinks that an "unwritten chapter may exist comprising the story of the ultimate fusion of the Norse colony with the Eskimos in Greenland and the migration of the resulting mixed tribes to the Arctic continent of America." No doubt this is possible: but certainly there is a great gap between the two regions both geographically and historically. We have to take a flight in the air with no facts to rest on. Also, the obstacles would be very great and there seems no sufficient incentive to encounter them. Again, if, as we are told, the Greenland colonists never exceeded 2,000 people, and if, as the surviving records indicate, they had been dwindling for a long time before final extinction or absorption, the latter process might find a mere handful to operate on. Their progeny might become almost wholly indistinguishable from the mass of Eskimo about them even in the course of a century, and if transplanted to Victorialand or some other distant Arctic region would be even more indistinguishable now. Certainly this line of reasoning is not infallible, for heredity plays strange

tricks and there may be an underestimate in the accepted Norse Greenland census; also other factors, not readily to be guessed, may have entered into the problem. But the burden of proof remains with those who suggest anything so essentially extravagant, however fascinating to the fancy.

Of course any work dealing with these old sagas must present also more or less of the Icelandic side of anthropology. Professor Hovgaard has turned his technical knowledge and predilections to especially good account in clearing up certain difficult questions of early life and navigation. By his careful study and exposition of the drift of the ice between Greenland and the American mainland, the waterway left open up the former shore, the outlets from it and their seasons, we are made to understand better than ever before the sailing directions for reaching inhabited Greenland from Iceland and the wisdom, almost the inevitableness, of Thorfinn Karlsefni's voyage from the Eastern to the Western settlement, before sailing south or southwest to reach a new world. Also Professor Hovgaard's plans of homesteads in Iceland and Greenland, though not absolutely unique, are among the best that have been given, and with the accompanying text, which is based on the painstaking spadework of official Danish archeologists in both settlements of Greenland, must bring the life of those isolated pastoral and fishing communities, with their rather surprising variety of livestock, plainly before the eye of any reader. Yet again, the book contains valuable work in topography: the sketches of several different Icelandic and more eastern Hóps being particularly instructive. Incidentally the one near Karlsefni's home in northern Iceland makes clearer than ever the curious parallel in matters of detail between it and Mount Hope bay; and its page-companion from the Orkneys shows repeatedly the transformation of the word Hóp into the English Hope, fancied by some to have taken place in that Rhode Island instance, passing through the intermediate form Haup, which Munro's "History of Bristol" asserts that the early English settlers found in use by the Indians of the neighborhood as a local name. There is, of course, also an obvious resemblance to a name of Trumbull's dictionary and surviving common use, one form of which is Montauk, though it does not appear that there has been any real connection between the words. But no doubt these parallels are odd and suggestive rather than reliably helpful.

It is plain that we must not accept too confidently the specific statements of even the earlier and less flagrantly unreliable of these saga versions. Historic it is not, unless in the sense that *Ivanhoe* and *Henry*

Esmond are historic; but we must not forget that these latter would be precious and indispensable sources of history if we had nothing else to tell us about their periods. Apparently in the growth of this saga a series of ballad-like poems were turned for the most part into prose and strung on the thread of a brief and business-like ship's-log, embodying some terse notes of what struck the eye. Other episodes were taken from other reminiscent narratives of the voyage of Greenland life and prefixed, interleaved, or appended. It comes down to us in final copying, with slight changes by error or well-meant interpolation. We test this result by its correspondence or lack thereof with what we know to be true and what could not be known in that pre-Columbian time unless originally derived from those who had made the voyage to America by the northern route. Similarly we are able to gather and add a little from the later and more elaborately vitiated Flatey-book text. But it is not safe to treat as conclusive a passing reference to skin boats, or a two days' voyage, or mountains as distinguished from hills, or the failure of fishing at a point said to be never entirely frozen over, or the brandishing in the air of "staves" which may or may not be double paddles. When these or the like taken literally raise a problem it is well to remember that we do not certainly know their origin and abide by the general drift of the description or story.

WM. H. BABCOCK

OCEANIA

The History of Melanesian Society. By W. H. R. RIVERS, F.R.S., Fellow of St. John's College, Cambridge. G. P. Putnam's Sons (Cambridge University Press): Cambridge, 1914. 2 vols. XII, 400 pp., 8 figs., 25 pls., 6 maps; 610 pp., 1 map. (Price \$10.50).

This impressive book constitutes "the first instalment of the work of the Percy Sladen Trust Expedition to Melanesia." It does not embody the results of the intensive investigations undertaken by Dr Rivers and his assistants in the Western Solomons and the islands of Bougainville straits, but is based on the survey work done by the author "during the journey to and from the Solomon Islands."

Volume 1 contains the new *facts* obtained, among which, as might be expected, kinship terminologies from every group or island visited figure prominently. There is a welcome sketch of Tikopian culture, whose close affiliations with that of Tonga are demonstrated in a later chapter (II, p. 234), and considerable new material is offered concerning the Banks islands, especially as regards the club and secret societies.

In this group the *poroporo* custom (p. 46) presents a striking analogy to the joking-relationship of the Crow, Hidatsa, and Dakota Indians, and a corresponding usage is reported from the Reef islands (p. 230).

But, however important may be the additions of fact, they are completely overshadowed by the theoretical discussion that constitutes Volume II, which consists of an elaborate series of arguments purporting to analyze the complexities of Melanesian culture (and indeed of Polynesian, as well) into its component elements and to establish the relative chronology of the constituent layers. It is impossible to withhold admiration for the skill with which Dr Rivers has welded together the most diverse strands of evidence into a consistent fabric of argument in behalf of his scheme and for the unflinching candor and adroitness with which difficulties are exposed only to be overcome. Nevertheless, painfully conscious as is the reviewer of his incompetence in the Oceanian field, he cannot avoid feeling that some other student who shared Dr Rivers's knowledge of this area might construct an argument no less consistent, elaborate, and plausible, yet widely diverging from that here presented. In short, while it would be rash to deny that the author's scheme in its main outlines corresponds to reality, I do not see that this has been demonstrated. At many a particular point alternative interpretations suggest themselves, and thus the scheme as a whole appears as but one of a number of possible solutions of the Oceanian problem.

Since space forbids a thoroughgoing examination a single instance must suffice to illustrate the nature of my difficulties with the author's hypotheses. One of the essential elements of Dr Rivers's scheme is the assumption, admittedly purely hypothetical for Melanesia (II, p. 59), that at a certain period the elders exercised such control as to monopolize all the young women of the community. This assumption is made to explain the practice of marriage between a man and his daughter's daughter (classificatorily speaking). That such a practice existed, is, however, not a matter of observation but of inference from features of the Pentecost kinship nomenclature (II, p. 48). In this system individuals class the mother's mother with the elder sisters; a woman addresses her mother's mother's brother as her brother; the father's mother and the mother's father are classed with the brothers or sisters-in-law; the wife's mother is called child; and the husband of the sister's daughter (woman speaking) is termed father (I, p. 198). In all this I see nothing requiring the assumption that individuals two generations apart were actually united in wedlock. Since a dual organization with matrilineal descent obtains, my mother's mother is my elder moiety-

sister, and her brother is an elder moiety-brother; my father's mother and my mother's father are necessarily of the complementary moiety, hence are moiety-*Geschwister* of my potential mates; my wife's mother must belong to the same moiety as my child; and a woman's sister's daughter's husband will belong to the same moiety as the woman's father. The anomalous features of the Pentecost system are thus explained in the simplest possible manner from known social conditions, viz., dual division with maternal descent. The inference of the practice of granddaughter marriage, solely supported as to actual occurrence by the statement of a native from another group, becomes unnecessary; and accordingly the hypothesis of "gerontocracy" to account for the hypothetical practice is unnecessary.

It is only fair to state that Dr Rivers himself is fully conscious of the provisional character of his scheme. If I appear hypercritical about a particular element of it, it is because Dr Rivers seems convinced that changes in his historical synthesis will be due solely to additional knowledge and not from any change in method. I have therefore ventured to point out by what seems a typical instance wherein I consider the method itself at fault. To put the matter briefly, there is a difference of taste regarding the use of hypothesis inasmuch as Dr Rivers's leaning is toward greater prodigality while I incline to the utmost parsimony as to hypothetical assumptions. Where such assumptions are made, I think they should be based on conditions observed in the culture discussed or at least found among neighboring tribes. The dominance of elders would appeal to me far more if it had been reported from Oceania rather than as an assumption *ad hoc*.

Nevertheless, in the execution of his stupendous task Dr Rivers has succeeded in enriching our science with a host of fruitful ideas and special methods of procedure. His conception of the influence of small bodies of immigrants, of the development through contact of cultural features that had not existed in the fusing cultures; his emphasis on precisely those aspects of culture neglected in Graebner's scheme; above all his insistence on the mechanism by which borrowed features are adopted and assimilated, constitute significant additions to theoretical ethnology and will profoundly affect ethnological thought. Of the more specific interpretations that of quasi-conventionalized art strongly appeals to me. Dr Rivers points out the weakness of the old theory that realistic representations through degeneration become transformed into geometrical patterns: this does not explain why these patterns differ so widely from one another. His own explanation rests on the

influence of cultural contact,—the fusion of a realistic style practised by one tribe with the geometrical style of another (II, pp. 374-383). Finally, Dr Rivers's scheme itself, however skeptical we may remain as to its specific implications, cannot fail to stimulate students to undertake corresponding syntheses for other areas. Taken all in all, *The History of Melanesian Society* must be reckoned one of the most noteworthy ethnological contributions of the last decade.

ROBERT H. LOWIE

PHYSICAL ANTHROPOLOGY

Anthropologische Untersuchungen über die Niasser. J. B. von Kleiweg de Zwaan. Martinus Nijoff, The Hague, 1914. VII, 282 pages, 1 map, 118 figures, 8 diagrams and 26 tables of measurements.

The present monograph forms the second volume of an extended work on the results of a trip of exploration to the Island of Nias, near the western coast of Sumatra, undertaken by the author in 1910. The first volume treats of "Die Heilkunde der Niasser," and Volume III is entitled "Craniometrische Untersuchungen bei den Niassern." The second volume, containing the anthropological observations on the tribes of Nias, is marked by thoroughness and care and can justly be proclaimed a model of its kind.

The Niassers have not been investigated before from a purely anthropological standpoint. The existing data in the way of general description and scientific observation pertaining to the population of Nias are put down by the author in his first three chapters, as well as relevant material collected by himself. This section deals with the native legends as to the descent of the people; with the language, etc.; the geological conditions of the Island of Nias; the general physical characteristics of the Niassers, as well as of the other inhabitants of the Indian Archipelago and Continent. A close relationship of the Niassers to the aboriginal population of the Indian archipelago can with all probability be derived from the different statements.

In order to get as clear as possible a survey of the population of the different parts of the island, the author has made his investigations in the four principal regions corresponding to the four points of the compass. First came the people of the several coastal districts, whence the interior ones were visited. In this way a good many different tribes were traced, of which even the neighboring ones live sharply separated in most of the cases. The northern tribes are said to have immigrated from the south, a belief corroborating the legend of the first settlements in that

part of Nias. Kleiweg has measured 1298 male individuals; unfortunately females, for reasons of decorum, had to be neglected. Only heathen and converted Christians were considered in order to deal with the probably purest blood, Mohammedans being excluded on account of probable Malay crossing.

Chapters IV-XVIII (p. 56-247) contain the author's own careful investigations dealing with the proportions of the body in general; dactyloscopic records; the color of the eyes and hair, and the form of the hair; the form of the head and face; measurements of the body and its parts; measurements of the head and the indices (very detailed); differences between the Southern tribes of Nias and those of other regions; a comparison with the Minangkabau-Malays of the same author; facial casts; strength of the hand; acuity of vision; frequency of pulse; peculiarities of character. He followed the craniometric instructions of Rudolf Martin, also using his instrumentarium, as well as von Luschan's table for skin color, Martin's table for eye color, Collin's dynamometer, and Landolt's optotypes.

The men of Nias are of rather short stature and possess skeletal and muscular systems of moderate or slight development. The coloring of the chest was found almost everywhere lighter than that of the back. It oscillated between nos. 15 and 26 of von Luschan's table. Blue birth-marks (*Mongolenflecke*) occur.

The proportion of loops and whorls of the *Hautleisten-systems* on corresponding as well as on different fingers shows in many respects striking resemblances with Minangkabau—Malays and Europeans. Kleiweg for that reason doubts the diagnostic value of dactyloscopy for anthropological purposes. The coloring of the eyes lies between nos. 2 and 3 of Martin's table, being characterized by a shading of dark brown. A lighter coloring of the eyes as a rule does not coincide with a lighter coloring of the skin. The color of the hair was, in a preponderating number of cases, brownish-black or blackish-brown, its form slightly wavy and in cross-section generally oval. Into ethnological observations as to the manner of wearing the hair, I cannot enter here. In most of the Niassers the forehead and skull are well-arched; faces of a lower and broader type are in the majority. About 50 per cent. of the individuals examined possessed the Mongolian eyelid; as a rule the slit of the eyelid passed laterally upwards. The root of the nose lies rather deep; a broad nasal ridge and thick puffed-up wings are most common. The ridge of the nose is generally straight (64, i. e., 89 per cent.), the rest might be described as concave or convex; the latter type being generally

high and narrow. Prognathism is rather common and is found to a stronger degree in a coarser type of faces. The lobe of the ear (left) was in 97 cases (15 per cent.), entirely joined to the skin of the face, a sign, according to the author, of intellectual inferiority but not of degeneration. The range of variation of the facial characteristics admitted of a separation into a coarser and clumsier and a finer and narrower type, an intermediate one being also recognized. An accurate description of these types is found on page 114 ff. The average height of the body is 154.73 cm., with a range in the majority of the Niassers between 152 and 158 cm.; the total range of variation being from 135-171 cm. The Niassers should not be classified as Pygmies, because their medium height is above 150 cm. Those below this figure the author also does not wish to have regarded as Pygmies, but as a variety of the taller natives. It is a fact, though, that the Niassers belong to the smallest tribes of the Indian Archipelago. The finger-reach of 161.32 cm. points to rather short arms in proportion to the entire bodily height. Direct and relative measurements are quoted for the extremities as well as their subdivisions, the relative ones being compared with those of other civilized and primitive peoples. For several characteristics an intermediate position was determined (for instance as to the relative length of the arms), for some others (*e. g.*, the relative length of the leg or rump) a decided inclination towards primitive peoples was noted. Considering the footprints, one is almost tempted to speak of a tendency toward splay-footedness. In these footprints the lateral margin and the metatarsus are generally quite broad, while the heels on the contrary were small. A striking feature consists in the fan-like spreading of the toes. The average length of the head mounted to 181 mm. (155-201 mm.) the average breadth was 146.1 (120-166 mm.), yielding a cephalic index of 80.72 (67-102). In order to get as accurate a record as possible of this index in consideration of its absolute components (length and breadth), the author divided his heads into small ones, such of medium size, and large ones, in correspondence with the advice given by von Török. It was demonstrated by this process, that the combinations of medium broad, medium long, and broad, medium-long occur most frequently (93.30 per cent.) among the Niassers. Of 1297 heads there are 137 (10.5 per cent.) dolichocephals; 494 (38.07 per cent.) mesocephals; and 666 (51.43 per cent.) brachycephals. These subdivisions of the index are quoted separately also for the different tribes. The form of the face is of interest mostly because of its tapering upwards. This condition is expressed by proper indices. The face is on the average mesoprosopic

(88.56 per cent.), the nose mesorrhin (70.13 per cent.). The comparison between the height of the body and the circumference of the head showed, that the Niassers possess, as a rule, with a greater bodily height (at least up to 160 cm.) a larger circumference of the head. In Chapter XII of his book, Kleiweg attempted a differentiation of his material into types, comparing 20 individuals with either the greatest or the smallest cephalic index, or the index of the nose, or the morphological index of the face, or the greatest or smallest stature, in each case with the remaining data of these four characteristics. The results permitted the conclusion that the Niassers do not form a homogeneous race, their physical characters showing different racial elements. In this way the occurrence of a long, narrow nose in the brachycephals and broad, short nose in the dolichocephals is accounted for. The different observations permitted the specialization of the Southern Niassers, whose bodily height and better-nourished physique are in all probability connected with better and more favorable conditions of life in their specific locality. They also differ in some other characteristics from the rest of the population. A contrasting of Niassers of the South with those of other parts of the island, and with Minangkabau-Malays is carried through by the author in chapter XIII, where we also find the principal results of his investigations as such. The author succeeded on his trip in taking 131 facial casts, 57 of which are from Niassers; all of these are reproduced in phototype. They are a very good means for recognizing the different types described by the investigator. An accompanying list contains names, tribal affiliation, and definite habitat of the people whose casts were taken. A complete list of literature as well as an alphabetical index conclude the text which is supplied with 118 illustrations and 8 diagrams. A model of conscientious work is represented also in 26 comprehensive tables of measurements, giving 48 measurements for every one of 1298 individuals. Precisely these numbers are of permanent value for later monographs on similar or like subjects. The selection of measurements is a very appropriate one. One may properly thank the author for so much painstaking and discriminating work as is manifested in his accumulation of measurement records. A map of the Island of Nias concludes the meritorious second volume of the entire work.

BRUNO OETTINGER

SOME NEW PUBLICATIONS

Boas, Franz. *Kultur und Rasse*. Leipzig: Veit & Co., 1914. Pp. VIII, 256. 1 diagram.

Braungart, Richard. *Die Südgermanen*. Heidelberg: Carl Winters Universitätsbuchhandlung. Pp. xv, 811, 334 ills., 9 pls.

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Cole, Fay-Cooper. *Traditions of the Tinguian; a Study in Philippine Folk-Lore* (Field Museum, Anthropological Series, Vol. xiv, No. 1, pp. 1-226). Chicago, 1915.

Fewkes, J. Walter. *Archeology of the Lower Mimbres Valley, New Mexico* (Smithsonian Miscellaneous Collection, Vol. 63, no. 10). Washington: Smithsonian Institution, 1914. Pp. 53, 8 pls.

Goddard, Pliny Earle. *Sarsi Texts* (University of California Publications in American Archaeology and Ethnology, Vol. 11, No. 3, pp. 189-277). Berkeley, 1915.

Harrington, M. R. *Sacred Bundles of the Sac and Fox Indians* (University of Pennsylvania, The University Museum, Anthropological Publications, Vol. iv, No. 2). Philadelphia, 1914. Pp. 123-262. Plates xx-xl.

Kroeber, A. L. *Serian, Tequistlacan, and Hokan* (University of California Publications in American Archaeology and Ethnology, Vol. 11, No. 4). Berkeley, 1915. Pp. 279-290.

Kleiweg de Zwaan. *Die Insel Nias bei Sumatra. Kranologische Untersuchungen Niassischer Schädel. Mit Anhang: Zoologische Resultate. Mit Karte, 156 Abbildungen und 2 Tabellen*. Haag: Martinus Nijhoff, 1915.

Laufer, Berthold. *Chinese Clay Figures. Part I. Prolegomena on the History of Defensive Armor* (Field Museum of Natural History, Publ. 177, Anthropological Series, Vol. xiii, No. 2). Chicago, 1914. Pp. 69-315, 64 pls., 55 figs.

MacCurdy, George Grant. *The Passing of a Connecticut Rock Shelter* (The American Journal of Science, Vol. xxxviii, December, 1914). Pp. 511-522. 1 plate, 27 figs.

Meyer, Johann Jakob. *Das Weib im altindischen Epos. Ein Beitrag zur indischen und zur vergleichenden Kulturgeschichte*. Wilhelm Heims: Leipzig, 1915. Pp. xviii, 440.

Nelson, N. C. *Pueblo Ruins of the Galisteo Basin, New Mexico* (Anthropological Papers of the American Museum of Natural History, Vol. xv, Part 1). New York, 1914. Pp. 124, 4 pls., 13 figs., 7 plans.

Rivers, W. H. R. *The History of Melanesian Society*. Cambridge: University Press, 1914. 2 vols. Pp. xii, 400; 610. 8 figs., 25 pls., 6 maps; 1 map.

Schraibisch, Max. *Indian Habitations in Sussex County, New Jersey* (in *Geological Survey of New Jersey, Bulletin 13*, pp. 1-73, 5 pls., 4 figs. Union Hill, N. J., 1915).

Shufeldt, R. W. *America's Greatest Problem: the Negro*. Royal 8°, F. A. Davis Co., Philadelphia (1914-16 Cherry St.), 1915. 377 pp., 50 half-tones. (Price \$2.50 net.)

Sibree, James. *A Naturalist in Madagascar*. Philadelphia: J. B. Lippincott Co., 1915. Pp. 320, 52 ills., 3 maps.

Skinner, Alanson. *The Indians of Greater New York*. Cedar Rapids, Iowa: The Torch Press, 1915. Pp. 150. 1 map.

Sollas, W. J. *Ancient Hunters and their Modern Representatives*. Second Edition. The Macmillan Company (66 Fifth Ave.): New York, 1915. Pp. xxiv, 591. 2 pls., 314 ills. (Price \$4.50.)

Spier, Leslie. *Indian Remains near Plainfield, Union Co., and along the Lower Delaware Valley* (in *Geological Survey of New Jersey, Bulletin 13*, pp. 75-99, 3 figs. Union Hill, N. J., 1915).

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Spence, Lewis. *The Myths of the North American Indians*. New York: Thomas Y. Crowell Co., 1914. Pp. xii, 393. 32 colored pls., 1 map.

Williams-Freeman, J. P. *An Introduction to Field Archaeology as illustrated by Hampshire*. London: Macmillan & Co., 1915. Pp. xxii, 462. 8 ills., 15 pls., many plans.

DISCUSSION AND CORRESPONDENCE

ORAL TRADITION AND HISTORY

THE symposium articles in recent issues of the *American Anthropologist* and the *Journal of American Folk-Lore* were designed to give foreign attendants at the Nineteenth Session of the Americanist Congress a summary of the work that has been accomplished in North America and a convenient introduction to the points of view held on this side of the Atlantic. This was especially desirable since American scholars have as a rule eschewed a presentation of general results and have often buried important theoretical results amidst a mass of concrete field data. The very fact that the papers in question represent the first synthetic attempt on a large scale harbors, however, a serious danger. It is possible and even probable that our foreign colleagues will view the articles more seriously than do the authors and will mistake individual judgments for the consensus of American opinion.

As one of the collaborators I am especially eager to remove the atmosphere of finality that bids fair to invest the symposium. So far as my own contribution is concerned, I must confess that my views as to the end of ceremonialism are by no means shared by other ethnologists. Conversations with a number of fellow-workers have convinced me that my conception of ceremonialism is generally considered distinctly, nay hopelessly, one-sided. Indeed only in a single quarter have I encountered whole-hearted sympathy with my position. I earnestly desire that this criticism shall be made publicly and that it may inaugurate a thoroughgoing discussion of the subject. In the hope of stimulating an exchange of opinions on all of the topics dealt with I present the following remarks on one of the essays.

In their paper on "Primitive American History" (*American Anthropologist*, 1914, pp. 376-412) Drs Swanton and Dixon start from the sound position that an objective classification has historical significance, and since the only available classification is based on language they take their point of departure from the accepted linguistic grouping. In the further discussion of the history of tribal divisions of these larger stocks they attach great importance to native traditions. It therefore seems unfortunate that they have avoided a discussion of the relations of oral tradition to history. The preliminary statement, that traditions "al-

though sometimes noncommittal and frequently misleading, gain in weight when recorded by several different persons and when taken in connection with other data," hardly supplies this deficiency since in practice the authors repeatedly use the native statements of origin and migration when other data in the shape of ethnological, linguistic, or archeological information are not available or are at least not cited. We require therefore some light on the question whether tradition as such supplies historically valuable data.

The important thing to keep in mind is that the question before us is not a metaphysical one, but a question of method. We are not concerned with the abstract possibility of tradition preserving a knowledge of events; we want to know what historical conclusions may safely be drawn from given oral traditions in ethnological practice. And as regards this purely methodological question I can only say, in substantial agreement with views expressed by Dr P. E. Goddard and more recently by Dr Sidney Hartland ("On the Evidential Value of the Historical Traditions of the Baganda and Bushongo," *Folk-Lore*, xxv, 1914, pp. 428-456), that I cannot attach to oral traditions any historical value whatsoever under any conditions whatsoever. We cannot know them to be true except on the basis of extraneous evidence, and in that case they are superfluous since the linguistic, ethnological, or archeological data suffice to establish the conclusions in question. When linguistic comparison has proved the close affinity of Crow and Hidatsa, the tradition of a common origin shared by the tribes speaking these languages does not lend to the result one iota of additional certainty. Where "other data" are lacking, the use of the oral traditions for historical reconstruction must be discountenanced as a matter of obvious methodological caution. We cannot safely reject as mythical that part of a tradition which conflicts with our conception of physical possibility and retain the remainder as correct. The Nez Percé account of how this people first secured horses (*Journal of American Folk-Lore*, xxi, 1908, p. 158) contains nothing irrational, yet, as Dr Spinden has pointed out, it grossly misrepresents events barely more than a hundred years old. We can hardly do better in testing the historical sense of natives than to select some recent historical event, such as the acquisition of the horse, and note how native memory has preserved or failed to preserve knowledge of it. When we find, for instance, that in an Assiniboine creation myth the hero-trickster makes the earth, regulates the seasons, and creates men and horses in practically a single breath, while the Hopi represent Spider-woman as creating the burro, we may well be skeptical

as to historical reconstructions from native statements. It may be, of course, that tribes differ immensely in point of their historical sense; it may be that they preserve accurately events other than those of interest to us, as indeed seems clear from the calendar counts of Plains tribes. But in the latter case the assumed native "history" is not history in our sense any more than the fact, even if true, of my neighbor's cat having kittens is history; and as for tribal differences, what criteria have we for estimating them solely on the basis of the traditions? From the traditions themselves nothing can be deduced. When different observers record the same account in the same tribe it may simply show that the quasi-historical account is part and parcel of the tribal lore; if it is supported by traditions of other tribes, it may simply point to the diffusion of a myth, a well-known phenomenon in ethnology. The utmost I am able to concede is that a tradition referring to the remote past may furnish a starting-point for linguistic, archeological, or other investigations; but our knowledge of native *history* will in the end depend wholly on the result of these inquiries.

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DR. DIXON'S REPLY

THERE are two points that I should like to raise in connection with Dr Lowie's criticism of the paper recently written by Dr Swanton and myself on "Primitive American History." The objection is made that in the paper we have relied unduly on origin and migration traditions where other data are not available or are not cited, and that there was not included in the paper a discussion of the "relations of oral tradition to history." In the space at our disposal it was quite impossible to give in detail the data on which our conclusions were based or even to cite much of the evidence considered. Wherever possible all evidence, of whatever sort, was taken into account. This same limitation of space made it seem unnecessary to enter into the discussion of the general question of the relative value of oral tradition. The purpose of the article, as we understood it, was to give a summary of the present status of the problem of the history of the Indian tribes of North America; it did not seem any part of our task to indulge in speculations on the philosophy of history or general questions of historical method.

Dr Lowie states emphatically that he does not "attach to oral traditions any historical value whatsoever under any conditions whatsoever." Such a statement is quite amazing, and it hardly seems possible that it was intended to be so extreme. That oral tradition is,

as in the instances Dr Lowie quotes, sometimes grotesquely inaccurate is well known; that it is sometimes extraordinarily accurate and often generally correct is equally a matter of record. Absolutely unqualified statements like that of Dr Lowie's are usually dangerous.

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DR. SWANTON'S REPLY

THE point raised by Dr Lowie is one deserving consideration. I think, however, that he has made a misstatement in the first instance by saying that Dr Dixon and I "repeatedly use the native statements of origin and migration when other data in the shape of ethnological, linguistic, or archeological information are not available or are at least not cited." As a matter of fact, the number of cases in which we depend solely on traditional evidence is small.

As to the value of traditional evidence itself my experience may be different from that of Dr Lowie. It is true that much of that evidence is unreliable but in one particular I have found a very considerable measure of reliability, viz., as to the region, or at least the direction, from which the tribe came. I am not here referring merely to testimony drawn from myths or migration legends but to the opinion current in the tribe or shared by the older members of it. On the basis of my own experience, I would say that in the cases which we can check up the supplementary evidence confirms the tradition about nine times out of every ten. In cases which we cannot check up we therefore find a preponderance of probability that the tradition of origin has a historical basis. At least I consider the statement "I cannot attach to oral traditions any historical value whatsoever under any conditions whatsoever" unwarrantable, as unwarrantable as if I should say "I cannot attach to resemblances based on anthropometric measurements any historical value whatsoever under any conditions whatsoever."

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INTERPRETING CEREMONIALISM

EVOLUTIONARY theory has worked for harm as well as for good in ethnology. Its career began virtuously enough in routing out both the religious and the rationalistic¹ theories of social origins; but then, arro-

¹ Rationalistic, juridical theory was driven back, but perhaps hardly routed. For in the explanation of society as a bed of fossilized customs, any practice, however grotesque, may be assumed to have been reasonable when it originated, a compromise that has made the theory of survivals fairly acceptable to the legal mind.

gant and over-ambitious, it bullied scientists as well as publicists into the belief that its offspring, the theory of social survivals, was a master key to all sociological locks. And yet many customs which have come to be explained as mere relics of the past can be understood far better as vital expressions of contemporaneous psychoses. I refer in particular to the customs I take to be ceremonial expressions of our chronic aversion to adaptation, to changing our habits.

Deep and abiding as our aversion to change may be, it has at times to be overcome. The facts of age and of sex, of roaming and of death, have to be met. Despite our ingenuity, we do grow up, we grow old, we fall in love, we fall out of love, we leave home, we die. These changes in our circumstances we dodge to be sure, as well as we can, ignoring them or the prospect of them from day to day, and for more or less considerable periods. Instead of acknowledging them as they occur or appreciating their imminence, we wait until they have us by the throat. Then all of a sudden there is a capitulation. It is announced to the world that we have come of age, that we have become a man, that we are "coming out," that we are mating, that we have borne a child, that we are divorcing, that we are setting out on our travels, that we are bereaved by death.

The announcement and the other ceremonies accompanying it, the *télète*¹—birthday and anniversary rites, initiation rites, weddings, farewells, funerals—are sometimes a formal protest against the inevitable change or adaptation, mere ceremonial bluster; but more often they are a balm for the perturbation aroused by the change, a kind of shock absorber. They divert our attention from the subjective adaptation to the objective, from introspection or observation of the other's personality to consideration of material, impersonal things, and most important of all, from the change as one to be met individually to one to be met collectively. It is a support to realize that others have gone through with it before. It gives all a reassuring sense of solidarity, of participation, the support of numbers. Epochal ceremonial also gives us a sense of assurance that the change is made once for all and that the more final the break with the past the more settled will be the future. It is the uncertainty which is wearing, and disquieting enough to give one a sense

¹ Very significant is this Greek word, *télète*, for rite. It comes from a root meaning "to grow up," but it was applied not only to initiation at puberty, but to weddings, to funerals, to all "mysteries." As Dr Harrison points out, the term indicates the two factors of any rite, "the putting off of the old, the putting on of the new." (*Ancient Art and Ritual*, p. 112. New York and London, 1913).

of danger. That is why in times of recognized change, in crises, at birth, at adolescence, at marriage, during illness, at death, evil spirits are supposed to be abroad and bent on harm. Hence, much of epochal ceremonial has to do with the exorcising or placating of evil spirits and, supplementarily, with the enlisting of spirits who are benevolent and helpful.

Our fear of change is back not only of supernatural practices at critical times but of endless taboos, at these times and all the time. These taboos are concerned for the most part with social relations, for our habits are most readily upset by the habits of others, our personality most influenced by theirs. Personal contacts are therefore dangerous, alarming, to be safeguarded. And yet gregarious creatures as we are, we crave them. Taboos of personal isolation, taboos on intimacy, conventionalities we call them when we begin to question them, are our way out, our way of reconciling the instinct of gregariousness and the instinct for routine, our longing for one another and our dread of change.

The taboos of personal isolation have led observers to posit an original individualism which society has had to overcome. But do not the taboos of personal isolation, the bulk of conventionalities, arise almost wholly between persons who are unlike in type and whose conformity to type is imperiled in each case by the unlikeness of the other? They avoid each other or raise up barriers against each other merely because they are unlike. Intolerance of an unlike type is a collective, not an individualistic, expression.

With the passing of the fear of change, contact with the unlike in type will not be dreaded. Tolerance for them will develop. Nay, even individualism, the departure from any type, may be welcome, the play of personality upon personality becoming of social concern. Now, once absorbed in the problems of personality, we shall be in danger of losing the psychological clue to ceremonial. Are there not today funeral rites and mourning practices whose meaning is obscure? The lines between age classes have become faint enough to make puzzling the some time importance of adolescence and initiation celebrations. As for marriage ceremonial, the meaning of much of it is already lost, and when mating becomes the personal matter it promises to be, a wedding will be more than ever an enigma. Some day there will be no such opportunity as I had a while ago to puzzle out its significance. I happened to be present in Boston at a family council to determine whether or not the little son of a remarrying widow was to attend her wedding. The argument

ran entirely along the lines of whether the ceremony would be a shock to the boy or a shock absorber. The mother wanted him to be present. "Since there is to be an abrupt change in my boy's life," urged she, "I want the ceremony to be a pleasant occasion for him, and it will be." The paternal grandmother took the opposition. "Your marriage will be a shock to him," she said, "let him learn of it little by little. Since you are going away, he need not hear of it at once." "It will be a shock," said an uncle, "but better let him have it all at once, get through with it."

To sum up, ceremonialism, and I have been referring merely to epochal ceremonialism, is not so much a bed of fossils, of relics of moribund custom, as a living manifestation of aversion to change. To primitive and modern alike, ceremonial is a shock absorber, a mitigating diversion from the change become inevitable. The crisis view of change has begun, however, to pass out; under the compulsion of our new concepts of personality, change is being met as it occurs. The time may come when life will give no clue to ceremonialism, ceremonialism having passed out of life. Then it will not be a question of tracing back a ceremonial fragment to its ancient bed, a childish puzzle, but a question of psychological diagnosis made extremely difficult by its detachment from current experience. A dying out type of psychosis may be in even more urgent need of description than a dying out people.

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BLACKFOOT RELATIONSHIP TERMS

IN attempting to use extant collections of terms of relationship for a comparative study of Algonkian tribes, we reap the result of the former lack of interest in this subject in the form of inadequate and conflicting data. In general, the information given by investigators for individual tribes is scanty, ambiguous, and otherwise at fault. The schedules usually include only relatives in the immediate family of the person using the relationship terms, the cousins and their children being most frequently ignored, and few discriminations due to the sex of the speaker are recorded. The most comprehensive body of data, that of Morgan in his "Systems of Consanguinity and Affinity of the Human Family," containing palpable errors, apparent contradictions, and frequent omissions, is presented in an atrocious form, such that it discouraged subsequent research in this field. Only in the belief that it may stimulate the acquisition of new material for the correction of the old, and to place on record for the convenience of field-workers the form of an Algon-

kian system, have we presumed to redescribe the Blackfoot relationship systems recorded by Morgan, Wissler, and others.

The Blood and Piegan systems present features of considerable comparative interest. As is commonly the case among Algonkian tribes, we find in both systems that in the ascending generations, beginning with that of the grandparents, relatives are distinguished only on the basis of sex (males: Blood; *nā-ahxs'*; Piegan; *nā-ah'-sā*; females: Blood; *ne-tā'-ke-ah'xs*; Piegan; *ne-tā'-ke-āse*), while all the members of the generations of the grandchild, greatgrandchild, etc., are merged in one group (Blood: *nee-so'-tān*; Piegan: *nee-so'-tan*).

Such is their phonetic similarity that there is probably an identity of the terms for father's sister, father's brother's wife, mother's sister, mother's brother's wife, and stepmother (Blood: *ne-to'-lahxs*, *ne-to'-lah'xs*, *ne-to'-toax-is*; Piegan: *ne-to'-larse*, *n'-to'-tox-is*), leaving a special term for mother (Blood: *nee-crist'*; Piegan: *noex-isl'*). A second group is comprised of father's brother, mother's sister's husband and stepfather (*ne-to'-to-mā*), and, corresponding to the first case, a special term is applied to father (Blood: *nin'-nā*; Piegan: *nin*). The third group that is usually found in an Algonkian system is here treated in an unusual way. For the Piegan, Morgan records a term for mother's brother and father's sister's husband (*ne-to-lah'se'*) which may be phonetically related to that for the father's sister group, but according to Wissler the term applied to these relatives is that for elder brother (*nī'ssa'*) and Morgan finds this same feature among the Blood. Morgan recognizes this feature as an anomaly found only among the Crow, Hidatsa, and Blackfoot; but he adds that among the last it is not the usual form of relationship. These groupings are decidedly unusual in view of the fourfold classification of these relatives as "father," "mother," "uncle" and "aunt," based apparently on an exogamic grouping, which appears in the Arapaho, Gros Ventre, Cree, and Ojibwa¹ systems, although it is true that the last two peoples do have specific terms for father and mother.

Another group of classificatory features equally illustrative of the differences between the tribal systems may well be introduced here. While among the Piegan both sexes designate the father-in-law by a distinct term (*ne-tā'-so-ko*) and the mother-in-law by that for grandmother, a Blood man designates these persons as grandparents, and a

¹ While there is no such thing as "the Ojibwa system" (we have at hand six schedules collected among these people exhibiting morphological differences), the features used here for comparative purposes represent the general structure of such a system.

Blood woman, as father and mother. In both systems there are distinct terms for husband (Blood: *no'-mā*; Piegan: *nome*) and wife (Blood: *ne-toh'-ke'-man*; Piegan: *ne-to-ke'-man*; cf. man's brother's wife: *n'-do'-to-ke-man*). Both men and women apply the same term to the stepbrother (Blood: *ne-to'-toase*; Piegan: *ne-to'-to-pā-pe*), but although the Blood class the stepsister with the stepmother, the Piegan designate her by a distinct term (*n'-to'-to-kame*).

Quite as unusual as the classificatory features outlined above, but fortunately more susceptible of comparative study, are the terminological groupings in the speaker's own generation. Only in this generation do we find an age factor as a basis of classification. The father's brother's son and mother's sister's son, as well as the speaker's own brothers, are termed elder or younger brothers (Blood: *nīs'-sā*, and *nīs-kun'*; Piegan: *neese-sā*, and *nīs-kun'-ā*); while the daughters of father's brother and mother's sister are classed with own sister as elder or younger sisters (*nee'-hīs-lā*, or *nee-mīs'-lā*, and *ne-sīs'-sā*). For the Blackfoot proper, however, Tims notes that there is but one term applied to younger brother or younger sister, the usual feature in Algonkian systems; but men and women use different terms for this relationship (*nēs kân'* and *nī sīs' sa*). All this is readily comprehensible, but not so the grouping of cross-cousins. Among the Blood, we find that a man uses a distinct term (*noh'-sā-kīn'-ame*) for his male cross-cousin, this differing from that employed by a woman (*no-in-nā*): a man designates his mother's brother's daughter by a term (*ne-lā-kame*) which may possibly be phonetically related to the Piegan term for stepsister (*n'-to'-to-kame*), while a woman calls the same person elder or younger sister. Among the Piegan, however, while a man calls his male cross-cousin by one term (*n'-to'-tes-lā-mo'*), a second term (*ne'-lā-kame*), possibly related to that for stepsister, is used for his father's sister's daughter, and a third term (*n'-do'-to-ke-man'*) used for mother's brother's daughter is also that for wife's sister.¹ A woman speaking of the same persons designates the first by the third term above, the second as elder or younger sister, and the third by a distinct term (*ne-wā'-toase*) which is probably identical with a Blood man's term for his sister's son (*no-ā'-toase*).

Before appealing to a comparison with other tribal systems for an explanation of these seeming anomalies, we shall do well to consider two other groups of classificatory features. The first group is that of relationships of affinity in the speaker's own generation. Among both

¹ In this connection we may note with Rivers that the terms for brother- or sister-in-law are often phonetically similar to those for cross-cousins.

Blood and Piegan, a man classes together the wives of all his cousins with those of his own brothers (Blood: *ne-to'-to-ke-man*; Piegan: *n'-do'-to-ke-man'*), and to these a Piegan adds his wife's sister. Further, according to Morgan, a Blood man applies to his wife's brother's wife the term for elder brother! In both tribes, a man classes his wife's brother with the husbands of his cousins and that of his sister (*nis-tā-mo*), and among the Blood, with his wife's sister's husband. With a Blood or Piegan woman speaking, a similar classification is made of her husband's brother and the husbands of her cousins and sisters (*ne-to'-to-yome*); to these, however, a Blood woman alone adds a wife's sister. One important feature in which the woman's system in both tribes differs from that of a man is that of applying to a husband's sister, husband's brother's wife, and the wives of her cousins and brothers, the term used by both men and women for the wives of their own sons and those of their brother's and sister's sons (*nee-mis'*).

Equally significant from a comparative viewpoint is the second group of classificatory features in the generation of the speaker's children, where the Blood system again differs from the Piegan, although in each tribe we find a threefold grouping. First considering the usage when a man speaks, we find in both tribes the inclusion with the sister's son (Blood: *no-ā'-touse*; Piegan: *n'-do'-to-yose*) and sister's daughter (*nee-mis'-sā*) of all children of female blood relatives of the speaker's generation. Corresponding to this grouping, we find that children of male blood relatives of the speaker's generation are classed as son (*noh'-ko'-ā*) and daughter (*ne-tan'-ā*) by the Blood, but as stepson (*n'-do'-to-ko*) and stepdaughter (*n'-to'-to-tun*) by the Piegan. Finally, separate designations are used for stepchildren (male: *ne-to'-to-koh'-a*; female: *ne-to'-to-tun*) by the Blood and for children (male: *noh''ko*; female: *ne-tan'-ā*) by the Piegan. In both tribes we find that these categories are reversed when a woman speaks, for then the terms previously applied to the children of male relatives are applied to the children of female relatives, and vice versa.

It is evident that the conceptual complexity of these systems has been materially increased by the errors and omissions in Morgan's schedules. It is unfortunate that Wissler's data, in "The Social Life of the Blackfoot Indians," and Uhlenbeck's remarks on the same, are too inadequate to throw light on apparent discrepancies, and that no material is available from the Blackfoot proper. Added to our difficulties is the fact that Morgan's orthography is execrable, and that until material is forthcoming from a new source, even the main classificatory features of these systems will remain in doubt.

Whether we are to regard many of these peculiarities as discrepancies or with some of the major terminological groupings as criteria of tribal differences, cannot be answered by an appeal to these data alone. In the absence of direct corroborative data, we may be permitted to extend our comparison to the neighboring tribes, and to interpret the systems of the Blackfoot tribes in the light of other relationship systems. Whereas we find that the Ojibwa and Cree distinguish cross-cousins from a group comprised of own brothers and sisters and the children of the speaker's father's brother and mother's sister, the Arapaho and Gros Ventre group all cousins with brothers and sisters. As we have seen, both Blood and Piegan have a dual division of the members of the speaker's generation, resembling the Ojibwa in this classificatory feature, yet certain of the cross-cousins are designated as *geschwister*. Further, our comparative viewpoint is legitimized by a feature common to all of these tribes; regardless of the manner in which cross-cousins are designated, their spouses and their children are classed as though those of the speaker's brothers and sisters.

There remains one other way in which we may regard these apparent discrepancies. Although Morgan gives no evidence that would warrant the supposition, it may be that he has recorded for the several tribes non-corresponding pairs of alternative terms for a given relationship. Such alternative designations, and their relative degrees of use, have been recorded for some of the Siouan tribes. In this connection we note that Uhlenbeck alone records special forms for terms in allocution, which is interesting since vocative and non-vocative forms are found among the Sioux. What effect the use of certain terms as nicknames or terms of endearment may have had in shaping relationship terminology is another point on which our data throw no light.

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ERRONEOUS INTERPRETATION OF THE "TEARS GREETING"

IN the Sloane collection of the British Museum are preserved some aquarelles representing scenes of Brazilian Indian life. The whole codex bears the title: "Drawings of Indian Dresses, Chinese Buildings," etc.

The first of the above-mentioned aquarelles, on folio 29 of the codex, size 44 by 28 cm., is accompanied by a manuscript note of the chief of the manuscript department saying:

"The ceremony of cutting the arrow of the dead person who has no further use of it."

The picture, however, is a graphic representation of the so-called "tears greeting" of the Brazilian Indians, a very strange custom and, of course, contrary to our feelings.

At the arrival of any stranger, and even of a member of their own family or tribe, he was received by men and women and taken to the hut, where he was offered a hammock to lie or sit upon. Three or more nude women in the position as shown in the pictures (fig. 97) were crying

and lamenting all the sorrows and perils the person had, or also had not, during his journey. This ceremony, difficult to understand, took half an hour and often longer. Following the Indian etiquette, the person welcomed or greeted in such a curious way had to keep silent and cover his face with both hands during the whole ceremony, which stopped only at the order of the chief. Then the women brought some food and drink, and the ordinary conversation began just as if nothing singular had happened.



FIG. 96.

The picture (fig. 96) is one of the oldest known graphic representations¹ of this custom; and it was published for the first time in 1578 in John Lery's "*Histoire d'un*

Voyage fait en la terre du Bresil, autrement dit Amerique" (Génève) in "*Revista do Instit. Archeol. e Geograph. Pernambucano*." Rodolpho R. Schuller "*A saudação lacrimosa erroneamente interpretada*" in "*Revista Americana*" Anno IV Outubro a Dezembro. Nums. 10 a 12. Rio de Janeiro, 1913, pp. 161-163.

The second aquarelle of the mentioned manuscript collection bears a note as follows: "Indians of Brasile lamenting their dead friend lying in a Cotton hamac."

It is needless to explain, that this picture also represents the "tears greeting" and it was published for the first time by Andres Thevet in his "*Les Singularitez de la France Antarctique*," Paris, 1558, p. 85 v.

This is the first known graphic representation of that strange custom. In both pictures is represented the "tears greeting" as it was used among the Tupinamba, a sub-tribe of the great Tupi-guarani family of Eastern Brazil.

¹ Reproduced also by Alfredo de Carvalho, *A saudação lacrimosa*, Perucunbuco, Recife, 1906.

The most characteristic feature of the picture (fig. 97) is the feather ornament on the back side of the Indian in the lower left corner. This ornament by itself would reveal to what linguistic and ethnological stock of Brazil these Indians belong.

Such an ostrich feather ornament, as far as I know, in former times in Eastern Brazil only used by the southern and eastern Tupi-guarani.¹



FIG. 97.

The knife on a string hanging down on the back side of the same Indian reminds one of that small one carried in the same way by Caxinawa, Kunibo Caxibo and other tribes of the Pano-aruac stock of the River Ucayali basin in Eastern Peru and adjoining regions of Brazil.²

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¹ See the "Brasilianus" fol. 36 of "Omnium fere Gentium," etc. Antwerp, Beller, 1572. Boemo, "Omnium Gentium Stores, Leges et Ritua," etc. Venetia, MDLXXXII. Cf. Frontispiece of the "Hist. Nat. Brasiliae," etc. Amsterdam, 1658.

² For references see: Toão Capistrano de Abreu, "Ratxa huni kui" (The Nice Language). Rio de Janeiro, 1913, II edition, complete.

PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

Meeting of October 21, 1914

At the 475th regular meeting of the Society, held October 21, 1914, in the Public Library, jointly with the Medical Society of the District of Columbia, Dr D. S. Lamb, of the Army Medical Museum, editor of *Washington Medical Annals*, delivered an address on "Sanitation in Ancient Civilizations." An audience of 169 persons attended.

DANIEL FOLKMAR, *Secretary*

Meeting of November 3, 1914

At a special meeting of the Society held November 3, 1914, at the Public Library, Dr J. Walter Fewkes, of the Bureau of American Ethnology, read a paper on "Vanished Races of the Caribbean," using lantern slides to show characteristic artifacts found on different islands. About 235 persons were present. The lecturer said that while it has been frequently stated that there are some races of men without history, by this must be meant that they have no written history; for every race has had a cultural development worthy of study even if it has not been recorded in writing. Its earliest steps in culture, those taken before the development of written history, can be traced by a study of its archeology, and are important even though they represent only a small segment of its evolution. One of the most instructive aboriginal types of man in prehistoric America is that which in pre-Columbian times inhabited the West Indies, extending from Trinidad on the coast of South America to Cuba, a few miles south of the peninsula of Florida. These aborigines may be regarded, from the cultural point of view, as members of a vanished race, for, with the exception of very incomplete historical accounts and a few highly modified living survivors, archeological remains are all that is left from which to determine its culture. A study of this limited material shows that the Antillean culture belonged to the stone age, and while it had attained a considerable development it was quite unlike that of any other area in the New World. It is taken for granted that these islands were originally peopled from the neighboring continent, and it is probable from the peculiar types of stone objects

which occur on the islands that the culture they represent originated where it was found. In other words, the aborigines of the West Indies developed a cultural center distinct from that of any other region in the world. There are archeological evidences of a division in this culture into two types, one of which existed in the Greater Antilles and the other in the Lesser, or the so-called Carib islands. Each of these had minor divisions, which also differed in details, although both had the same general character. The two larger divisions differed mainly in the forms of stone implements, pottery, and other artifacts. For instance, ninety per cent. of the stone implements of the Greater Antilles have the form of celts pointed at one end without grooves for handles, while the large majority of implements from the Lesser Antilles are axes with blunt heads. Some of the latter have encircling grooves for the attachment of handles, while others are notched on the edges for the same purpose. This difference in the culture of the aborigines in the northern and southern islands was noticed by Columbus and is repeatedly spoken of by the early chroniclers, his immediate successors. The inhabitants of the Lesser Antilles were early designated by the name of Caribs, while those of the larger islands were called Arawaks. The main difference in the characters of the two peoples was recognized and described by early writers.

The Caribs were not the original inhabitants of the islands where Columbus found them. They were preceded by an agricultural people whom they had conquered in pre-Columbian times. There is evidence showing that originally all the islands from Cuba to Trinidad had a highly developed population which had been absorbed by Caribs in the southern islands but still persisted in the Greater Antilles. The former home of the earliest inhabitants of the West Indies is unknown, but certain facts point to the conclusion that while the remote ancestors of the aborigines of the Lesser Antilles came from South America, those of the Greater Antilles were from Central America. This difference of ethnic origin no doubt led to differences in culture, each modified in its development by its environment.

DANIEL FOLKMAR, *Secretary*

Meeting of November 17, 1914

At a meeting of the Society, held November 17, 1914, in the Public Library, Rev. Dr John Lee Maddox, Chaplain in the United States Army, read a paper on "The Spirit Theory in Early Medicine," based in part upon a large paper submitted as a thesis at Yale University. After

stating the general primitive theory, still more or less prevalent among the uneducated, that disease and death are abnormal, the work of malevolent spirits or of witchcraft, he undertook to show that many of our modern medical practices and remedies are the direct descendants of old-time methods and drugs intended to cure the patient by driving out the evil disease spirit through fear or disgust. According to this theory, bitter medicines originated in the revolting doses administered by the primitive medicinemen in order to disgust the disease demon with his human habitation; massage originated in the beatings and poundings through which the evil spirit was frightened out of the patient's body; and bleeding and cupping, as also trephining, were originally intended to facilitate its exit. Through long centuries of experience, even with an incorrect theory, it was found that certain drugs and remedies had a beneficial effect upon disease conditions indicated by certain symptoms, and that gentle massage and limited blood letting also might be helpful. Thus the correct practice developed long before the correct theory. As examples of recognized standard remedies derived from Indian doctors, he instanced ipecac and quinine and traced their history from their first introduction to European medical notice until their final acceptance. The paper was discussed by Dr Fewkes, Dr Moore, Dr E. L. Morgan, Mr Mooney, and others. Dr Fewkes drew illustrations from the Hopi Indians, Mr Mooney from the Cherokee, and Dr Moore from the St Lawrence Island Eskimo.

DANIEL FOLEMAR, *Secretary*

Meeting of December 1, 1914

At the 478th meeting of the Society held December 1, 1914, in the Public Library, Dr George S. Duncan, of Johns Hopkins University, delivered an address on "The Sumerian People and their Inscriptions." About 140 persons were present. The land between the lower Tigris and Euphrates in very ancient times was inhabited by a non-Semitic people called Sumerians. Their oldest inscriptions considerably antedate 3000 B.C., but the beginnings of Sumerian civilization are far older than any inscriptions. The Enlil temple in Nippur dates back probably to 6000 B.C. Semites from Arabia conquered the Sumerians and by 2100 B.C. ruled over the whole land from Babylon as the capital. Of the Sumerian cities only Lagash and Nippur have been thoroughly excavated. These have yielded most important finds.

The Sumerians had a pointed, narrow nose with a straight ridge and narrow nostrils. The cheek bones were high, the mouth small, the lips

narrow and finely rounded. The lower jaw was very short, the pointed chin not extending far forward. The eyes were almond-shaped. The forehead was rather low and extended far back from the root of the nose. The face was flat, and the head short. The head and face were shaved. The people were apparently short in stature and thick set. There is a general agreement that the Sumerians were neither Semites nor Indo-Europeans. A majority of scholars would class them among the Mongolians.

Sumerian is an agglutinative language. The only garment worn by the Sumerians was a rough woolen skirt fastened around the waist by a girdle. Agriculture was a common occupation. Great crops of cereals, such as wheat, barley, millet, and vetches, were grown. The chief fruit tree was the date palm. Many persons were employed as fishers, hunters, weavers, fullers, dyers, brickmakers, potters, smiths, carpenters, boat-builders, goldsmiths, jewelers, sculptors, and carvers in wood and ivory. The learned professions included priests, teachers, librarians, scribes, publishers, notaries, physicians, astronomers, and musicians. The country was divided into a large number of city states ruled by kings. The oldest Sumerian art is very crude. The highest artistic development was reached about the age of Gudea, circa 2600 B.C. The Sumerians were very religious. The three chief divinities were Anu, god of the sky, Enlil, god of the earth, and Enki, god of the water. The Sumerian religion was a kind of nature worship. The temples consisted of a complex of buildings, the most prominent part of which was the temple tower, a solid structure either in the shape of a square or a parallelogram rising in platforms, one above the other. The temples seem to have had departments for religion, business, administration, law, education, and a library. The priests were the learned men of the time. There were orders of priests and priestesses. The inscriptions of the Sumerians mainly consist of historical records, laws, contracts, epics, and various kinds of religious texts. The oldest records of a paradise, a fall, and a flood are found in Sumerian tablets.

DANIEL FOLKMAR, *Secretary*

Meeting of December 15, 1914

THE 479th meeting of the Society was held Tuesday evening, December 15, 1914, in the lecture hall of the Public Library. The speaker of the occasion was the distinguished German scholar, Geheimrat Prof. Felix von Luschan, director of the Museum für Völkerkunde in Berlin and for a number of years in charge of the archeologic excavations

carried on under the auspices of the German government in Asia Minor. Doctor von Luschan had been a delegate in attendance at the Australian meeting of the British Association in September, but owing to the outbreak of the war has been compelled to make a somewhat extended stay in this country before endeavoring to return home. He is utilizing this time in a study of race mixture in the American negro, having already visited for this purpose a number of points in the southern states, including Tuskegee, and traced out for future analysis several hundred pedigrees of mixed Afro-American origin. He is accompanied by Mrs von Luschan, who is herself a competent authority and an efficient helper in his anthropological investigations.

In his lecture before the Society, Doctor von Luschan chose for his subject, "The Excavation of a Hittite Capital," dwelling chiefly upon his work at Boghaz-Keui, the site of the capital of the ancient empire of the Hittites, who, fifteen centuries before the birth of Christ, occupied the central portion of Asia Minor and for hundreds of years held the balance of power between Egypt and Babylonia, until finally overthrown by Sargon, King of Assyria, in 717 B.C. They were variously known as Hethlites, Hittites, Hatti, Khiti, etc., and, from their sculptures, appear to have been a broad-headed people of rather short stature and irregular features, of the physical type represented by the modern Armenians, although their linguistic affinity is not yet established. Their inscriptions are recorded both in hieroglyphic and in cuneiform characters. Their sculptural art is crude but strong, the winged lion, winged sun, and double eagle motifs being of frequent occurrence. Facsimiles in plaster of a number of the more important sculptures taken out under Doctor von Luschan's supervision are now in our own National Museum by courtesy of Berlin. The lecture was illustrated with a fine series of lantern slides.

DANIEL FOLEMAR, *Secretary*

Meeting of January 5, 1915

At the 480th meeting of the Anthropological Society of Washington, held January 5, 1915, in the District Public Library, Dr John R. Swanton of the Bureau of American Ethnology, read a paper on the "Ethnologic Factors in International Competition." About 25 persons were present. Dr Swanton reviewed the different factors tending to bring about union and disunion between human societies. He showed that these had been operative in all parts of the world and stood for two great complementary principles which were probably necessary to the best development of

the race as a whole. At the same time, he said, it is not necessary or desirable for the principle of disunion to extend to open war. The end of warfare may be confidently predicted from the constant increase in size and decrease in number of political units and from the progressive weaving of the world more closely together by means of transportation facilities and other means of communication, not to mention the gradual international bankruptcy which war entails.

Next, the evolution of a standing army was traced and its copartnership noted with an aristocratic ruling class. The integration of smaller states into larger was shown to be brought about in two ways: by the alliance of coordinate units and by combinations in which some were subordinate and some dominant. States of the latter class have resulted largely from war, and it was shown that two kinds of subordination took place: subordination of peoples as a whole without the entire break-up of their internal organization, and subordination of classes. It was stated that this latter kind of subordination was largely responsible for slavery and serfdom successively, and it was alleged that it has left its stain upon modern society, in which subjection has been transferred to the economic field and has been accomplished by an extension of the laws of property, enabling one class to levy a heavy toll for the use of things which another class needs. There can be no permanent peace until exploitation of one nation or class by another comes to an end and the principle of "home rule" is extended with due relativity down to the smallest political and industrial groups.

Several members discussed the paper.

DANIEL FOLKMAR, *Secretary*

Meeting of January 19, 1915

At the 481st meeting of the Society, held January 19, 1915, in the Public Library, an address on "The Ancient Civilization of India," was delivered by Sarath Kumar Ghosh, a member of the ancient princely house of Ghoshpara, India. About 260 persons were present.

Meeting of February 2, 1915

At the 482d meeting of the Society, held February 2, 1915, Dr C. L. G. Anderson, of the Medical Reserve Corps, U. S. A., read an obituary on Dr A. F. A. King, a member of the Anthropological Society, who died in Washington, December 13, 1914. He was born in Oxfordshire, England, January 18, 1841, and came to Virginia with his parents when but ten years of age. Dr King received degrees in medicine from the

National Medical College, now merged with George Washington University, and from the University of Pennsylvania. Beginning practice in Virginia, he helped treat the Confederate wounded after the battle of Bull Run. Soon after, he served as Acting Assistant Surgeon, U. S. A., at the Lincoln Hospital, in Washington. In 1870 he became assistant, and, later, professor in obstetrics in the National Medical College and in the University of Vermont, which positions he filled until his death, through a period of forty-three years. He is survived by his widow and three children. He belonged to the Anthropological, the Medical, and other scientific societies of Washington and also to foreign societies, and made many contributions to medical and scientific literature. His best known work is "A Manual of Obstetrics." Among his papers of interest to anthropologists are those on "Hysteria," and "Functional Reversion." He read a paper before the Anthropological Society in 1881 on "The Evolution of Marriage Ceremony and its Import." The following year he was elected a member of the Council. He was a man of charming personality, and lived an exceptionally happy, normal, and complete life.

DANIEL FOLKMAR, *Secretary*

Meeting of February 16, 1915

AT the 483d meeting of the Society, held February 16, 1915, at the Public Library, a paper was read by Mr William H. Babcock on "The Races of Britain," and brief reports were made by Messrs W. H. Holmes, J. W. Fewkes, Truman Michelson, and J. N. B. Hewitt on "Recent Field Research in Anthropology and Ethnology." Mr Babcock pointed out that three native languages are spoken in the island of Great Britain—English over the greater part of it, Welsh in parts of the western mountains, and Gaelic in the northern mountains—a situation which was the same in the latter part of the sixth century, excepting differences in area of each. These languages represent three distinct waves of invasion by people who were blond when of pure blood; yet the present population contains a great number of brunettes or persons of medium tint, and brunetteness seems to be gaining on blondness. The best explanation seems to be that the blond conquerors found in Britain a long-established and thoroughly acclimated darker population, which perhaps remained more numerous than the newcomers and certainly was better adapted to permanently transmit its characteristics. This was composed mainly of a fairly advanced Neolithic race, probably from southern Europe, with whatever Paleolithic stocks may have been absorbed by

them. The historic conquests of Great Britain—Roman, Saxon, Danish, and Norman—have not changed the essential result, which consists of a darker substratum gradually gaining on superimposed Celtic and Teutonic layers.

Professor Holmes outlined the work done recently in California by himself and Dr Aleš Hrdlička. The Panama-California exposition had assigned funds to Dr Hrdlička for the preparation of an exhibit illustrating the physical history and present status of man, and to Professor Holmes for another illustrating the practice of certain industries of the American aborigines. The materials gathered by Dr Hrdlička form, it is believed, the most important exhibit within this particular field that has ever been brought together. They were collected largely through expeditions conducted by Dr Hrdlička, personally. The exhibits cover, in as many halls, man's evolution, the life cycle of man, man's variations, and human pathology, with dissolution. A large room is fitted out as an anthropological laboratory, lecture room, and library. The exhibit prepared by Professor Holmes includes six lay-figure groups illustrating: copper mining on Isle Royal, Michigan; iron and paint mining in Missouri; quarrying and working of soapstone and obsidian in California; flint arrow-makers; and stone cutters of Mitla, Mexico. These exhibits were supplemented by collections of the products of aboriginal handiwork and by two cases of casts of the sculptural work of North and South America. These exhibits are shown in the Arts and Crafts Building, and will probably become part of a permanent museum in San Diego.

Dr Fewkes made a trip last month primarily to examine two of the possible trails by which prehistoric cultural interchanges between Mexico and our Southwest were effected. These were the valleys of the Santa Cruz in Arizona and of the Mimbres in New Mexico, both extending north and south. The ruins from Tucson to the Mexican border along the Santa Cruz are of the Casa Grande type. The old mission of Tumacacori, south of Tucson, preserved as a national monument, must be attended to within a few years or its walls will fall. The Papagueria, or desert home of the Papago, is one of the most instructive unexplored regions in the Southwest. In the valley of the Mimbres are ruins showing cultural resemblances between Old and New Mexico. From this valley he brought back a collection of more than 800 specimens, including 250 pieces of painted pottery which, together with specimens brought back last year, open up a new culture area, the character of which was practically unknown before.

Dr Michelson gave an account of his researches among New England

Indians now in Wisconsin. There are 600 Stockbridge adjoining the Menominee reservation, for the most part showing mixture of white or negro blood. Perhaps a dozen of these know genuine Stockbridge words. One old man could dictate texts. The material obtained showed that Stockbridge belongs to the Pequot-Mohegan and Natick division of Central Algonkian dialects, sharing one or two points with Delaware-Munsee. Their ethnology is forgotten. Among the 250 or more Brothertown, near Lake Winnebago, not one was found who could remember a word of his own language. No full bloods were found.

Mr Hewitt reported his trip last December to Canada on which only one survivor was found who preserved any knowledge of the Nanticoke dialect, a woman taken from the eastern shore of Chesapeake bay. A particular investigation was made of the purpose and part of song in the ceremonial of an Iroquois lodge.

DANIEL FOLKMAR, *Secretary*

Meeting of March 2, 1915

At the 484th meeting of the Society, held March 2, 1915, in the Public Library, an address was given on "Confucianism, the State Religion of China," by Mr E. T. Williams, of the State Department, who spent twenty-six years in China and supplemented his personal observations by a study of the Institutes of the Manchu Dynasty and the Manual of the Ministry of Rites. The interpretation of the ritual he takes from the Chinese classics, particularly the Book of History and the Book of Rites. Confucianism for two thousand years has been the state religion of China. It existed long before Confucius was born, but is properly called by his name, since its sacred scriptures were in large part edited by him and he has become one of the chief objects of worship in the system. While the lofty character of its ethical teaching is characteristic, it is a mistake to say that Confucianism is merely a system of ethics. The teaching of the Book of Rites and the ceremonies observed in the offering of sacrifices to the Supreme Being and to lesser deities and saints, make its religious character clear. By an edict in 1907 the Empress Dowager raised Confucius to equal rank with the Supreme Deity in the pantheon.

At the service in the temple of Confucius at the spring and autumn equinoxes, the worship of the sage does not consist merely in making obeisance before his tablet, as has sometimes been said, but in making offerings of incense and food, libations of wine (more properly, rice spirits), and sacrifices of oxen, sheep, and pigs, together with a burnt offering of silk. The worship is conducted by the chief official of the

county. There are kneelings and prostrations and a chanting of hymns to the accompaniment of an orchestra consisting of a great variety of wind and stringed instruments, drums, bells, and musical stones. The services in the Temple of Heaven in Peking are held at the winter solstice. The Temple of Heaven is a large park situated in the southern suburb of the capital. It is enclosed by a strong wall and is divided into a number of courts. Even the Emperor could not enter the inner court except on foot. Within this court is a most holy place, the court of the altar. There has never been at any time in China more than one recognized altar to the Most High. The principal altar is of white marble and consists of three circular terraces. It is open to the sky, and the offerings made here are presented by the head of the state two hours before dawn on the longest night of the year. Three, and its multiple, nine, are the important numbers in the construction of the altar, while four and eight are those represented at the altar to the earth, north of the capital; for odd numbers belong to heaven and even ones to earth. Near the marble altar there is also an altar of burnt offerings constructed of green, glazed tiles. One young bullock, black and without blemish, was consumed on this altar as a sacrifice to Shangti. The Emperor, after donning his priestly robes, washed his hands and ascended the marble altar, facing the north. There he worshiped Shangti and his imperial ancestors. There are some striking analogies between this ritual and that of the ancient Hebrews.

Since the revolution of 1911 the state sacrifices have been quite generally suspended. Last September, however, President Yuan Shih-kai, participated in the worship of Confucius at the temple erected to him in Peking, and in December offered sacrifice to Shangti in the Temple of Heaven. The whole burnt offering heretofore sacrificed to Shangti was omitted and simple bows were substituted for the kotow. Sacrifices to ancestors are made by all classes in their homes at the winter solstice, and at easter-tide all visit the family tombs and set out gifts of rice and wine. The apparent failure of this religion to satisfy the longings of the human heart is shown by the popularity of Buddhism, particularly the modified form prevalent in China, which instead of Nirvana holds out the hope of immortality in the "Western Heaven." The restoration of the state religion by the President does not mean the abolition of religious liberty; for the Chinese government holds that, as Great Britain allows freedom of worship and yet supports one state church in England and another in Scotland, so China may have its official religion and yet grant toleration to other faiths.

DANIEL FOLKMAR, *Secretary*

Meeting of April 6, 1915

At the 486th meeting of the Society, held April 6, 1915, in the Public Library, Dr Gudmund Hatt, of the University of Copenhagen, read a paper entitled "At Home with Lapps and Reindeer," which was illustrated with lantern slides. The Lapps, or Samoyed (Samid), live in the northern part of Norway, Sweden, and Finland, and on the Kola peninsula in Russia. Of the total number of 30,000, about 6,000 are reindeer nomads. The nomadic Lapps are a factor of economic value, for, by means of their large reindeer herds, they utilize vast stretches of mountain land which otherwise would be of no value. Although the Lapps have for centuries been under strong influences from the surrounding peoples, they retain much of their old culture. This is due to the fact that old thoughts and habits are closely and necessarily connected with their nomadic life as reindeer herders. They cannot further their business by imitating sedentary populations. The inner life of the mountain people, therefore, although they are thoroughly Christianized, still retains important old traits, which, however, are not easily noticed by foreign observers. The younger generation does not retain much of the old thought, but among the middle-aged and the old are still found beliefs, customs, and tales that supplement and interpret their early mythology.

According to Lappish beliefs, the world is full of supernatural powers, which are not clearly defined or classified. These seem to have been recruited from the ghosts of the dead. A belief in an underground people is prominent. These are called by some Lapps "saivo," and are generally invisible and haunt certain saivo places. These saivo people are believed to be reindeer breeders. Several facts make it appear that the saivo world originally was the world of the dead; thus, in some shamanistic tales the shaman goes to the saivo world to fight for the recovery of a sick person, and until recent years offerings have been made to the saivo world in order to prolong the life of a person. A belief is also common in certain vagrant spirits, "*muones*," who bring sickness to people; their traits disclose their original nature as spirits of the dead, although they are not now always conceived as such. The Lappish shaman, or *noaide*, still uses the ghosts of dead persons as helping spirits.

There is, however, also among the Lapps a belief in local spirits, which probably have nothing to do with the spirits of the dead. According to the beliefs of the northern Lapps, everything and every locality may be inhabited by local spirits, *haldek*, who in some way are the owners of these localities. In Pithe he heard a Lapp woman sing a song to the

locality when the tent was set up in a new place, and a song of parting when the camp was moved again. Important supernatural powers are connected with the lodge, in which every place has some occult significance. The place behind the fire is still sacred; the fire itself or the powers of the fireplace have some intimate connection with the renewal of life, as can be seen from certain old customs.

The Lapps have always been considered great magicians. The magic drum, which was still in use in some parts of Lapland fifty years ago, has now disappeared, and magic is much less prominent than in earlier times. As magic knowledge is a personal possession which loses part of its power by being given to others, information is hard to obtain. The main purposes of Lappish magic are to bring sickness and death to men and reindeer and to cure sickness. Sickness is always due to some sort of spiritual contagion, which may come from the dead but also may come from the earth, stagnant water, whirlwinds, or certain rocks. The evil influences are driven back to the place from whence they came, by terrifying the hostile power. The magician, therefore, in his magic formulas, talks in a superior and commanding way to the sickness-bringing power. In order to remove the evil influence, the sick part may be touched by the same object from which the evil came—very much as electricity is unloaded by means of a conductor. The two concepts, individual spirits and supernatural power, are in Lappish magic and religion usually connected; but in some cases the idea of power itself is so highly emphasized that it seems devoid of personality.

The idea of reindeer luck is characteristic of the Lapps. Reindeer luck is the standard form of happiness, for which our modern idea of wealth cannot be substituted. In order to insure reindeer luck, sacrifices until lately have been in vogue. The main feature in sacrifices of reindeer is that not a single bone must be broken, for in the bones resides the vital principle, and in the saivo world the bones will again be clothed with flesh. In ordinary slaughtering no bone is hurt; the slaughtering of reindeer must be done in accordance with old rules. Reindeer bones were in former days sometimes placed in a spring; this was believed to restore life. According to Lappish ideas the relations between reindeer and man are rather intimate. In former days the same deity took care of the birth of children and of reindeer calves. A reindeer's life can buy life for man, and the life of a human being can buy reindeer luck.

DANIEL FOLKMAR, *Secretary*

Meeting of April 20, 1915

At the 487th regular and 36th annual meeting of the Society, held April 20, Dr Henry R. Evans, of the Bureau of Education, read a paper on "The Old and New Magic." In addition to explanations given in his book under this title, the Doctor held, in common with other speakers in the discussion, that thought transference and even hypnotism might be the real explanation of peculiar phenomena exhibited by so-called mediums and clairvoyants. At any rate, this would throw light upon some of the spiritualistic seances in which he had taken part. In interviews with "psychics" in different parts of the country, a knowledge was shown by these exhibitors of the occult that could not possibly have been obtained through any ordinary channels of information. Although "orthodox" science sneers at so-called telepathy, many eminent psychologists have little doubt that there is a basis of fact underlying clairvoyance and thought transference which has as yet not been fully worked out in a scientific manner.

Mr J. N. B. Hewitt said that shamans among the Iroquois are all jugglers and have annual meetings at which they show their skill. They believe that each trick comes from a "dangerous dream." Each juggler is obliged at these meetings to show a new trick or he forfeits his life, and a simple trick will answer the purpose if it deceives the other jugglers. Jugglers can swallow pebbles, knives, and the like, by the use of a tube inserted in the throat, made of a piece of *Angelica*. They also cause "appearances" in the smoke after putting tobacco and perfumes upon the fire. A juggler that could not tell the meaning of a dream also forfeited his life.

Mr Francis La Flesche related some tricks played by the Pawnee jugglers. One feat, the swallowing of a deer's head, he could not explain. "Arrows" were swallowed which were made of a vine soaked and greased so as to render them pliable. Pawnee tricks were more remarkable than those described by the speaker of the evening, in that the jugglers were nearly nude, remained in the midst of the audience, and did not use any of the aids employed by professional prestidigitators. Medicine-men sometimes avenged themselves by playing tricks that seemed simple enough when explained. One secretly tied a horse's hair tightly around the exposed tip of the tail of the offender's horse, causing the animal to walk backward in circles until restored to its normal condition by the medicineman on payment of a fee.

Mr Mooney spoke of remarkable hypnotic phenomena which he had observed among the Indians. He believes in the possibility of

hypnotizing an entire audience of Indians, especially during the ghost dance, when subjects become hysterical. After a Wichita dance he saw a subject who offered unusual resistance finally hypnotized. First, a black handkerchief was waved by the shaman before the eyes of the woman as she circled in the dance, then an eagle's feather. After a half hour's struggle, during which time she trembled as if in agony and at times braced herself to avoid falling, she finally fell rigid, as others had done. The speaker had seen ten or twenty persons stretched upon the ground in a hypnotic trance in the remarkable dramatic performances of the Hopi Indians.

Dr E. L. Morgan reported having seen an Indian shaman manipulate a man who had been shot in the chest, and produce, by sleight-of-hand, the bullet from his back. It is said that American Indians also perform a trick similar to the famous mango trick of India, making a bush grow in a few moments under a buffalo robe. Most spiritualistic phenomena are to be explained, he thinks, as mind reading.

Dr Gudmund Hatt, of the University of Copenhagen, said that much of Lapp magic also is explainable by hypnotism. Very susceptible persons cannot only be strongly influenced, but cured from sickness, or made sick, or even killed, by the hypnotic influence exercised by Lapps. Many Scandinavians believe this, and there are well authenticated instances of it. Lapps also understand "second sight"; instead of a crystal, they use a glass of liquor. In one such instance, a Lapp saw a favorite deer of his which was being treacherously killed in a distant place; the fact was afterwards confirmed.

Dr John R. Swanton was elected President of the Society for the ensuing year, Dr I. M. Casanowicz Vice-President, and William A. Babcock a member of the Board of Managers. The following officers were re-elected: Secretary, Dr Daniel Folkmar; Treasurer, Mr J. N. B. Hewitt; Councillors: Mr Francis La Flesche, Mr George C. Maynard, Dr Edwin L. Morgan, and Mr Felix Neumann.

DANIEL FOLKMAR, *Secretary*

ANTHROPOLOGIC MISCELLANEA

NINETEENTH INTERNATIONAL CONGRESS OF AMERICANISTS

In consequence of the war in Europe, the Washington meeting of the Congress, which was originally scheduled for October 5, 1915, was, with the general approval of the membership, indefinitely postponed. Since then it has become evident that the war may last for a long period, and that when it does end the conditions, economic and otherwise, may be such that a successful meeting cannot be held for many years. Circumstances, however, have now so shaped themselves as to make possible a well attended session of the Congress during the coming winter, notwithstanding the enforced absence of most of the European delegates. During Convocation Week of this year, a number of important scientific bodies, whose interest wholly or in part are closely related to those of the Americanists and whose membership is in a large measure the same, will meet in Washington. As this seemed to present an excellent opportunity for a meeting of the Americanists, the Organizing Committee took preliminary steps which assure intimate coöperation between the Congress and other learned bodies and submitted the proposal to hold the postponed session in coöperation or jointly with these Organizations, to the vote of the members. The result of this vote was overwhelmingly in favor of the proposal. In consequence, the Organizing Committee feels authorized to announce that the session will be held in Washington, December 27-31, of this year; and that it will be held jointly or in coöperation with the Anthropological Section of the Pan-American Scientific Congress, the American Anthropological Association, the American Historical Association, the American Folk-Lore Society, and the Archeological Institute of America. The program previously published will in the main be adhered to, excepting the field excursions; and the members are urged to communicate with the Secretary in relation to the papers which they intend to present.

W. H. HOLMES,
Chairman.

A. HRDLIČKA,
Secretary,
Organizing Committee.

SECOND PAN-AMERICAN SCIENTIFIC CONGRESS.

In accordance with the resolutions of the First Pan-American Scientific Congress, held in Santiago, Chile, December 25, 1908, to January 5, 1909, a Second Pan-American Scientific Congress will meet in Washington next December under the auspices of the Government of the United States. The Congress will open on Monday, December 27, 1915, and adjourn on Saturday, January 8, 1916.

The Pan-American Scientific Congress had its origin in the scientific congresses that had been held by the Republics of Latin America prior to the Congress in Santiago, and was established with the generous conviction that the United States should share in their undertaking. This conviction was splendidly shown in the unsolicited and voluntary action of the First Congress in the selection of Washington as the place of meeting of the Second Congress, the main purpose of which will be to increase the exchange of knowledge and bring about a better understanding of the ways in which the several Republics can work to the advancement of science, the increase of culture, and the promotion of trade, commerce, and mutual helpfulness. In view of the fact that the Second Congress is to be held under the auspices of the Government of the United States, it is earnestly hoped that our foremost scientists, learned societies, and educational institutions will cooperate in every way possible in order to insure the success of the Congress.

The following persons will be members of the Congress:

The official delegates of the countries represented.

The representatives of the universities, institutes, societies, and scientific bodies of the countries represented.

Such persons in the countries participating in the Congress as may be invited by the Executive Committee, with the approval of the countries represented.

All writers of papers.

All members of the Congress shall be entitled to attend its sessions, to take part in the debates, and to receive a copy of such publications as the Executive Committee may issue. There will be no membership fee of any character.

The following program has been arranged for section I, Anthropology, of which W. H. Holmes is Chairman.

I. Physical Anthropology.

- (a) Origin of man; his place in the scheme of nature; problems of evolution, migration, geography, chronology.
- (b) Development of the individual from the embryo through

childhood to full maturity; involution of the individual and death.

- (c) The races, their differentiation, physical characteristics, fertility, physiology; admixtures, tendencies.
- (d) Eugenics; proposed measures for physical betterment.
- (e) Pathology; geographical distribution of disease, racial characteristics, effects on progeny and race.
- (f) Racial position and antiquity of the American aborigines; physical modifications due to changes in social, political, and industrial conditions; results of admixture with other races.
- (g) The racial elements now entering into the composition of the American peoples as a whole; progress and tendencies of amalgamation; possibilities of intelligent and effective direction of the processes.
- (h) Methods of research, record, and display: anthropometry, instruments.

II. *Ethnology.* The social and political groups, stocks, tribes, clans, societies, families; languages, habits, customs, arts, industries, religion, esthetics.

III. *Archeology.* The various lines of research opened up by the study of the tribes are continued indefinitely into the past by the researches of this branch. The many topics for discussion include those especially which relate to the chronology of the American race, and the evolution of its culture.

Although world anthropology in all its phases may be considered by the Congress with profit, it is assumed that chief interest will center in the American branches of the subject and especially in its more strictly Pan-American phases. To the latter belong (1) problems of the aboriginal peoples, their history, present status, and possible future; (2) problems relating to the complex of races and nationalities now constituting the Pan-American populations. The present period is witnessing the phenomena of migration, conquest, and race rebuilding on a scale unparalleled in history, and the problems arising with regard to the trend and possible outcome are among the most important that science has to consider.

It has been arranged that the Nineteenth International Congress of Americanists shall meet in Washington during the same week with the Pan-American Scientific Congress, so that joint conferences can be held for the discussion of subjects of common interest to members of the two organizations. It is expected that such joint meetings will

be arranged for especially between the Congress of Americanists, which deals largely with anthropology and the anthropology section of the Pan-American Congress. This will be especially advantageous since a large number of students from all parts of America, as well as from the Old World interested in these branches, will thus be brought together on common ground.

The arrangement of the joint programs for the presentation of the papers will be placed in the hands of a joint committee of the two congresses, which committee will arrange for the publication of the same.

Since it is planned that the section of anthropology shall hold its meetings or conferences for the discussion of the problems which it has to consider jointly with the International Congress of Americanists, it is assumed that the program cannot be arranged save in its general scope, as indicated above, until the program committees of the two congresses meet. The Americanist Congress concerns itself especially with American problems, and more especially with those which relate to the aboriginal peoples, but the discussions may extend also to history, geography, institutions, government, etc., all of which topics are of particular concern to Pan-America.

THE SAN FRANCISCO meeting of the American Anthropological Association (August 3 and 5) was attended by a number of eastern anthropologists, among them Dr E. Sapir, representing the Geological Survey of Canada, Professor George Grant MacCurdy of Yale University, and Dr Robert H. Lowie of the American Museum of Natural History. The University of California was represented by Dr T. T. Waterman, Mr E. W. Gifford, and Professor J. C. Merriam, of whom the last-mentioned presented an illuminating survey of all the evidence hitherto adduced to establish man's antiquity in California. There was an informal dinner in a Chinese restaurant, which proved ethnologically stimulating to a group of about a dozen participants.

PROFESSOR W. F. OGBORN, of the department of sociology, Reed College, Portland, Oregon, gave a summer course at the University of California and attended the sessions of the Association. His courses at Reed College devote considerable attention to purely anthropological topics.

Dr W. D. WALLIS, formerly of the University of Pennsylvania, is lecturing at the University of California this year during Professor Kroeber's absence.

DR E. SAPIR has been studying the Yahi dialect with the aid of the last surviving member of this group, the well-known Ishi.

DR A. E. JENKS, professor of anthropology in the University of Minnesota, has been made chairman of the department of sociology and anthropology in that institution.

EXPLORATIONS being made in the Westhaver mounds six miles south of Circleville by Curator William C. Mills, of the Ohio Archeological and Historical Museum, the Ohio State University have brought to light interesting relics of aboriginal burial mounds. This mound is 16 feet high and 100 feet in diameter, about 2,000 cubic feet of earth, and every inch must be carefully examined. A total of fifteen burials was found in the mound, four of them in graves below the surface or base of the mound, and the remainder in the mound proper. In many cases the skeletons were found to be lacking one or more bones, and in one case the skull alone was found. This was explained by Dr Mills as indicating the custom of reburial, practised by the mound builders. At one point in the explorations a huge grave was opened, extending five feet below the base line. In the grave were found three skeletons, placed side by side—two adults and a child. The adults, probably a man and a woman, were almost six feet in height, while the third skeleton was that of a child perhaps seven years old. Dr Mills and his party will spend most of the summer working in this mound.—*Science*.

CONSTRUCTION work on the new building of the Field Museum of Natural History, which is to be built on Chicago's lake front, just south of Twelfth street, began on July 15, after twelve years of planning and negotiation. The structure will be completed in less than three years, according to plans. More than 3,000 men will be employed in the work. It is said that it will be the largest marble building in the world and one of the largest museums. It will consist of three stories and a basement and will cover an area of 700 × 350 feet. The floor area of the museum will be 670,000 square feet, of which 400,000 square feet will be devoted to exhibition purposes. The remainder will be used for scientific laboratories, lecture halls, offices and a restaurant.—*Science*.

THE NEW YORK ACADEMY OF SCIENCES, with the aid of the insular government, has undertaken a scientific survey of Porto Rico. Professor Boas, who represents anthropology on the committee having the work in charge, spent the month of June in the field organizing the work. He was assisted by Drs Haeberlin and Mason and Mr Aitken, the latter two remaining through July also. The work includes the

collection of folklore, a study of physical types where family histories are traceable from church records, and an examination of archeological sites. Dr Mason sailed on September 4 to continue the archeological work with the coöperation of the American Museum of Natural History. Dr Mason goes later to the University of California to undertake ethnological field work in California.

MR R. T. AITKEN, who has spent the last two years at Columbia University in graduate study, has received an appointment as Instructor in the department of anthropology at the University of Pennsylvania.

PROFESSOR A. L. KROEBER has spent the summer at Zúñi in the interests of the American Museum of Natural History. He devoted his attention more particularly to a study of family relationships and the terms employed. In order to judge the changes in recent years in the village, he had a resurvey made for comparison with Mindeleff's plan. Prof. Kroeber sailed on August 31 for Europe where he will examine museum collections and where he hopes to secure first-hand knowledge of public opinion and of emotional conditions. He has a sabbatical leave of absence from the University of California.

MRS MATILDA COXE STEVENSON, who is known because of her work in the Southwest, particularly at Sía, Zúñi, and on the Río Grande, extending over nearly forty years, died at Washington on June 24th. An especially prepared account of her work will appear in the next number.

COLUMBIA UNIVERSITY at the last commencement conferred the degree of doctor of philosophy on H. K. Haeberlin whose thesis was entitled, "The Idea of Fertilization in the Culture of the Pueblo Indians."

THE UNIVERSITY OF PENNSYLVANIA granted a doctor's degree to Wilson Dallam Wallis, thesis, "Individual Initiative and Social Compulsion;" and to Ernest William Hawkes, thesis, "Skeletal Measurements and Observations on the Point Barrow Eskimo with Comparisons with other Eskimo Groups."

PROFESSOR FREDERICK WARD PUTNAM, one of the organizers of this association, and the most prominent of the older generation of anthropologists, died at Cambridge, Mass., on August 14, in his seventy-seventh year. An account of his life and contribution to anthropology will appear in the next issue.

THE ANNUAL MEETING of the American Anthropological Association will be held in Washington, D. C., Dec. 27-31, in affiliation with the International Congress of Americanists, the Anthropology Section of the Pan-American Scientific Congress, and the American Folk-Lore Society, and several other scientific bodies. Titles of papers and abstracts for this joint meeting should be sent to Dr Aleš Hrdlička, U. S. National Museum, Washington, D. C.

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CHIEFTAINSHIP AND THE SISTER'S SON IN THE PACIFIC¹

By A. M. HOCART.

THE purpose of the present paper is to set forth the native theory of chieftainship in Fiji and Polynesia, together with one of its logical consequences. It naturally falls into three parts. In the first, I shall sum up the gods or divine ancestors so far as may be convenient to the better understanding of this paper. In the second, I shall bring forward evidence that the Polynesian chiefs² are representatives, probably embodiments, of these gods. In the third, I shall suggest that the sister's son's right was originally limited to the stealing of offerings, and that its extension to things secular, or seemingly secular, is the natural outcome of the equation: chiefs = gods.

GODS AND DIVINE ANCESTORS

Dr Rivers, following Dr Codrington, uses the word spirit of "a being which has never, according to native belief, been incor-

¹ *g* = "Melanesian" *g*.

² *ŋ* = palatal *n* (as in *sing*).

³ *f* = English *sh*.

⁴ *φ* = voiced English *th*.

⁵ Authors use the term, chief, very loosely both of the sovereigns of a tribe or island, and of their family which is more properly called the nobility. It is not therefore always possible to distinguish between the two; but in my own material I shall always use chief of the head of a tribe or clan.

porated in a human body."¹ I propose to use it as a generic term including ghosts. First of all, we want a term to include ghosts as well as beings of uncertain origin. Secondly, we are not always sure what the native beliefs on the subject are, so we require a non-committal word for such cases. Thirdly, the most positive assurance that a spirit never was a man is no proof that it has never been a ghost, for chiefs are not men and so their ghosts were never embodied in men. This will become clearer as we proceed.

The need for such a generic term is strongly felt in the Pacific. Most South Sea islanders, if not all, distinguish between ghosts, the souls of their kinsmen and of ordinary people, and certain ancient spirits who are sometimes said never to have been men, and yet in some cases have plainly been men in our sense of the word. Nevertheless many use the same word both for ghosts and for these spirits and one has to be acquainted with their beliefs to know to which they are referring. Very often they would be at a loss to decide that point themselves. Others, like Fijians, can, by a qualifying word, make clear which they are referring to, if necessary; but as a rule they do not; either the context makes it plain, or the matter is undetermined. Others still always appear to make a distinction: such are the New Hebrideans and Western Solomon islanders. These ancient spirits correspond to the culture-heroes of some authors. They are often definitely regarded as the ancestors of the tribe and their first chief.

In Fiji they are commonly lumped together with ghosts as *kalou*² but they can be distinguished from these as *kalou vu* or simply *vu*. The word *vu* means trunk of a tree, basis, origin, cause, ancestor. Some are called *vuvanua* or *vanivanua*, that is "origin of the land" or "people". They are usually said never to have been men, but to have existed "from the beginning". They are often connected with sacred stones or with birds or fishes, which are spoken of as their "ships". The stone and the animal seem to exclude one another. Some of these *vu* are concerned with crops, others with war.

¹ *The History of Melanesian Society*, I, p. 15.

² See "On the meaning of *kalou*," *Journ. Roy. Anthr. Inst.*, Vol. XLII, 1912, p. 437.

In the Eastern or Lau group of Fiji they are known as *tupua*¹ from the Polynesian verb *tupu*, to "grow", "originate"; in Mangarevan *tupu* means "root", "trunk"; it is therefore the Polynesian equivalent of *ru*. One informant gave the obvious definition of *tupua* as "the stock whence men grow" (*a i tumbutumbu ni tamata*). Natural features of the islands are often ascribed to these *tupua*.

The word *tupua* is not used so widely in other parts of Polynesia. In New Zealand it is said to mean "a goblin, fairy, the spirit of one who when living was known for the powerful effect of his incantations".² In Hawaii he is a person "of extraordinary powers of mind and body";³ concrete cases would perhaps show that they are really the same in every respect as the Lauan *tupua*. In Samoa and Rotuma a *tupua* is a "culture hero" who has turned into a stone. Futunans apply the word to constellations, which, throughout Polynesia are supposed to be mythical beings or animals.⁴ The beings that in Polynesia correspond to the Fijian *vu* are more commonly described as *atua* or *aitu*, words which also mean ghost.⁵ In Tonga it is 'otua; 'eitu survives only in names. In Samoa it is *aitu* or *atua*, in Rotuma *aitu*, in Hawaii *akua*. Examples of such *atua* are Ta'aloa, Tane, Sikuleo (Hikuleo). In Wallis island ghosts may be described as 'atua *tanutani* or "buried *atua*", while these spirits may be distinguished as 'atua *tupua* which include Ta'aloa. In Futuna they are described as *atua muli*⁶ and include Finelasi, Fakavelikele, Tonamuli, and others.

Turning to Melanesia we find them in the New Hebrides under

¹ The word does not come from Tonga, because Tongans do not know what a *tupu'a* is; they only know the word in the expression *tala tupu'a*, which means "an ancient tale."

² Tregear, *Comparative Maori Dictionary*, s. v. *tupua*. Other comparative instances are taken from the same work.

³ Andrews, *Hawaiian dictionary*.

⁴ Grézel: *Dictionnaire Futunien-Français*.

⁵ See "On the meaning of the Rotuman word *atua*," *Man*, April, 1915; also a paper on Spirit Animals, *Man*, October, 1915.

⁶ Grézel translates *atua muli* as "divinités inférieures," but as he gives no names of any and no details it is impossible to decide whether he is simply making an inference from the word *muli*, which means "behind," "after," or whether my own informant was misusing the term.

the name of *vui*, which is the exact philological equivalent of the Fijian *vu*. For it is the rule in the Banks that the words which take their possessive suffixed end in *i* when used without a possessive.¹ *Vu* is one of these words; therefore it must appear in the Banks language as *vui*. *Taŋaroa* in the Banks is the "name given to certain stones, carried or hung up in a bag, possessed of magic powers as the abode of a *vui*; or a shark, or other creature in or with which a *vui* is present."² The name of an Aurora *vui* is *Tagaro*.³ Dr Codrington and Dr Rivers both identify him with *Taŋaloa* of Polynesian mythology⁴ and the whole character of his legends bears this out. The attributes assigned to the *vui* agree with those of the Fijian *vu*.⁵

Dr Rivers and I found a similar class of beings in the New Georgian group of the Solomons. They were called *tamasa*. There were two classes of which one was responsible for the crops. They were usually called *tamasa*, but sometimes, in Roviana at least, *tomate tamasa*, as opposed to *tomate* proper, that is, ordinary ghosts. This is the exact parallel to the *kalou vu* of Fiji in 'atua *tupua* of Wallis island. In times of scarcity a procession visited the sacred places of the *tamasa* of crops to entreat them to make the

¹ Codrington and Palmer: *A Dictionary of the Language of Mota*, p. XIV.

Cp. Mota: *tamaŋ*

tupui

matai

Fiji: *tama-*

tumbu-

mata-

² *Op. cit.*, s. v. *Taŋaroa*.

³ Codrington, *The Melanesians*, p. 168.

⁴ *Tagaro* cannot be derived from *Taŋaloa* because Polynesian *ŋ*=Aurora *ŋ*, and not *g*. The identification would therefore be impossible on phonetic grounds had we not Maori evidence. Maori has two forms, *Taŋaroa* and *Takaroa*, showing that there was originally a duplicate form *Taŋaroa* and *Tagaro(a)*; this latter one is preserved in Aurora.

⁵ Dr Rivers (*op. cit.* II, p. 429) suggests that the *vui* represent the indigenous inhabitants who were considered hardly human, because they were so rude and savage. A glance at Tregear's article on *Taŋaloa* is sufficient to dispose of this suggestion. The *vui* belong to an earlier culture, but it does not follow that that culture is lower. It appears to be quite the reverse. It is easier to explain things if we suppose the *vui* to be the "gods" of a race which has also found its way to Polynesia but has disappeared from Melanesia. This explains why so many *vui* like Fijian *ve* and *tupua* are nameless: their original possessors are gone. The forgetting of names is all the easier as in some parts, like Fiji and the Western Solomons the names of these beings are usually avoided; they are alluded to as "the god of such and such a place."

food grow. In Vella-lavella they were called *mbarara*, which in other parts means, chief.

In Yap in the Carolines¹ we find spirits called *kan* as distinguished from ordinary ghosts called *zagiz*. "Formerly there existed, according to the Yap men's conceptions, a race that were at once men and *kan*. . . . Only a few large stones lying here and there prove to the Yap people their former existence." They answer therefore to the petrified heroes of other parts. Their other attributes are the same.

I propose to call these beings "gods" for convenience' sake without implying more in that word than I have stated here. It may prove advisable later to reserve "god" for another class of beings; but in the meantime there is no harm done so long as we remember what we have defined the word to be.

It must be borne in mind that I have very much simplified matters in this summary. There are certainly at least two classes of gods, which may be as many strata. But this in no wise affects the following argument in which they will be treated as if they formed one homogeneous whole.

GODS AND THE POLYNESIAN CHIEFS

Our next task is to show that the sacred chiefs of Polynesia and Fiji are the representatives of these gods. As the evidence from Futuna is the most direct I shall take it first. I owe my clues to Rev. Father de Lorme, S.M., who lived a long time in that island, but who has now removed to Wallis where I met him. Thanks to his information I was able to make the best of the few hours I spent in Futuna. He told me that if the *Sau*, or High Chief, of Futuna was not present at kava the first cup, which should be his, is poured at the foot of the post for the "god" who is supposed to be in the absent *Sau*. This statement served as the basis of my researches. The material collected was necessarily very defective: it was taken down in a hurry without interpreter in a mixture of Futunan, of which I had little experience, and Wallisian, which I

¹ P. Sixtus Walliser: Die religiöse Anschauungen der Bewohner von Yap, *Anthropos*, VIII, 1913, p. 1056.

knew better. Owing to the kindness of Father Fox, S.M., I was able to go over part of it with a Futunan in Suva. The upshot was this:

There are now two *Sau*, or High Chiefs, in Futuna: one in Alo, and one in Sinave. Originally, there was but one, and the old title was Fakavelikele. Now Fakavelikele is also the name of a god. "In the olden days the god abode with the *Sau* and revealed to him the things that will happen."¹ Then came a quarrel in which some people went off to Alo "with the god Fakavelikele who entered Pili, a man of Asoa, and that was the beginning of the *Sau* in Alo."

Sau are continually being deposed for various reasons: one is that under his reign food does not grow,² and the land is hungry. Father de Lorme told me that one was deposed in recent times because of a hurricane. The connection between the *Sau* and the food supply was not absolutely clear, but it appeared that if the *Sau* offended against the god³ there would be a famine so they would "give the *Sau* and the god" to another. A similar belief seems to have prevailed in Wallis: during my stay there, some young people nearly broke out into rebellion against the *Hau* or "King" because there was a famine.

A similar state of things once existed in Savage island according to Turner. In 1845 they had no king there: "Of old they had kings but as they were high priests as well and were supposed to cause the food to grow the people got angry with them in times of scarcity and killed them; and as one after another was killed the end of it was that no one wished to be king."⁴ Behind this loose way of speaking we can recognize the identical idea.

In Rotuma the *Mua*, one of the two ceremonial chiefs, yearly headed a procession to the burial place of his predecessors, his followers waving branches of every food-bearing tree to make the year fruitful. A similar procession in Eddystone island, Solomons, visited the shrines of the gods to entreat them to remove a famine.

¹ *I tāimi mua e nofo le atua muli mo le Sau; e faka'ilo ki ai te me'a ke fai.*

² *e leai se tu'upu le mangitisi.*

³ *hala mo te atua muli.*

⁴ *Samoa*, p. 304.

The same idea appears again in Fiji. The people of Western Vanua Levu believe that they have less food now than formerly because the government head of the province is not their proper chief; when the last one who was their proper chief died "the food was buried with him". Among the Wainunu-Ndreketi tribes they put down a bad year to some mistake of the chief's or to his being in the male, instead of the female, line. It is significant that the term for plenty and peace in Fiji is *sautu* which appears to be compounded of *sau*, the title of many sacred chiefs in Eastern Fiji and elsewhere and *tū*, to stand, to be. "*Sa sautu na vanua*" means "the land is *sautu*", that is, "prosperous" or "at peace".

The word *sau* or *hau* occurs in most Polynesian languages. In Rotuma *Sau* is the title of a sacred chief. In Tonga the *hau* was the second chief, next to *Tu 'i Tōnā*. In Hawaii the obsolete title of *Hau i kalani* or "*Hau in Heaven*" belonged to the highest chief.¹ In Tahiti *hau* means "peace", "government", "reign"; in Paumotu "to reign", "peace". In Rarotonga *au* means the same. The connection of chiefs and prosperity must therefore have been very widespread.

The most direct evidence I got in Fiji of the close connection between the chief and the gods was in Tokatoka on the Rewa river. Ratu Manoa, the chief, an exceptionally good informant, claimed that he bore the names of Koiranamalo, Ratu, Vunivanua, Tora, Koiranatora, Koiranasau. All these are also the names of gods and to each there is a priest (*mbete*) or medium. Before a war people would go and make offerings at the small shrines or temples (*mbure*) and tell the gods, "Be gracious, your namesake says . . .", meaning by their namesake, the chief. This may explain why Fijian chiefs are spoken of in the plural. Note that Tora is the title of the chief of Tokatoka, and that the last god mentioned bears the familiar name of *sau*. The name Vunivanua is significant.

Dr Codrington² quotes a Fijian chief as saying, "I am a *kalou*," that is "spirit". His explanation is strained and impossible. He

¹ Dictionaries give the word as *Hau*, but Fernald points out that it is a wrong division of words.

² *The Melanesians*, p. 122.

says the actual Fijian sentence containing no verb would not define the time and may therefore refer to a future time, that is to a time after death. But as a matter of fact the Fijian sentence is definitely present and cannot be understood in any other sense.¹ The chief in question was a *kalou*, i. e., god, at the time he spoke; and we can now see that this was no conceited boast but current belief.

Samoa makes an interesting contribution to our problem. The great dignities of Samoa, *Tui Atua* and *Tui A'ana*, are called *tupu*, which is usually translated "king". This word, as we have seen, is the root of *tupua*, and the equivalent of the Fijian *vu*. Of the two families that have a right to these dignities the more ancient is called *Sa Tupua*, or "the family of *tupua*". In Mangareva *tupua* is a "principal", "chief", "wise man".

One of the great titles (*papā*) of Samoa is *Ta'aloa*. It is said to be derived from the original *Ta'aloa la'i*, or *Ta'aloa Heaven*, the great Polynesian deity.²

Turner's evidence about Fakaofu in the Union group is important. "The King, Tui Tokelau," he says, "was high priest as well. There were three families from which the King was selected and they always selected an aged man. . . . Their great god was called Tui Tokelau, or King of Tokelau. He was supposed to be embodied in a stone which is carefully wrapped up with fine mats, and never seen by any one but the King. . . ."³

The father of the first *Tu 'i To'ua*, according to an account I got, was *'Eitumatupua*, which means Spirit-and-god. The Tongan word *taula 'eiki* is rather significant. *Taula* is anchor, and *'eiki* chief; *taula 'eiki* is therefore "the anchor of chiefs". The Marist Fathers' dictionary⁴ gives it as the synonym of *taula 'otua*, "the anchor of spirits", that is the medium in which a spirit enters. Thus *'eiki* in this word seems to be interchangeable with *'otua*, a spirit, ghost, or god.

The ordinary Polynesian word for chief is *ariki*. In Maori this

¹ *Ko yau na kalou*.

² *Ta'aloa Heaven* may simply mean "Ta'aloa the chief," for in Polynesia chiefs are often called *la'i*, or sky.—MS. legend from Safine.

³ *Samoa*, p. 268.

⁴ *Dictionnaire Tonga-Français*, Paris 1890, s.v. *taula*.

means "first born", "chief", "priest". Taylor says that among the Maori "a descendant of the elder branch of a family is a *papa* (father) to all other branches, and the eldest child of the main branch is an *ariki*, lord to all that family, and is supposed to have the spirits of all his or her ancestors embodied in himself or herself, and to be able to converse with them at pleasure."¹

To sum up, the chiefs are representatives of the gods, we may say with certainty, their incarnations. If they are the equivalent of gods all the divine attributes must be theirs also. And in fact this is so.

The fundamental meaning of *tapu* appears to be "sacred"; anything consecrated to a sacred being is also sacred and may not be used. The chiefs are gods, therefore things can be consecrated to them and so become sacred, and hence forbidden to common people. The *tapu* belongs both to gods and chiefs.

Miraculous power (*mana*) belongs to the gods. It is also associated with chiefs.² Hawaiian idols are covered with red and yellow feathers. Hawaiian chiefs wear cloaks of red and yellow feathers. Idols have crests on the top of the head, so have the helmets of chiefs.³

In Fiji, the same morning salutation (*tama*) is given to gods and chiefs. Offerings of food and stuff are made to chiefs with the same ceremonial and formulae as to gods. Both gods and chiefs are entitled to first fruits. Chiefs in Fiji are formally installed; some of the ceremonies suggest a rebirth, and their probable meaning is that the nobleman elected becomes the incarnation of the god. In the interior of Viti Levu these ceremonies were held but once, some eight generations ago. It is perfectly logical therefore that in those parts the original chief is spoken of as a spirit (*kalou*), while his successors "were born as men" (*sudū vakatamata*). This is not the case where every new chief is installed. Through-

¹ cp. Morgan, *Systems of Consanguinity and Affinity*, p. 458, note.

² See "Mana," *Mon*, XIV, 1914, p. 46.

³ Nobles appear to wear them also, as far as one can infer. Nobles seem sacred in a way and to share some of the sanctity of a chief, but only as descendants of gods, not as incarnations. Our authorities are too vague to enable to define exactly their position.

out Polynesia, in Fiji, and in the New Georgian group of the Solomons, "man" is the antithesis to both "chief" and "spirit". Instances might be multiplied showing with what logical rigor the equation chief = god is carried out. One corollary in Tonga is worth following out both because it illustrates this rigorous logic and because it is necessary to an understanding of the third part of our argument.

In Tonga at a formal kava ceremony only the chiefs and their heralds (*matapule*)¹ are allowed to sit in the ring. All others whether of gentle birth or commoners, sit huddled together behind the kava bowl which is at the bottom of the ring facing the king. Food is laid out before the king; this is afterwards removed to be divided among the people. In the meantime while the kava is being strained a small part of that food is divided into small portions and laid before the chiefs and their heralds. This food is called *fono*. The recipients do not eat it, but kinsfolk come forth from the crowd and carry off the *fono* and eat it up. Not anyone can do so: he must be the chief's grandchild or his sister's child in the classificatory sense; if none of these are present, it must be a stranger, not another class of kinsman.

This custom is the logical consequence of the theory of chieftainship. Not in the Pacific only, but almost universally, food is offered to spirits; a small part is then set aside for them while the worshippers eat the rest. The spirit's share may either be left to rot, or burn, or be carried off by some one. Now the chiefs in the Tongan kava ring are, while the ceremony lasts, gods; the crowd are the worshippers. A portion of the feast is set apart for them but it is carried off and eaten by some human. But why, it may be objected, is not the same done with kava? Because kava is never merely presented to the spirits, then drunk by men: it is poured out at the foot of the post or on the stone where the spirit abides.

It still remains to explain why only the grandchild or sister's child is allowed to carry off the *fono*. This detail must flow from the premises as inevitable as any other fact, or there is something

¹ There is good reason to look upon the heralds as the priests of the chiefs.

wrong with the theory, or we must be able to point to some disturbing factor.

The sister's child is among the persons privileged to carry off the *fono*. This gives us our clue. We will concentrate on him for a time and ignore the others.

THE RIGHT OF THE SISTER'S SON

The theory of the sister's son's right of taking his uncle's property as a relic of mother-right has long been accepted as final. Dr Rivers is the first to have realized its inadequacy.¹ But his amendment is open to the same objections as the original; it might explain why the sister's son should treat his uncle's property as if it were his own father's, but there is a good deal more than that in the sister's son's right. There is a formalism, and a ceremonial impudence about it which has to be explained. I will just point out some of the features of the Fijian right which the theory fails to explain:—

(1) The violence and excess with which it is carried out. The *vasu* or sister's son seizes his uncle's property wholesale and recklessly. He kills pigs and roots up plantations vastly in excess of his needs, for the fun of it.

(2) He does not confine himself to his uncle's property. If his uncle is a chief he may seize anything within his uncle's dominions with a recklessness which the chief himself dare not practise, or he would soon provoke a revolt. Yet, the people endure this from the *vasu*, not with patience only, but almost with pride.

(3) In fact, this is one of the proudest customs of Fiji. It is looked upon as essentially "chiefly" (*vakaturaga*). It is not indeed limited to the nobility, but only by them is it practised on a large scale.

(4) The right, in some parts at least, can only be exercised if the nephew's kinsmen have made a feast for his uncle's kinsmen. If the right of *vasu* is a survival of matrilineal descent why has it to be paid for? I have elsewhere described the custom of *tauvu* which is one of reciprocal tribal *vasu* (*veivasuti*).² There also the right

¹ *Op. cit.* II, p. 158.

² *Journ. Roy. Anthr. Inst.*, XLIII, 1913, p. 101.

may only be exercised after the would-be plunderers have made an offering to the god of their kinsfolk whom they wish to plunder. They may then proceed with impunity.¹

(5) In many parts the *vasu*, when he seizes stuff at an exchange between his uncle's and another tribe, gets a beating from his uncle's sons. They may not take back the stuff, but they may beat him. I have a case of this even in Mbau. If he is merely doing what he used to do under matrilineal descent why does he get beaten for it?

Books on Fiji have confined themselves almost entirely to the powerful tribes with divine chiefs that occupy the shores all round the Koro sea. They it is who practise the custom of *vasu* as known to anthropologists. When we turn to the inland tribes of Vanua Levu and to the tribes of southwestern Viti Levu which have no divine chiefs we find that the right of *vasu* is strictly limited to those ceremonies called *solevu*. A *solevu* is a meeting of two tribes or clans for the exchange of stuff. The exchange takes the form of an offering from each tribe to the chiefs or to the gods (*vu*) of the other.² It is then, and then only, that the sister's son interferes:³ he comes up and carries off some fine mat or the biggest pig which has been offered up to his uncle's tribe. His cousins in some places, if not all, abuse and beat him, but cannot recover the stuff.

Thus over a not inconsiderable part of Fiji the sister's son's right consists merely in carrying off what has been offered up to the gods of his mother's people. We find a curious parallel among the Thonga tribes of southeast Africa. Mr Junod⁴ tells us that when a sacrifice is made after a death the wives of the *bantukulu*, or uterine nephews, steal the meat of the sacrifice and run away with it while the people pursue and pelt them. He adds "Uterine

¹ *Mun*, XIV, 1914, p. 96.

² It is impossible here to bring forward the evidence without obscuring the main argument with a long digression. I will just mention here that at these exchanges (a) the stuff is offered up with the same formalities as when making an offering to spirits; (b) infand the givers always wind up their formula of offering with some such words as "let it be offered up to . . ." naming the land of the god (*namu ru*) of the other party.

³ In the words of one informant from Wainanu: "It (the *vasu*) is not an every day thing, but only for *solevu*."

⁴ *Life of an African Tribe*, I, p. 162.

nephews are representatives of the gods (*i. e.*, ghosts) . . . and assert their right by stealing the offering and eating it." In Tonga we found the sister's son doing exactly the same, only the gods in that case are chiefs.

These three cases put together suggest the following origin of the right of the sister's son to take anything belonging to his uncle.

The sister's son's right was originally limited to offerings. He stole the god's share of the feast, the sacrificial meat among the Thonga, the *fono* in Tonga, the biggest pig in Fiji. He alone could steal it because he alone could do so without any harm coming to him; the reason of this immunity may be the subject for future research. If he was not present some stranger took his place either because the stranger enjoyed a similar immunity, having other gods,¹ or because nobody cared if he did fall ill. The sister's son could only secure immunity by first making an offering to the god. In Fiji the *vasu* makes a feast once for all, but in the custom of *tauvu* or reciprocal tribal *vasu* it is done every time one tribe comes to visit the other; if the visitors proceed to plunder without having made an offering they fall ill.

Where the chiefs are gods anything offered up to them is liable to seizure. It is but what we should expect that the right of *vasu* is only exercised constantly in those parts of Fiji that have divine chiefs.

We have still to explain the great scale upon which it is carried out in those parts. The clue to it is this: in Fiji the land is offered up to the chief in the shape of a lump or basket of soil (*ta ngele*, *mbuli ngele*). This is done whenever a tribe acknowledges itself subject to a chief. Though the land is offered up to the chief it does not become his property, but remains the property of the former owners; the land is spoken of as "his", but the possessive used is not that of property (*nona*), but that of destination (*kena*) signifying that it is for his use. He can command the produce for feasts but not the estate.² Both chiefs and gods receive a share of

¹ In Fiji a chief or nobleman only has miraculous power (*mana*) over his own people or dependants.

² As one informant put it, "The people own (*taukena*) the land; the chief decides about it (*Jewa*)."

all the produce as first fruits (*i sevu*). Whenever a chief visits a subject tribe or returns to his own tribe after a journey he is presented with an earnest (*i sevusevu*) of the land in the shape of a kava root,¹ it is presented after the usual style of offerings. The produce having been offered up to the chief it becomes liable to seizure by his sister's son who may appropriate a whole taro field by merely blowing the conch over it; but he cannot touch the land; he can only acquire land from his mother's people if they chose to give it.²

We can now understand why the custom of *vasu* is looked upon as essentially noble or "chiefly". It is a direct consequence of the theory of chieftainship.

There remains the fact however that it is practised by the commoners both in Fiji and elsewhere. It does not matter in how mild a form, it has to be explained. Here we must tread cautiously, for we are leaving the safe ground of evidence for the quagmires of supposition. We can only hint at a possible solution.

It is highly probable that the gods are merely a variety of ghosts, the ghosts of the original chiefs reincarnated in their successors. Anyhow in Polynesia and sometimes in Melanesia the two are classed together as two species of one genus, and they are not always discriminated. Ghosts proper are the souls of anyone's parent, grandparent, and great-grandparent. They may possess any man of their own kin and cause him to quake and prophesy. Intensive ghost cult with possession appears to belong to a different and later stratum than divine chieftainship, at least in the Pacific.³

We can thus suggest the following line of development as a working hypothesis:—

¹ In the Eastern Group a coconut is also offered up under the name of *rono*, which is probably the same as Tongan *fono*. The original meaning of *fono* would then be "offering."

² In one village near Suva, Vutia by name, the *vasu* can seize a house. Unfortunately, I had not the present view of *vasu* in my head at the time and so never thought of finding out whether houses there were the subjects of offerings.

³ In Tonga commoners had no souls so that ghost cults such as exist in Melanesia cannot have existed there. Their only ghosts were those of chiefs and their heralds, and presumably also of the families of both.

(a) The sister's son carries off the offering made to the deceased kinsmen of his mother.

(b) Chief = gods, a particular kind of ghost. Therefore the chief's nephew takes what is offered to his uncle.

(c) Possession by ghosts comes in so that any man may become the embodiment of a ghost. Therefore a plebeian nephew may take from a plebeian uncle.

It may be that *b* and *c* should be reversed or it may be that they are independent developments from the same original, not derived one from the other. There is yet another way and that is through heads of clans, but this would lead us into a treatise on chieftainship which we cannot undertake here. In fact, the obscurities of the whole subject of chieftainship in the Pacific is one great obstacle in the way of a satisfactory theory of the sister's son. If I have advanced such a theory at all it is in order to draw the attention of field-workers to new points of view; either they will find new facts confirming it, or in finding facts that definitely refute it they will be led on to a more fruitful theory. It is something if I have been able to break through the magic circle of mother-right.

There is one detail in the Tongan custom of *fono* which still awaits explanation; why the grandchildren share the right with the sister's child. The reason is that the right of *vasu*, though primarily a relation of nephew to maternal uncle is in practice much wider. In Fiji the sister's son's son is also *vasu*, and he is a grandson in the classificatory system. In Tonga both the sister's son and the daughter's son are called *fahu*, the Tongan form of *vasu*. In the kinship system of Vanua Levu, Fiji, and in many others the sister's child and the grandchild are confused. The reasons for this coalescence do not concern us here, it is sufficient that it should be a common phenomenon. If grandchild = sister's child the privileges of both will be the same.

It may be objected that the theory has not explained the custom of *vasu* but merely removed it further back in the past. Such an objection will only trouble those who conceive the history of mankind as the sudden growth of customs out of nothingness.

However far back we may go, there was something already in existence which gave rise to that which we are studying. Ethnology therefore can do no more than trace each custom to earlier customs that will have to be explained in their turn by still earlier customs. The present theory is content with suggesting an earlier form of the sister's son's right; if it should prove to be true our next task will be to reconstruct the customs and beliefs that came before.

OXFORD, ENGLAND.

INDIVIDUAL INITIATIVE AND SOCIAL COMPULSION

By WILSON DALLAM WALLIS

INTRODUCTION

OUR problem has to do with the relation of the individual to society. The incentive may be found in the interests that prevail in contemporary writings, more particularly in the contributions of Émile Durkheim and the *L'Année Sociologique* school. This school is prone to see in the individual merely a nucleus of social forces, a product of the social environment. For them the individual has no reality; he is but the carrier of tradition, the link which transmits the social of one generation to the social of another. Freedom from social compulsion, we are assured, is an impossibility—*L'individu n'existe pas*. His apparent impulses are but the resultant of so many *vires a tergo* proceeding from a group. In attempting to demonstrate this the *L'Année Sociologique* has not confined itself to any one grade of culture: Durkheim has dealt with the social phenomena of western Europe, and with that of aboriginal Australia; his co-workers have studied Eskimo society and that of southeastern Asia; they have given us examples of this law in magic and in the realm of religion.

They do not deny that there are examples of apparent individual initiative, but contend that the initiative is only apparent. I have chosen for examination the spheres, respectively, of marital relations, aesthetic activities, leadership, and religious life. The choice is largely arbitrary; almost any other sphere would have suited our purpose equally well.

EXAMPLES OF APPARENT INDIVIDUAL INITIATIVE

A. Marital Relations

Despite the marriage regulations which are generally regarded as absolutely binding in savagery, despite the incest prohibitions

which seem so fundamental in social life and so deeply rooted in individual psychology, we find no lack of violation of both rules, particularly of those regulations which are regarded as obligatory but whose violation is not regarded as equivalent to incest. Such exceptions to the rule are found in Australia, in Melanesia, in Africa, and in North America. We shall return to these instances.

B. Aesthetic Activities

The Torres Straits islander frequently strives for uniqueness in fashioning an image so that, as he explains it, posterity may say, when asked, who made this? "It was made by so-and-so, a long time ago man." The Chilkat chief of the Northwest coast of America strives for uniqueness in house-building and decoration for similar reasons. The Dahomey artist must draw and design without a pattern, for the rule of art is to follow the promptings of the mind, and to imitate or copy is to stultify art by confining its expression to the posited patterns. The Plains man or woman dreams and puts the content of this dream into a design; or a personal adventure may be represented in an art design.

C. Leadership

The leader occupies in his group a unique position. The direction of a ceremony or a fight or hunting expedition, as the case may be, falls upon him; he directs the movements of the other participants. He may be able to reward or punish. He has poise and power; is active and sagacious; is peculiarly fitted for the task which he undertakes. We find the headman in practically every culture. Among the Iroquois even the captives were given an opportunity to show their mettle, bravery, and ability to fight, and might be adopted into the tribe. "If he proved himself skilful, useful, and especially wise, he might be promoted from time to time, until at last the captive might become a chief." (Powell.)

The significance of the facts cited above we shall consider later. Lack of space forbids a detailed account of more than one topic and for this we have chosen the realm of the religious.

D. Religion

Perhaps, however, the most interesting class of personalities yielded by our analyses are the messiahs or prophets who have arisen from time to time in various areas and given new trend and development to the religious life.¹ Chief among these North American messiahs and the earliest to introduce a new religion of whom we have record was Popé, a celebrated Tewa medicineman native of the pueblo of San Juan, who first appears in New Mexico history in 1675. "Later making Taos the seat of his efforts, he quietly preached the doctrine of independence of Spanish authority and the restoration of the old Pueblo life, which developed into a plot to murder or drive from the country the 2,400 Spanish colonists and priests." After ousting the Spaniards, Popé set about to realize the rest of his dream. "Those who had been baptized as Christians were washed with Yucca suds;² the Spanish language and all baptismal names were prohibited; where not already consumed by the burning of the churches, all Christian objects were destroyed, and everything done to restore the old order of things. This project to obliterate everything Spanish from the life and thought of the Indians met with the same enthusiasm as that with which the plan of revolt had been received, and for a time Popé, dressed in ceremonial garb as he went from pueblo to pueblo, was everywhere received with honor."

Another example may be cited in the case of Tenskwatawa, twin brother of Tecumseh, the Shawnee warrior. "One day, while lighting his pipe in his cabin, he fell back apparently lifeless and remained in that condition until his friends had assembled for the funeral, when he revived from his trance, quieted their alarm, and announced that he had been conducted to the spirit world. In November 1805, when hardly more than thirty years of age, he called around him his tribesmen and their allies . . . and an-

¹ The best account of these religions in North America will be found in James Mooney's, "The Ghost-Dance Religion and the Sioux Outbreak of 1890," *14th Annual Report Bur. Am. Ethn.*, Part II, and in A. F. Chamberlain's article on "New Religions," in the *Journal of Religious Psychology*, Jan. 1913, Vol. VI, 1-49. See also *Handbook of American Indians*.

² A native purification ceremony.

nounced himself as the bearer of a new revelation from the Master of Life. He declared that he had been taken up to the spirit world and had been permitted to lift the veil of the past and the future, had seen the misery of evil doers and learned the happiness that awaited those who followed the precept of the Indian god. He then began an earnest exhortation, denouncing the witchcraft practices and medicine juggleries of the tribe and solemnly warning his hearers that none who had part in such things would ever taste of the future happiness. The fire-water of the whites was poison and accursed; and those who continued its use would be tormented after death with all the pains of fire, while flames would continually issue from their mouths. The young must cherish and respect the aged and infirm. All property must be common according to the ancient law of their ancestors"—and many more directions enforced by promised salvation for the obedient and by the miracle of successfully predicting an eclipse of the sun which came off according to promise in the summer of 1806; followed by his "enthusiastic acceptance as a true prophet and the messenger of the Master of Life."

Is there in the circumstances under which the new religions are foisted by an individual upon the group, any indication that the individual prophet or messiah is obedient to some higher law?

Smohalla, the Nez Percé prophet, one of the most eminent of these introducers of new religions into aboriginal North America, insisted that at that time the Indians of his tribe were so helpless before the whites that they must cease to exist unless they had the assistance of a higher power. Smohalla found this higher power and obtained from it knowledge of the salvation of the Nez Percé from the white man's deteriorating influence. Should his tribesmen heed this sacred message they were promised strong and sudden help as surely as spring follows winter. The Kickapoo prophet, Kanakuk, who visited General Clark to explain his mission, closed with an earnest appeal in behalf of his people, asking that they be allowed to retain their tribal lands undisturbed. "Some of our chiefs said the land belonged to us, the Kickapoos; but this is not what the Great Spirit told me—the lands belong to him. The

Great Spirit told me that no people owned the lands—that all was his, and not to forget to tell the white people that when we went into council . . . I expect, my father, that God has put me in a good way, that our children shall see their sisters and brothers and our women see their children. They will grow up and travel and see their totems. The Great Spirit told me, 'Our old men had totems. They were good and had many totems. Now you have scarcely any. If you follow my advice, you will soon have totems again.'"

In the tribes strongly entrenched, flourishing in their aboriginal vigor, feeling little need of redemption so long as the outside pressure of civilization scarcely discommoded them, the new religions met with little or no success, for the favorable conditions were not present. In vain did the Paiute runners bring to the powerful Navajo the news of the near advent of the messiah and of the resurrection of the dead. To a tribe safely ensconced in the fastnesses of New Mexico and Arizona, apart from deleterious white contact, in numbers over 16,000 strong, owning some 9,000 cattle, 119,000 horses, 1,600,000 sheep and goats, rich in herds and silver, the message came in vain, for they felt in their prosperity no especial need of a redeemer. The messengers of good tidings "preached and prophesied for a considerable time, but the Navajo were skeptical, laughed at the prophets, and paid but little attention to the prophesies. . . . The doctrinal seed had fallen on barren ground."

In significant contrast with the attitude of the prosperous Navajo toward the new ghost dance religion, is that of the hard-pressed Kiowa with their predisposition to accept the messianic religion, promising, as it did, satisfaction of long felt and intensely felt needs, the fulfilment of a long delayed restoration of the more prosperous conditions which characterized this tribe prior to the contact of civilization. "Within five years the great southern buffalo herd was extinct and the Indians found themselves at once prisoners and paupers. The change was so swift and terrible in its effects that they could not believe it was real and final." Hence, when, in 1881, a young Kiowa known as Keeps-his-name-always,

began to make medicine that would bring back the buffalo, setting up for this purpose a sacred tipi, in front of which he erected a pole with a buffalo skin at the top, and making himself a priestly robe of red color, trimmed with rows of eagle feathers, his efforts were not looked upon askance by his fellow tribesmen; on the contrary, being so much in sympathy with his object and feeling so profoundly the necessity of its success, they warmly welcomed the effort and readily acknowledged his authority. His death shortly thereafter did not end Kiowa hopes which soon afterward (1887) centered in another prophet, one In-the-middle. After his failure to realize the powers which he arrogated and which the faith of his tribesmen bestowed upon him, the Kiowa, distressed and still hopeful, sent a mission to examine the claims of Wovoka, the Paiute messiah, though once more they were disappointed.

With the Paiute the theme is again Indian versus white man. The Apache medicineman, Nakai'dokli'ni, whose hey-day was in 1881, southern Arizona the field of his activity, early in his career began to advertise his supernatural powers, claiming to be able to raise the dead and communicate with spirits and predicting that the whites would soon be driven from the land. The Delaware prophet brought a similar version of help from a higher power that would drive back the English who had so extensively supplanted them on their own territory and leave the Delaware once more in command of their old lands. The Ojibway were misled by similar hopes and promises only to be left in greater destitution than before, as occurred with the Kiowa who were promised the return of the buffalo herds. South American messianic religions exhibit similar conditions.

The motive back of the great ghost dance religion that swept across the plains a quarter of a century ago and roused the Sioux to their last outbreaks was, at bottom, an attempt to restore the old tribal life and, incidentally to drive out the disturbing whites. From the first of these new messianic religions when the Pueblos drove out the Spaniards in the 17th century until the Sioux were inspired by the religious fervor of a new doctrine in the form of the ghost dance religion, there has been throughout, the driving force

of an outside pressure. So far as we may infer, these new religions among the aborigines of this hemisphere have arisen only when the tribe was hard-pressed and facing subjugation, perhaps annihilation. The individual prophet is thus responding to a higher law, the law that calls upon the individual to save his group. As a matter of fact, most of these attempts were unsuccessful. Nevertheless, if many failed and few succeeded in the object aimed at, they at least effected a solidification and unification of the tribe which was a prerequisite to success. As this itself was part of the object aimed at, few of these attempts can be considered complete failures. The prophet who introduced the Shaker religion among the Squaxin tribe of Puget sound, Washington, when his soul left his body and went to heaven was told at the entrance that he must either sojourn in hell or return to his people and teach them to live the good life. It may be that some such alternative is presented in one guise or another to each of the prophets in turn: it may be clear to them as to no other in the tribe that either they as members of the tribe must deteriorate with it or there must be a complete conversion, a new attitude and new morals. In practically all of these religions the inculcation of new moral qualities of a very high order is one of its predominant features, the prophet is in almost every instance a reformer.¹

These features are not peculiar to the new religions of North America but characterize those of many far removed tribes. In 1857, after a period of guerilla warfare with the English in South Africa, resulting in the confiscation of the natives' territory, one of these tribes hastily embraced a messianic religion which promised salvation from these ills. "An impostor named Umlanjeni predicted that if the confederate tribes slaughtered all their cattle,

¹ The messianic excitement known as the "Wilderness Worshipers" which prevailed in 1889 and '90 among the negroes along the Savannah river in Georgia and South Carolina, when one man after another proclaimed himself as Christ and promised miracles, may have been given some of its impetus by the felt white domination, since part of the promise held out to its follower by the first Christ, a mulatto named Bell, was that the world would come to an end August 16, 1890; on which date all negroes would fade white, all white men become black. (The promise contained a "rider" to the effect that all who wished to ascend on this last day must purchase wings from the messiah, Bell.)

destroyed every peck of corn, and left the ground untilled in the spring, that at a certain time their ancestors would rise and drive the English into the sea whence they came." The resemblance to the above North American religions appears again in what follows: "He further alleged that he saw in his visions the cattle belonging to the ancestors coming in huge droves over the hills, and that after the expulsion of the English, every man could have as many as he had provided folds for the eventful day. The corn pits also were to be filled without tillage. This delusion took possession of their fevered imaginations, and a number of tribes destroyed every hoof and left their corn lying in heaps to rot. Feasting, dancing, and warlike demonstrations occupied their whole time. In vain the Government tried to avert the impending ruin."¹

Of the new Kalmuck religion that flourished in Altai in 1904² we know too little, as of the circumstances inspiring the New Guinea prophet described by Seligmann.³ In the Philippine Bontoc Igorot religion of recent origin a prominent motive was the belief in the return of Lumawig, the culture-hero of this tribe, bringing with him new sources of strength for the old tribal life then fast breaking down.⁴ A similar motive seems to have actuated the new religion introduced into the Punjab about thirty years ago by "a wretched creature named Hakim Singh, who lived in extreme poverty and filth, gave himself out to be a reincarnation of Jesus Christ, and offered to baptise the missionaries who attempted to argue with him." One of the promises which he held out to his followers was the destruction of the British government to be followed by the conversion and conquest of the world.⁵

China has shown her understanding of the close relation between new religions and political development by requiring all the incarnate gods in the Chinese Empire to register in the Colonial Office at Peking. "The Chinese Government, with a paternal solicitude for the welfare of its subjects, forbids the gods on the

¹ MacDonald in *Journal of the Royal Anthropological Institute*, Vol. 19, p. 280.

² See *Globus*, Vol. 89 (1906), p. 220-21.

³ C. G. Seligmann, *The Melanesian*, p. 656.

⁴ A. E. Jenks, *The Bontoc Igorot* (Manila, 1895), p. 204-5.

⁵ J. G. Frazer, *The Dying God*. (The Golden Bough Edition.)

register to be reborn anywhere but in Tibet. They fear lest the birth of a god in Mongolia should have serious political consequences by stirring the dormant patriotism and warlike spirit of the Mongols, who might rally round an ambitious native deity of royal lineage and seek to win for him, at the point of the sword, a temporal as well as a spiritual kingdom."¹

The story of the prophets and messiahs of Judaism is similar. Moses, the law-giver and religion-giver rose at a time of great need, when the Jews were oppressed and in danger of losing the integrity of their national life. Most of the Old Testament prophets were inspired with the ideal of a social regeneration of degenerate Israel. It was especially at such times that promise was given of a messiah who would both regenerate Israel and raise this people to a position above all nations. Before the appearance of Christ there was not one prevailing idea of the desired messiah but at least two distinct ones, since there were two classes each with its own needs and hopes, nor were these always reconcilable not to say coincident. If Mr Louis Wallis's interpretation is correct,² the messianic movement found its source in the desire of the upper classes of Israel to have foreigners work for them while they, the successful peoples, ate the wealth of the nations and succeeded to the world's glory. "But the lower classes were infected with social revolution, and wanted to set *mishpat*, or justice in the land." The final catastrophe of Judaism, the last attempt to get rid of the Roman yoke, was "directly traceable to a messianic uprising of the lower classes." Although later in its history it was first adopted by the upper classes and by them imposed upon the peasantry (as in France, England, Germany, and most European countries) in the first centuries of its life Christianity was distinctively and almost exclusively the religion of the lower classes, of the poor and the oppressed, promising, as it did, regeneration and superiority that made the poorest rich, the most afflicted happy despite their misery. Such a religion was not for the higher classes because the oppression felt by them was the result of conditions external to

¹ Frazer, *op. cit.*

² *Sociology of the Old Testament.*

the nation not incidental to the social life as in the case of the poorer classes. The history of the Jewish hope for a messiah in the decades preceding the appearance of Christianity reflects the condition which we find prevailing in almost any region where messianic religions have flourished. In the second century B.C., according to Dr R. H. Charles,¹ the messianic hope was practically non-existent. "So long as Judas and Simon were chiefs of the nation, the need of a messiah was hardly felt. But in the first half of the next century (*i. e.*, of the first century B.C.) it was very different. Subject to ruthless oppressions, the righteous were in sore need of help. But inasmuch as the Maccabean princes were themselves the leaders in this oppression, the thoughts of the faithful were forced to look for divine aid." Thus the bold and original thinker to whom we owe the Parables (one of the apocryphal books) conceived the Messiah as the supernatural son of man, who should enjoy universal dominion and execute judgment on men and angels.² This Messiah would, after purging Jerusalem, allow no stranger to dwell within the gates: "The sojourner and the stranger shall dwell with them no more," says the Psalms of Solomon (written 70-40 B.C.). "As for the ungodly nations he will destroy them with the word of his mouth; the hostile nations will be destroyed."

As regards the distribution and occurrence of the messianic belief the absence of it in certain Jewish apocryphal literature is no less significant than its presence in other writings. We find it prevalent in the literature of doctrinally and politically torn Palestine during the century or more preceding the appearance of Christ and in the first century of our era.³ In none of the Alexandrian literature of these centuries do we, however, find expression of the hope of a personal messiah. This Alexandrian absence is for Maldwyn Hughes⁴ "explained by the fact that, removed from the

¹ See his *Eschatology, etc.*, and Edition; *Apocrypha: Between the Old and New Testament*. (Home University Library.)

² *Eschatology, etc.*, p. 296.

³ See further on this point Maldwyn Hughes, *Ethics of Jewish Apocryphal Literature*, and Shaler Mathews, *Messianic Hope in the New Testament*.

⁴ *Op. cit.*

center of political aspiration and life, and influenced by the more spiritualized Judaism represented in the Book of Wisdom, the faith and ideals of the Alexandrian Jews did not suffer secularization to the same extent as those of the Palestinian brethren."

Although the destruction of Jerusalem dealt a severe blow to the Jewish political hopes it did not utterly destroy them; to this the book of 4 Ezra is witness in bringing the person of the messiah into the foreground in its portrayal of the future. Indeed, "the darker the present grew . . . the more eagerly did their minds turn to the comfort offered by the apocalyptic promises, which predicted an end of their suffering and the dawn of their delivery." (Buddenweiser.) This hope for the messiah, lying dormant in the consciousness of the people until roused by the nation's need seems to have reached its highest tension during the troublous times immediately preceding the destruction of the temple by Titus (in the 1st century A.D.) and again in the person of Bar-Kokabas who came forward in 132 and raised in behalf of the oppressed Jews a revolt against the Romans which lasted three years and a half.¹ The later belief that the messianic period would be preceded by many misfortunes and perplexities for Israel² was but the obverse of the situation that called forth these manifestations. It was so in the case of Serene of Syria (about 720) and of Obayah Abu—Isa ben Ishab, who arose three decades later in the Persian town of Ispahan to restore to the downtrodden Jews their ancient heritage. Such was the story of that wonderful sixteenth century dreamer and would-be messiah, Molcho, who for a time, owing to favorable fulfilment of prophecies, commanded a considerable following in southwestern Europe. The fifth century Moses who stirred up the Jews of Crete and convinced them of his supernatural powers, and Sabbatai of Smyrna (of the seventeenth century) appeared in times and places of need for salvation from the stress of harsh conditions of national and individual life.³ It was in Poland where the Jews had but recently

¹ Lagrange, *Le Messianisme* (Paris, 1909), p. 309; J. A. Greenstone, *The Messianic Idea in Jewish History* (Phila., 1906), p. 42-3, 89, 54, 84.

² Greenstone, 111-112.

³ See Greenstone, p. 118-22, 194; 112-13, 213-27, 109-11, Sabbatai (Sabbatai-Sevi) is described by Voltaire in his *Essai sur les Moeurs*, and by Zangwill in his *Dreamers of the Ghetto*.

suffered terrible persecutions during the Cossack invasions, that the Sabbatian craze assumed most alarming proportions. These assurances of a bright future in which Israel would triumph and her enemies be bountifully chastised kept alive national hope, and fostered national solidarity and unanimity. "They fondled the hope with intense affection, the mother sang it to her babe, the father on all occasions related it to his household, the teacher impressed it upon the minds and hearts of his pupils—all were invigorated by the assurance to suffer and die, to withstand the onslaught of the enemy, and to remain faithful to their religion."

If it be asked why the Jews, of all people, have furnished so many examples of messianic religious revivals, the final reason is, of course, not forthcoming. Yet, it may not be futile to point out that they alone furnish us an example of a people deprived of country, scattered to the ends of the earth, subjected to every hardship, yet throughout preserving their racial integrity comparatively unimpaired, through the centuries.¹ Mr H. S. Chamberlain has compared the relation of messianic religions and national life to the relation between brain and heart: "If in physiological experiments we cut the connection between brain and heart, we have to arrange for artificial breathing or the function of life ceases; this the priestly founders of religion did by the introduction of the messianic kingdom of the future."² Nor does it seem to us pure accident and unrelated to social and national needs that the middle of the seventeenth century was in England a time of great religious as of great political upheaval. "The air was thick with reports of prophecies and miracles, and there were men of all parties who lived on the borderland between sanity and insanity. This was due chiefly to the long continued mental tension which bore on the whole population during this troublous period, and in particular cases to wholesale confiscation, by which families were

¹ For further account of Jewish messianic belief see Joseph Klausner, *Die Messianischen Vorstellung des Jüdischen Volkes im Zeitalter des Tannaiten* (Krakau, 1903). An older and less valuable work is that of James Drummond, *The Jewish Messiah: A Critical History of the Messianic Idea Among the Jews from the Rise of the Maccabees to the Closing of the Talmud* (London, 1877).

² See his *Foundations of the Nineteenth Century* (1913), I, pp. 477-83.

ruined, and to confinement in wretched prisons, suffering from insufficient food and brutal treatment. Individuals even in the established church began to assert supernatural power, while numerous new sects sprang up with prophecy, miracle working, hypnotism, and convulsive ecstasy as parts of their doctrine or ritual."¹

SIGNIFICANCE OF THE ABOVE EXAMPLES OF INITIATIVE

There seem to be in the social and political condition of the nation needs that call forth the new religion, a divinity that shapes the messiah's ends, rough hew them how he will. On the other hand, though the messiah may initiate, he does so profitably only when there is a certain predisposition on the part of the group with which he works, a predisposition fostered by untoward circumstances.² In all these cases, then, we find the individual responding, as does also the group, to the higher law of self preservation and persistence, a law operative, of course, only under its own appropriate conditions and expressive of what society and the unique messianic individual does under such conditions. If now we return to the other classes of initiative given under the headings (A), (B), and (C), we shall, I venture to say, find these instances also to fall under some social law. The leader, for example, does not lead when, whither, and as he will, unless he wills in a certain restricted conformity with the group needs and desires. Whether the Australian son succeed his father in the position of headman depends upon the personal fitness of the candidate, that is, upon his ability to respond to the demands of the group. The Maori who would succeed his father must have the qualifications demanded by the group, that is, he must be orator, poet, warrior, hunter, and seaman. Among the Iroquois, the office of chief was bestowed in reward of personal merit and died with the individual. No man could lay claim to leadership who did not first conform to group demands.

¹ I am quoting here the interpretation given by Mooney, *op. cit.*, p. 936.

² Max Nordan in his *Interpretation of History* (Trans.), 380, gives a similar suggestion.

The artist who believed himself independent of objective compulsion was far from free in that respect. The Plains Indian expresses new ideas but they are so completely encased in the old designs that the meaning is there only for the individual artist.

In vain does the Dahomey artist convince himself that he is pursuing a new design in the execution of which he is merely following momentary promptings. Though he believes himself to start and to continue without any conception of the figure that he is about to produce, an examination of the procedure of such a native artist is demonstration of the existence of determinants. When 'turning' in his free-hand design he must not make smooth curves but put a characteristic 'kink' in each. Moreover, having started the design, the rest of the figure must fall into a certain harmony of outline and balance of parts which, of course, limit individual choice. These characteristics are imposed by the culture, the artist merely varying the prescribed form though never departing from the general rules laid down by the conventions of the group. Here we find the creation of new objective designs but the newness lies within well-defined social limits.

If we compare with these efforts of the Dahomey artist those of a Chilkat artist consciously striving for uniqueness of production outrivaling preceding achievements we find the same law operative. There is here, also, creative artistic talent with resulting new objective art forms, yet the creation falls within certain clearly demarked limits given by the social environment.

This correspondence cannot surprise us. It means that the individual is restricted in his appreciation of art by previous experience. Yet what kind of appreciation is not similarly limited? If philosophy and science have their history, so likewise has primitive art its history of a development limited and guided by prior achievements. Could a workman who was not limited by such appreciations be an artist? We may suggest that perhaps he has grasped an esthetic principle which his group taken singly or together fails to grasp so that they, not he, are erratic. This is, indeed, a real issue; yet when we ask what criterion will serve us in judging the issue we must drag in some arbiter and this arbiter is a society

with which that individual must accord in order to win the approval that judges him artistic. It is difficult to understand how, otherwise, the correctness of their relative judgment could become an issue, or if an issue, could be decided.

In the violation of marital rules, each story has a different setting, each case is looked upon by the individual in question as a peculiar and unparalleled one; they are, in fact, as like and as different as those sex attractions in our own culture which give us the picture of dominant romantic love adventure.

In this matrimonial choice that sets aside social compulsion we have an example of the driving law of sexual selection appearing in the guise of enamored freedom of choice, superior to the socially directive forces, transcending both individual and social convictions, conflicting now with this one or with that as it gives expression to the one and thereby denies it to the other. 'Strephon have a choice,' is advice which the native follows even to his own undoing; and he frequently choses contrary to the group regulations.

These instances of apparent initiative force the issue as to the reality of the individual as contrasted with the reality of the social. Is the social triumph complete? Is the social dominance ultimate?

DOES SOCIETY TRANSCEND THE INDIVIDUAL OR DOES THE INDIVIDUAL TRANSCEND SOCIETY?

In the instances of messianic religions given above, we seem to have examples of genuine individual initiative and of such initiative giving new trend to the social development. A school of sociologists assures us that this is, after all, but individual response to social call, the expression in an individual of social compulsion: that the individual acts as he does because and only in so far as society wills it. It seems clear that the society must be in some such state of preparedness and wilful seeking as adverse circumstances would appear to indicate; yet the directive force is not always according to society's well-wishing and not seldom operates to the group's undoing. Such was the case when the Eskimo of South Greenland became so absorbed in the new doctrine enun-
ci-

ated by their prophet Habakkuk as to discontinue hunting and live on the provisions of the previous winter. The Guiana Indians were so obsessed by the Messiah's words as to act upon the assurance that all must die within three nights, each to fall by the hand of his fellow, in order to secure resurrection in white skins wherein to repossess the land that was fast being wrested from them; some four hundred people felled each other in a bloody massacre which was yet not gory enough to entail the promised resurrection. Scarcely less misfortune came upon the group of Cretan Jews who followed their false prophet Moses, of the fifth century, to their woeful undoing.

In all these instances the individual mind seems to be, so far as this religious life is concerned, the larger mind, including within its purposes the social mind and prescribing the program which the social is to adopt and pursue. This adoption and adherence on the part of the social is frequently independent of their real welfare, and often directly antagonistic to it; yet so completely is society held in the grip of the individual that its impulse to respond sweeps aside every consideration of welfare, every faculty of critical judgment, all possibility of scepticism.

In the case of the South American Guiana tribe we find a reaction upon the part of society once the delusion and deception is comprehended by it. There is then revolt and probably death for the hypnotizer, as occurred in this instance. Society is once more in the ascendent, now that the influence of the individual is removed or checkmated. Thus the reality of the social dominance seems to be assured.

Is this recurrence of social authority merely the rebound of the social to its own or but a temporary restoration only to become subject again and again to individual mind? An Eskimo community furnishes an instructive example of this interplay of social and individual forces. In such a community it is not uncommon for some individual gradually to acquire more and more wealth than his fellows, and *pari passu* to rise in influence. He may brutally dominate the community until every member of it is in fear of his life, none of the man's small party of followers daring to revolt. A time

comes, however, when the wealthy Eskimo must give away to the community all his wealth, retaining not a vestige for himself, or suffer death for his failure to comply with the community's demands. The man who dominates the community, killing largely by caprice this or that individual who is displeasing to him, keeping every member of it in fear of his life, is eventually overthrown for finally the community summons up courage to antagonize him and appoints someone to kill the offensive member. Thus society is again in the ascendant and although other individuals will from time to time arise and repeat similar aggressions, the community will, in the case of each of them, eventually brush them aside, persist in its own way and triumph in its own right.¹

It seems unwise for the sociologist to eke overmuch comfort from such considerations. The only reason why, in these cases, society seems to revert to the ascendancy as one only temporarily surrendered is because, in the history of the case, we start with the individual and stop with society, whereas we have no right to start or stop with one rather than the other. So far as the phenomena of recurrence are available they afford not a permanent ascendancy marked by periodic lapses of one authority rather than the other, but an endless series, a cycle of individual and social authority.

This group seems ultimately to transcend this individual; but it is not the same group in any sociological and psychological meaning of the term 'group' as that which was previously at the beck and call of the individual. If we retain the sameness in individual and society, respectively, we at once pass into the infinite series of which a cycle is the only way of representing respective dominance.

Nor is it clear in what helpful sense we may allege that the individual dominates only when society wills it since we find this dominance when society wills otherwise. It is true in the sense that an army surrenders only when it wills to do so, yet this willing

¹ For a description of the facts see Nelson's account of Alaska Eskimo published in the *18th Annual Report Bur. Am. Ethn.*; Dr E. W. Hawkes, who has been three years resident with the Alaska Eskimo gives confirmatory data.

occurs under such untoward circumstances, when the act of surrender contravenes its more inclusive purposes and expresses the fulfilment of the broader purposes of the enemy, that we may well speak of its surrender as compelled by the foe rather than as chosen by itself. How we express it is but a point of view in description, since dominance involves always two things in conjunction and the phenomena can be described from the point of view of the interests and activities of the dominating or from those of the dominated. Our interests usually hover about the fulfilment of larger systems of purposes rather than of smaller ones, or of the negation of purposes; wherefore, we prefer to say, the man feeds or beats the dog, rather than the equally true and necessary correlate, the dog permits itself to be fed or beaten. When the dog procures food by self-initiated tricks familiar to itself and to its master we may prefer to say: The dog secures food from the master, rather than, The master gives the dog food; but our preference has not hit upon any greater truth. The student of animal psychology will probably prefer the expressions which describe these circumstances from the point of view of the interests and activities of the dog. So the social psychologist may persist in his attitude with regard to the reality and permanence of the social as contrasted with the illusoriness and evanescence of the individual because he has chosen the social as the orientation of his phenomena, and his descriptions are necessarily from that point of view. The antagonism between individual and social psychology, as between socialism and individualism, seems as irreconcilable and no more so than the original points of view assumed by these respective sciences in determining the selection of material and the manner of generating description. Society is no more a complete and independent unit than is the individual; each society has its own historical development and is a member of a larger society form which many influences and tendencies, if not all of them, have come. Once we start this regress, however, there is no justifiable reason for stopping this side of the beginning of human history, since any given society may be considered the result of continuous historical influences reaching to the remotest past.

The motives which lead the sociologist to resolve the individual into mere social and historical antecedents will logically compel him to dissolve the social group into similar historical antecedents. To do so is to give up the problem of society versus the individual. The positing of such a problem involves a treatment of society and of individual as distinct and complete, though reciprocal units. Accepting this point of view the social influences become, like the gravitational, one of the dimensions in which personality must realize itself; its development will be conditioned by many phases of the social dimensions whose determinations frequently more intimately concern individual psychology than does any physical dimension which circumscribes individual action. Oxygen and gravitational forces are, however, as necessary to genius as is favorable social atmosphere and impetus. Wisdom does not flourish without physiological nourishment:

The empty spit
Ne'er cherished wit,

Minerva loves the larder.

The social seems merely a polarity or a dimension in which personality finds meaning and by which it is conditioned in its expression. How could it ever come within the grasp of individual mind unless individual mind were a self sufficient reality? Though social influences are largely responsible for the ability of the individual to grasp their meaning, he creates them as truly as they create him.

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THE EXCAVATION OF A RUIN NEAR AZTEC, SAN JUAN COUNTY, NEW MEXICO

By EARL H. MORRIS

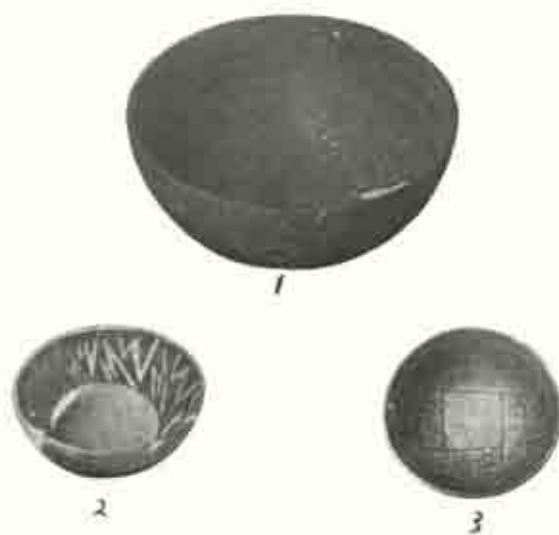
NORTH of Aztec, San Juan county, New Mexico, are the remains of two large communal villages known collectively as the "Aztec Ruin." The great pueblos constitute the most striking archeological remains between the Rio Chaco and the cañons of the Mesa Verde. In places the walls stand to a height of three stories and exhibit surprising skill in construction. The well-worked sandstone from which they are built was brought over a broad road which is still visible, winding over hills and across arroyos to the quarries some three miles to the northwest. A detailed description of these ruins, pleasant though the task would be, does not come within the scope of this paper.¹ Suffice it to say, that architectural features, ceramic remains, and such other criteria as may be gathered without extensive excavations mark the "Aztec Ruin" as the nucleus of the latest period of prehistoric Pueblo culture in the valley of the Animas river.

Roughly three quarters of a mile east of the great pueblos the river swings obliquely across its narrow valley from northeast to southwest. The broad bench thus left north and west of the river was till recently dotted upon all sides of the large ruins with the remains of many cobblestone and adobe structures. Within the last few years a number of these lesser sites have been destroyed in order that the owners of the land might increase the tillable area of their fields.

In July, 1914, mere accident brought me to the ranch of Mr Eudoro Córdoba, which is situated on the northwest bank of the

¹ Newberry visited these ruins and briefly describes them in his report upon the *Expedition to the Junction of the Grand and Green Rivers*, published in 1872.

A plan of the larger pueblo, and a good description are contained in Morgan's "Houses and House-Life of the American Aborigines," *Contributions to North American Ethnology*, vol. IV., 1882, p. 172.



BURIAL IN A ROOM. RED BOWLS: DIAMETERS: 1, 9 $\frac{1}{2}$ IN.; 2, 8 $\frac{1}{2}$ IN.; 3, 10 IN.

Animas, just after it makes its southwesterly bend. As I was at that time in the field conducting archeological research for the University of Colorado, my attention was immediately attracted to various "relics" which adorned the mantelpiece of Mr Córdoba's home. It developed that he was leveling down the last of seven

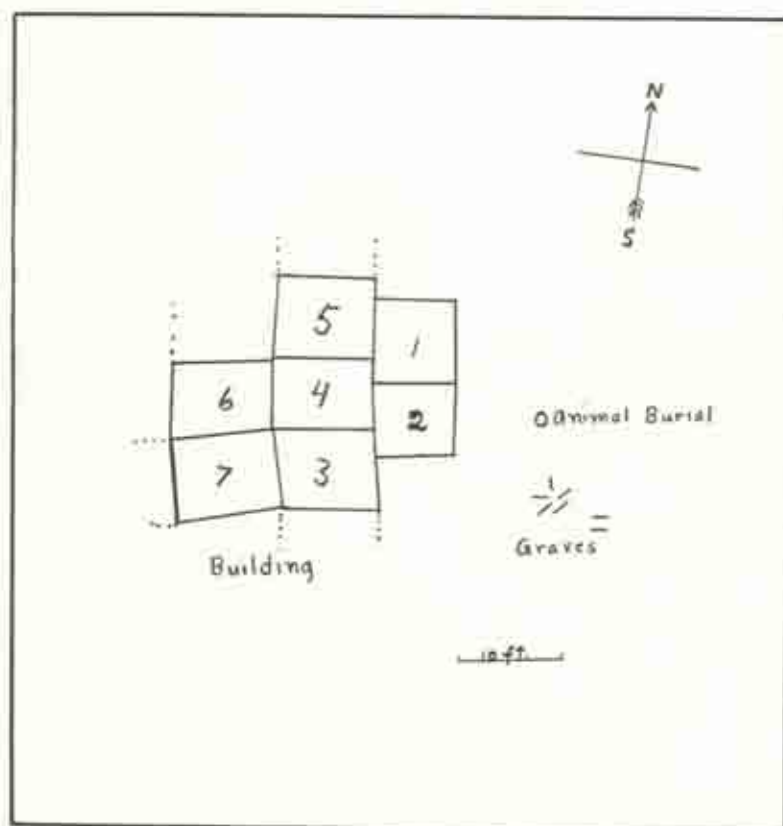


FIG. 98.—Groundplan of excavations near Aztec.

or eight small ruins which had obstructed his fields. As I knew that many of the sites near Aztec had yielded great quantities of pottery,¹ I made arrangements with Mr Córdoba who granted

¹ Mr H. L. Abrams, present owner of the "Aztec Ruin" took seventy-six unbroken specimens from one room in a small ruin northeast of the large pueblos.

the privilege of completing the removal of the ruin for such material of archeological interest as it might contain.

As the surface had been plowed over and removed to a slight depth before I saw it, a detailed description of its appearance before it was disturbed cannot be given. It stood one hundred feet back from the high steep slope which here forms the northwest bank of the river. The action of the elements had reduced the building to a mound three feet and a half in height, at the top of which no walls appeared even before it was touched by a plow.

An area roughly eighty feet square was excavated. The building had covered most of this space, but in all except the central portion the walls had disintegrated to such an extent that it was impossible to trace them. Such as remained were built of adobe with occasionally a course or two of cobblestones at the base, and averaged thirteen inches in thickness. There was nothing to indicate that the mud had been moulded into bricks, nor did it seem that the walls had been built by puddling. As nearly as could be determined, irregular balls or chunks of clay were pressed together to form the core of the wall after which mud was smeared into the irregularities till the surfaces were smooth and the wall was of a satisfactory thickness.

Figure 98 shows a groundplan of as much of the ruin as could be definitely traced. The walls of room 1 were blackened as if by smoke. Room 5 showed the application of successive coats of plaster: one mud-color; the next white; and the last a pale red. Room 4 had been whitewashed.

The stratified deposit in rooms 3, 5, and 6, indicated that the building was at least two stories high, and that it was destroyed by fire. Upon the mud floors was from six inches to one foot of clean sandy earth, above which was a stratum of varying thickness composed of ashes, charcoal, charred stubs of cedar beams, bits of bone, many fragments of pottery, and occasional bone and stone implements. Plentiful in this layer were pieces of burned clay, smooth upon one side, and bearing upon the other the imprints of sticks and twigs. These had formed the floor of the second story, from which the pottery represented by the fragments, and the



a



b



c



d



e



f



g



h



i



j

DECORATED MUGS, PITCHERS, AND FOOD-BOWLS: HEIGHTS (IN INCHES): A, 3½; B, 3½; C, 4; D, 5½; E, 4½; F, 5½; G, 6½; DIAMETERS (IN INCHES): H, 7½; I, 8½; J, 5

bone and stone tools had fallen. Above the ash stratum was soil which had accumulated largely by the washing down of the walls.

East of the south end of the traceable walls was found a group of burials containing the bodies of five adults. Without exception the skeletons were in the embryonic position, but showed no uniformity of orientation. A number of pottery vessels had been placed with them. With one exception these had been crushed by some agency, and the fragments mixed so thoroughly that the number of vessels could not be ascertained till the sherds were washed and sorted. Slightly southeast of this group were the graves of two infants. The bodies were flexed with heads toward the east. By the skull of one was a small bowl, with the other only a portion of a large pot.

North of the graves of the adults was the burial of a badger, doubtless either *Taxidea taxus taxus* (Schroeber) or *T. taxus berlandieri* (Baird). Evidently the animal had been put away with all the care ordinarily bestowed upon a human being. The pit-like grave was dug down eighteen inches into the subsoil, and the sides were plastered smooth.

The floor of room 1 had been closely packed with bodies, twelve skeletons occupying a space seven feet one way by seven and a half the other. The bones were in an advanced state of decomposition, and this in addition to the fact that they were jammed in so close together rendered it impossible to tell in what positions the various bodies were lying. The number was determinable only by the skulls which were distinguishable when cut through by a trowel. Twenty-five specimens of pottery and some bone and stone tools were wedged in between the remains.

Large mats of some closely plaited material, presumably yucca or rushes, had been spread over the dead. In many places the imprint of the fabric was very plain upon the floor, and a square of it still hung together when taken from the bottom of a bowl, but at a touch it crumbled to dust. Pumpkin seeds and carbonized cobs revealed two of the articles of food which had been placed among the mortuary offerings.

In room 2 were two skeletons, one partially flexed, lying upon

its left side with head toward the west, the other at full length, also upon its left side with head pointing northeast. Between the skulls were two bowls.

In room 4 were the remains of two adults and three children. In the northeast corner an oval pit had been dug fifteen inches into the floor and the body of an adult placed in it (pl. xxxii). It was in the customary flexed position with head toward the west. No pottery accompanied this burial. It is probable that the other bodies were placed in the room some time after the burial beneath the floor was made. The second adult lay on the floor with head toward the west. The left knee was leaning against the north wall of the room, and the right had collapsed upon the floor as shown in plate xxxii. From the posture of this individual it seems probable that he was not buried. In the first place the body was not in the flexed position which is practically universal among the graves of the Animas valley, and in the second, had it been intentionally covered, certainly those upon whom it devolved to carry in the earth would have placed both legs flat upon the floor rather than to have transported twice the necessary amount to cover the elevated knee.

The bodies of the infants were against the west wall south of the skull of the second adult. Seven specimens of pottery, four of which appear in the picture, were in the room.

By the east wall of room 7 stood two coil ware ollas, both new and quite unused. One is shown in figure 99, a. The other was so badly shattered that its restoration was not attempted. Mammal and bird bones were scattered throughout the débris. Those of deer and turkey are most common. These have not been specifically identified.

As the ground near the ruin was in cultivation, no search was made for the kiva which should accompany the building.

The excavation of the site seems to justify the following conclusions: The building was constructed of adobe, and was, in part, two stories high. Fire destroyed all of it that was inflammable. Interments had been made in the customary manner: that is, south or southeast of the dwelling, as exemplified by the graves of the



a



b



c



d



e



f

DECORATED FOOD-BOWLS; DIAMETERS (IN INCHES): A, 10; B, 8; C, 7½; D, 12; E, 7½; F, 8½

five adults, and of the two children; and beneath the floors of the rooms, as shown by skeleton No. 1 in room 4. In an examination of about twenty ruins in the Animas valley I have found this to be the unvarying method of disposing of the dead.

Although it is not infrequently the case that certain rooms of a dwelling were set aside for mortuary purposes during the period of occupancy of the building, some of the conditions surrounding the bodies in rooms 1, 2, and 4, indicate that the structure was not occupied very long at any rate after the death of these individuals. The rooms were in the very heart of the building, and the bodies in room 2, and all but the one beneath the floor of room 4 were not covered to a sufficient depth to have prevented the odors of decay from permeating the entire dwelling. While the bodies in room 1 were beneath some eighteen inches of loose sand which was in all probability intentionally placed over them, there is much doubt in the mind of the writer if those in room 2, and those above the floor of room 4 were covered by any other agency than the action of the elements. But a few inches of soil intervened between them and the charred remains of the upper story, and this small quantity of earth might well have been left by rains which finally leaked through the mud roof and washed down the plaster from the walls, and at length part of the substance of the walls themselves.

Since it is only by building theories upon the foundations furnished by observation, and by testing these in the light of subsequent research that we are ever to come near to the history of the prehistoric pueblos, I have the temerity to offer the following interpretation of the facts revealed by the excavation of this ruin.

During the normal course of events in the community the dead were buried in the customary manner, south or southeast of the dwelling. At length calamitous circumstances such as siege, pestilence, or famine overtook the inhabitants and caused great mortality among them. For a time the dead were laid away in room 1, and perhaps the burial beneath the floor of room 4 dates from this period. Eventually, from motives based upon superstition, or because of compulsion those who had not succumbed abandoned the site. Before doing so, the last to die were placed in rooms

2 and 4, and a few pottery vessels placed with them; after which they were scantily covered, or more probably not covered at all. Later, perhaps after an interval of years, the building was fired by the people of a neighboring dwelling, or by some marauding band. This is purely an hypothesis, but one which may well be borne in

mind by whoever undertakes the extensive operations which should be prosecuted in the particularly rich field offered by the ruins in the neighborhood of Aztec.

POTTERY

The pottery from Aztec falls into the expected three classes; plain ware, coiled ware, and painted ware. The plain ware is very much in the minority, there being but one specimen from the ruin above described (pl. xxxv, 1). This is a small bowl of yellowish-brown clay. The finish is extremely poor, and the vessel seems never to have been burned. Plain ware is not plentiful in any of the ruins of the Animas valley.

Two specimens of coiled ware are shown in figure

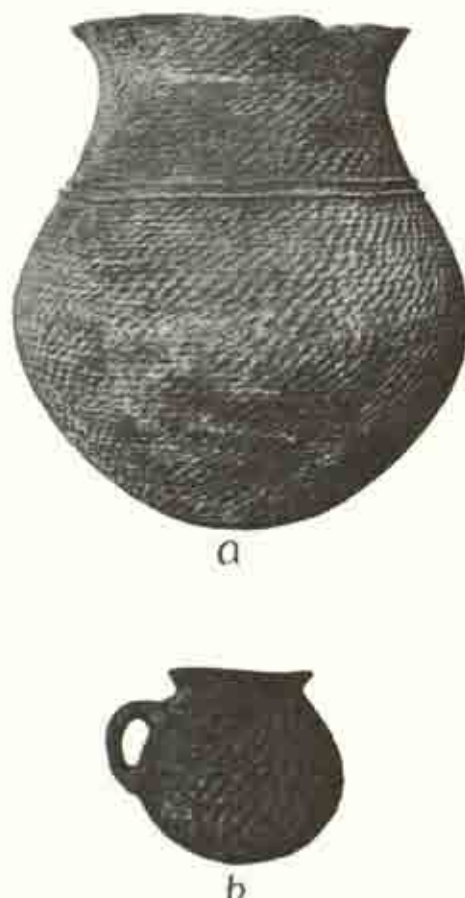


FIG. 99.—Coil ware: a, olla, height, $16\frac{3}{4}$ in.; b, mug, height, 4 in.

99. The method of manufacture of this ware has been given in several publications, but it may be well briefly to review it here. The clay was rolled into a long rope-like strand which was coiled spirally

upon itself and crimped together with the thumb and forefinger much as one would press together the trimmed edges of a pie when preparing it for the oven. The slope of the sides of the jar was regulated by the relative length of the successive spirals. The interior was smoothed off, while the exterior was allowed to remain rough.

The large olla (figure 99, *a*) is the typical form of cooking pot found in the ruins along the Animas, except for the raised bands encircling the neck. Some of these vessels are very large, one in the author's collection measuring 58 inches in circumference. Decorations consisting of incised areas, or of fillets of clay applied over the coils are occasionally, but not often encountered.

Small coiled ware vessels are quite common, but cups with handles are rare. The one shown in figure 99, *b*, is an excellent example of the latter. Westward, notably in the cañons of the McElmo and Montezuma creek, many of the coiled vessels have handles, but not one in a hundred is thus embellished along the Animas.

The paste of the coiled ware, although frequently quite hard, is always coarser than that of the painted ware, and many times contains large particles of grit. Evidently as these vessels were used for culinary purposes, and for the rougher work of the household they were not as carefully constructed as were the more showy vessels.

The painted ware is of two types: gray ware, and red ware. The gray pottery may be characterized as a ware with a gray ground upon which designs are traced in black. It again may be divided into two subclasses, the basis of differentiation being the presence or absence of a surface slip. The ground color of the pottery without the slip is dependent upon the color of the clay from which it is made, and upon the conditions of firing. Some of the specimens are very light gray (pl. xxxv, *a* and *d*) while others are tinged with brown or yellow (pl. xxxvi, *f*). In general, this ware is inferior to the next-mentioned type of gray ware.

The finest specimens were finished by applying over the dark paste a thin wash of light colored, almost grainless clay. This

was rubbed and polished till an extremely smooth and often a surprisingly white surface was produced. In most instances the slip fails to show the checking which mars the gray ware of so many localities.

The collection of gray ware consists of the following: food bowls, twenty-four; four-eared bowls, two; dippers, four; handled vases four; mugs, three; water jars, one; totaling thirty-eight specimens.

The food bowls are hemispherical in shape, only one having a slightly incurved edge (pl. xxxv, *f*). They vary in diameter from $3\frac{3}{8}$ inches (pl. xxxv, *k*) to $11\frac{1}{2}$ inches (pl. xxxvi, *b*) and in depth from 1 inch to $5\frac{1}{2}$ inches. The rims are slightly rounded and with two exceptions are decorated with dots. Usually the dots are close set, forming a continuous series around the edge, but in two instances (pl. xxxv, *f* and *j*) there are four groups of dots separating the bowls into fourths, and in one case (pl. xxxiv, *b*) there are six groups symmetrically placed. The interiors are invariably decorated, the exteriors in only five instances (pl. xxxiv, *c*; pl. xxxv, *b*, *g*, and *h*; pl. xxxvi, *b*). The interior decoration is of two types: (1) a band composed of a repetition of like elements encircling the bowl; (2) a single design occupying the entire interior.

As the two four-eared bowls (pl. xxxiii, *i* and *j*) must have been provided with handles in order that they might be suspended, thus indicating a difference of function, they are classified separately from the food bowls. In an examination of close to two thousand specimens of pottery from the valleys of the San Juan, the Animas, and the La Plata rivers I have never seen bowls of this type which were found elsewhere than near the "Aztec Ruin." There are several in the collection of Mr H. L. Abrams, and he states that they are fairly numerous.

Of the four dippers (pl. xxxvi, *e*, *f*, *g*, and *h*) only one retains its handle, which is merely a solid cylindrical stub. The interior of each of the bowls is decorated.

Graceful tall-necked vases represent the most beautiful form of vessel to be found among the pottery of the Animas valley. The four shown in plate xxxiii (*d*, *e*, *f*, and *g*) are typical. The



a



b



c



d



e



f



g



h



i



j



k



l

DECORATED FOOD-BOWLS. DIAMETERS (IN INCHES): A, 7 1/2; B, 7 1/2; C, 8 1/2; D, 7 1/2; E, 7 1/2; F, 8 1/2; G, 8 1/2; H, 8 1/2; I, 8 1/2; J, 8 1/2; K, 8 1/2; L, 8.

bottoms are always more or less concave. It appears that each vase was made in two parts, the bowl-like base and the incurving shoulder constituting one section, and the nearly-cylindrical neck the other. While the clay was still fresh the two were joined and the line of union obliterated on the outside, but on the interior the junction is in most cases unmistakably plain. Similar vessels are figured from Pueblo Bonito, New Mexico,¹ and from Spur Ranch, near Luna, New Mexico.² The neck and part or nearly all of the base of each vessel is decorated. Generally the design upon the handle is quite different from that upon the neck.

The mugs (pl. XXXIII, *a*, *b*, and *c*) are cup-like vessels with flat bases and sloping sides. A broad, usually flat handle adds to the cup-like effect. The sides with the exception of the rectangle beneath the handle bear decorations. The rims are dotted. In Mr Abrams's collection there is a mug of unusual interest. The bottom is double, and between the two plates of clay are pebbles or other objects which rattle when the dish is moved. In the museum of the University of Colorado there is a broken mug with a similar double bottom which was found somewhere in southwestern Colorado. These are the only instances which have come to the notice of the present writer in which pottery of the ancient Pueblos is fitted with the rattles which are found so frequently in the ancient pottery of Central America.

The type of vessel appearing in figure 100 is of fairly common occurrence. From the convex base the sides slope out and up till the maximum diameter of the jar is reached, near which point the handles are attached. The sides then drop abruptly inward till the opening is almost closed, and are surmounted by a straight or slightly recurved neck. The zone from the handles to the neck is decorated, while the latter is almost invariably plain.

Three of the four red bowls from Aztec are shown in plate XXXII. The ground color is a deep pleasing red upon which the decoration is applied in black. The rims are not dotted. An

¹ "Exploration of a Burial Room in Pueblo Bonito," New Mexico, *Putnam Anniversary Volume of Anthropological Essays*, New York, 1909, pl. 111, p. 206.

² "Culture of the Ancient Pueblos of the Upper Gila River Region, New Mexico and Arizona," *U. S. National Museum, Bulletin* 87, pl. 9.

examination of the clay reveals a structural variation in the redware. The paste of two of the bowls is coarse, granular, and quite friable. It contains many large grains of yellow material scattered



FIG. 100.—Decorated water jar, height, 9 $\frac{1}{4}$ in., diameter, 12 in.

through the gray to reddish matrix. The paste of the other two bowls is fine grained, homogeneous, extremely hard, and black-gray in color. Over the surfaces in all instances a wash of red was applied. On three of the bowls the color is fast, but upon the other it comes off quite readily when the surface is rubbed with a wet rag.

Upon a neighboring ruin were found fragments of an intensely red vessel the decoration of which was in black and white, and a sherd from one of the large pueblos is of pale red ware ornamented with contiguous bands of dark red and white. A small vase found by a farmer living near the large ruins has a base em-

bellished with three nodes upon which are decorations in bright yellow. Red ware in all its forms is extremely rare in the Animas valley, but seems to be relatively plentiful near Aztec.

POTTERY DESIGNS

The designs upon the pottery are of interest because of their inherent beauty, and because there can be chosen from among



FIG. 101.—Design from plate xxxv, b.



FIG. 106.—Design from plate xxxv, a.

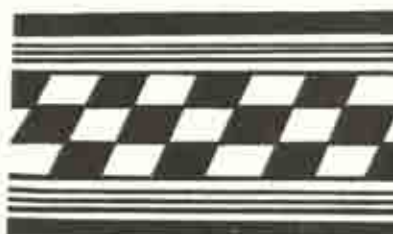


FIG. 102.—Design from plate xxxv, c.



FIG. 107.—Design from plate xxxiii, e.



FIG. 103.—Design from plate xxxiii, c.



FIG. 108.—Design from plate xxxv, b.



FIG. 104.—Design from plate xxxiii, b.



FIG. 109.—Design from plate xxxiv, f.



FIG. 105.—Design from plate xxxiii, a.



FIG. 110.—Design from plate xxxvi, d.

them a series which illustrates most admirably the evolution of ancient Pueblo decorative elements direct from the textile arts.

The band constituting the central element of the pattern shown in figure 101 would result from plaiting together strips of black and white, running the dark strips at right angles to the light ones. To produce the design given in figure 102 it would be necessary only to skew the vertical strips so that they would cross the horizontal bands at an angle of forty-five degrees instead of at ninety as in the preceding figure.

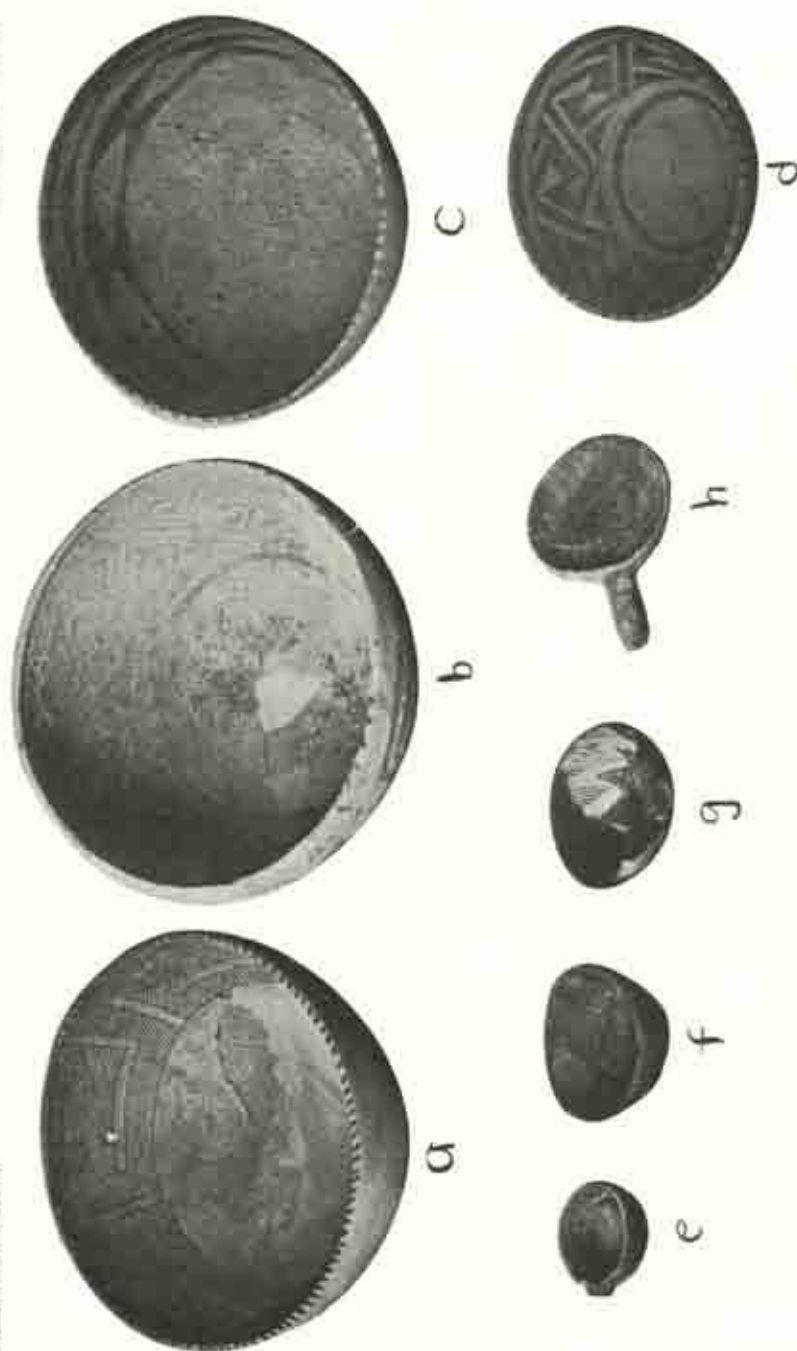
From figure 102 to figure 103 is but a slight transition. The alternating blocks of color form the base from which the terrace was derived, as should appear from the drawings without the need of further elaboration. The steps in the development of figure 104 from figure 103, and of figure 105 from figures 103 and 104 are obvious. Such modifications of the original pattern would result in the course of time from uncertain movements and other accidents practically without intent upon the part of the potter.

Figure 106 presents a design in which the terrace has degenerated into a right-angled triangle, and the terraced line in figure 104 may be considered to have broken up into the series of dots. This is an important step in the derivation of the type of design which is so common upon the bowls, from the more conventional ones which appear most frequently upon the mugs.

In figure 107 the right-angled triangle of figure 106 has been modified to form an isosceles triangle. By increasing the proportionate length of the base to the altitude we have the foundation of the design in figure 108, which may be considered as two series of intersecting triangles separated by a line of white, the sides of which have been cut off by two other white lines passed parallel to the central one.

Figure 109 shows a design in which the triangles have been shifted till one series is directly above the other. The zigzag lines have been made to connect instead of remaining parallel through their entire length, thus forming the interlocking major element of the design.

In figure 110 one of the lines has been eliminated, and the plan of interlocking somewhat changed.



DECORATED FOOD-BOWLS AND DIPPERS. DIAMETERS (IN INCHES): A, 10½; B, 11½; C, 10½; D, 7½; E, 3½; F, 4½; G, 4½; H, 4½

By the same general method figure 111 may be derived from the preceding designs. It represents the highest complication of the triangle-fret elements present in the series from Aztec.

Between each of the steps here outlined there are many intermediate gradations which, were they present, would render the sequence all the more convincing. It may be considered remarkable, however, that so connected a series is to be found among the designs upon so small a collection of pottery.

It does not require any great feat of imagination to derive figure 112 from figure 107. In conforming the triangle pattern to the interior of a bowl, the straight line forming the base of figure 107 becomes the inner circle of figure 112, and the black triangles the star-like element bordering upon it.

Thus the hachured triangles, one bounding line having been omitted, form the outer portion of the pattern.

In like manner figure 113 is seen to have its possible origin in two series of triangles conformed to a concave surface. An inversion of the position of the series, the addition of an outer and an inner border line, a lessening of the number of triangles, and the interposition of a row of dots which may easily be derived from a line, gives one this beautiful pattern direct from figure 110. The hourglass pattern in the bottom of the bowl consists of two triangles, the apices of which meet.

There is another type of design, the origin of which is not shown by the pottery from Aztec, nor have I worked it out from other pottery found in the valley of the Animas. The fundamental element is a square with arms extending from the corners. The design is made to conform both to convex, and to concave surfaces. Figure 114 is taken from the water jar shown in figure 100. The presence of dual elements in this type of design is unusual, this being the first instance which I have ever seen.



FIG. 111.—Design from plate xxxvi, b.

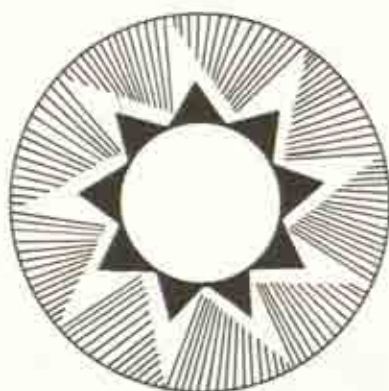


FIG. 112.—Design from plate xxxvi, g.



FIG. 113.—Design from plate xxxiv, d.

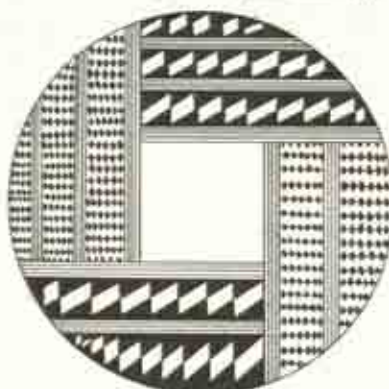


FIG. 114.—Design from figure 100.



FIG. 115.—Design from plate xxxiii, l.



FIG. 116.—Design from plate xxxii, 3.



FIG. 117.—Design from plate xxxiv, e.

Figure 115 illustrates another design based upon the square, in which the alignment of the elements seems to be unique.

Figure 116 is the most intricate pattern which is to be found in the collection from Aztec. The central square with this identical arrangement of arms is a stock symbol upon the pottery of the Animas valley. But the hachured and solid elements which surround and interlock with the square form a pattern of such complexity that no rival to it has ever come under my observation. The quality of the design, and the fact that it occurs upon a red bowl lead to the conclusion that it is particularly rich in symbolism, of which, unfortunately, no explanation can as yet be offered.

Two bowls bear decorations based entirely upon curved lines.

Figure 118 at once suggests an earthworm or a serpent. The spiral constituting the central element of the design in figure 117 is found more frequently upon the pottery from the Animas valley than are all other designs composed of curved lines put together. The author has observed it upon a bowl found near the "Aztec Ruin" by Dr Parks of St. Louis, and there are several examples in the collection of Mr H. L. Abrams, beside three in the possession of the writer.

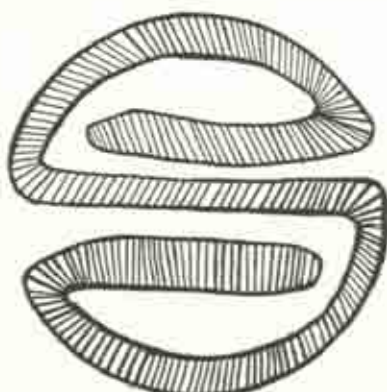


FIG. 118.—Design from plate XXXIII, h.

STONE IMPLEMENTS

Most conspicuous among the stone implements are seven objects of somewhat doubtful function, six of which are given in plate XXXVII. They very closely resemble artifacts known to the Hopi as *icamahias*, and used by them upon the altars in certain ceremonies.¹ Whatever may be their acquired use, they were

¹ See Fewkes, "Antiquities of the Mesa Verde National Park," *Bulletin 47, Bureau of American Ethnology*, p. 39.

originally of utilitarian function. Many of them show evidence of having been hafted,¹ and the chipping upon the one in plate xxxvii, *f*, shows an attempt to put a broken *teamahia* to a secondary use. They are made from *phyllite*, an indurated shale which takes a high polish, and in most cases they are shaped so that the vari-colored banding of the stone forms a pleasing decoration.

The stone axes and hammers present no unusual features. Those found during the excavations were rough and crude, but excellent examples have been found in the neighborhood.

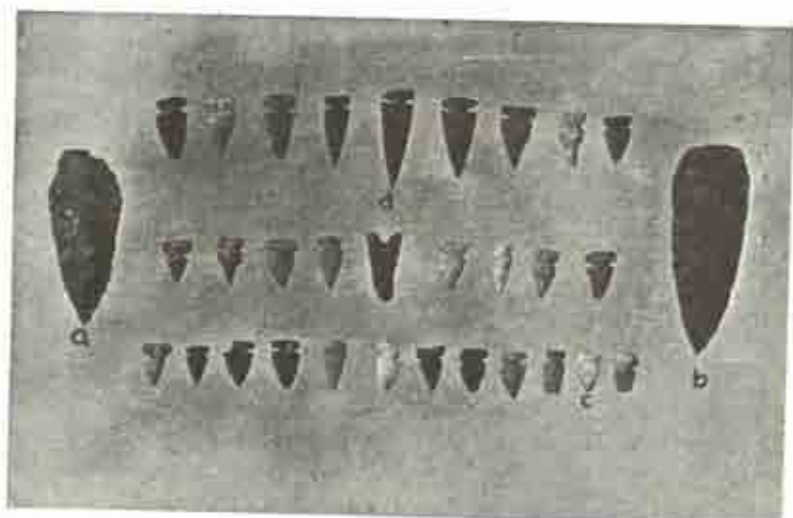


FIG. 119.—Knives and arrow points: length: a, 3 in.; b, $3\frac{3}{4}$ in.; c, $1\frac{1}{2}$ in.; d, $1\frac{1}{4}$ in.

The one metate which came from the ruin was a large river-worn granite boulder rubbed smooth on one side. Mr Córdoba stated that some years ago a three-legged metate was dug up at the edge of the mound.

A mortar and pestle (pl. xxxvii, *a*) were among the mortuary offerings in room 1. Both are made from a hard gray sandstone which is occasionally found in the river gravel. The mortar is $4\frac{1}{2}$ inches high, and $5\frac{1}{2}$ inches in diameter. The central excavation

¹ Nordenskiöld, *Cliff Dwellers of the Mesa Verde*, Stockholm, 1893, figures a *teamahia*, or skinning knife (pl. xxxvi, 10) which had a handle when found.



a



b



c



d



e



f



g

STONE IMPLEMENTS: A, MORTAR AND PESTLE, HEIGHT OF MORTAR, 4 $\frac{1}{2}$ IN.; B-G TCAMAHIAS, LENGTHS B, 5 $\frac{1}{4}$; C, 5 $\frac{1}{4}$; D, 5 $\frac{1}{4}$; E, 5 $\frac{1}{4}$; F, 5 $\frac{1}{4}$; G, 5 $\frac{1}{4}$.

is $3\frac{1}{4}$ inches across and $2\frac{1}{2}$ inches deep. The bottom of the mortar is perfectly flat, and the sides are almost perpendicular.

Figure 119, *a* and *b*, shows two flint blades, 3 and $3\frac{1}{4}$ inches long respectively, which probably were knife blades. Figure 119, also shows thirty arrow points of jasper, chalcedony, and quartzite, varying in length from $\frac{1}{4}$ inches (*c*) to $1\frac{1}{4}$ inches (*d*) in length. With one exception they have the square top and parallel notching which seems to be characteristic of the arrow points from Aztec. The large one in the center of the upper row is as true as if filed from iron.

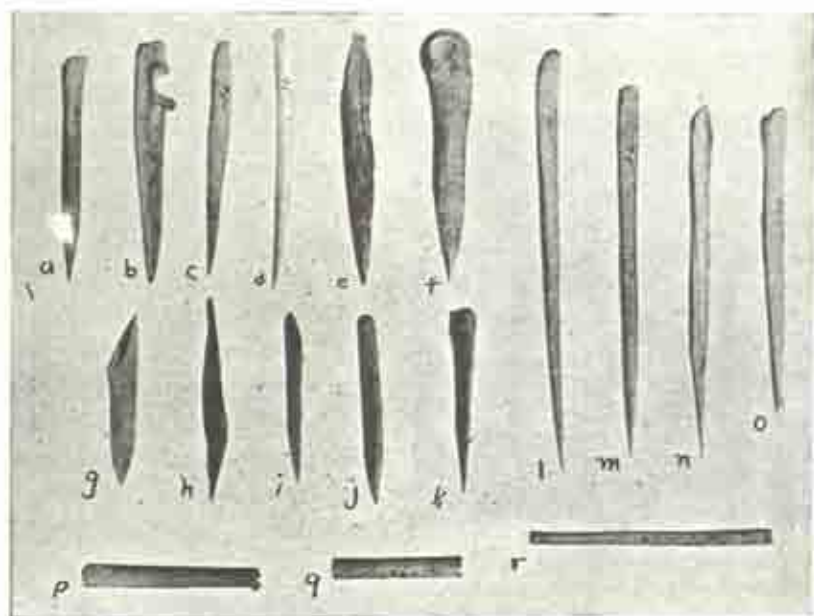


FIG. 120.—Bone implements: length; *b*, 3 in.; *l*, $7\frac{1}{2}$ in.; *q*, $2\frac{1}{4}$ in.; *r*, $4\frac{1}{4}$ in.

BONE IMPLEMENTS

Figure 120, *a* to *o*, illustrates fifteen bone implements ranging in length from 3 to $7\frac{1}{2}$ inches. They are made from mammal bones, probably those of deer. The points of several are needle-like in keenness, and would have been effective as punches, awls, needles, or in case of the larger ones, weapons. *p*, *q*, and *r* are bone cylinders

with cut and polished ends. Presumably the shorter ones were beads, and the long one a whistle or turkey call.

SHELL

Articles of shell are very uncommon. The collection contains one bead made from a species of *Turritella*. Beside this one, two pelecypod shells found near Aztec are the only examples of aquatic shells which the author has known to come from the ruins of the upper San Juan drainage.

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THE CHEYENNE TIPI

By STANLEY CAMPBELL

IN the general dissolution which has overtaken the civilization of the Plains Indians, the lodge or tipi has probably suffered less change than almost any other survival of their culture. Yet this shelter has seldom been carefully described. For these reasons it offers a peculiarly tempting subject to the investigator born too late to see the Indian unmodified by European influence. The Cheyenne tipi is especially interesting, not only because of the known conservatism of this tribe, but because Cheyenne tipi-making is an art controlled and perpetuated by certain societies or guilds of women. The authority of these guilds and the constant association of the tipi with the ritual of the medicine arrows, the sun dance, and the mescal cult, have prevented important change, whether of structure or decoration, until the present day. In this paper I wish first to describe the tipi now in use, and then to speak of such changes as it has undergone.

The poles are the most essential parts of the tipi. There is irony in the fact that the tent best suited to the almost treeless plains requires for its manufacture more products of the forest than any other. Yet, cumbrous and numerous as they are, the poles are the strength and beauty of the tipi. The Cheyenne spare no



FIG. 121.—Cheyenne tipi; showing the twisted appearance of the poles at the top like the sticks of a fan.

pains to get good ones, and not infrequently travel by wagon all the way from Oklahoma to Montana for this purpose. Cedar poles are preferred because they will not rot or split, but pine ones are in common use. The trees are cut and trimmed, the bark is stripped off, and all inequalities pared away. The butt of each pole is tapered to a point, beginning about eighteen inches from the end. When finished, the poles are set up as though to receive the canvas, and left to season.

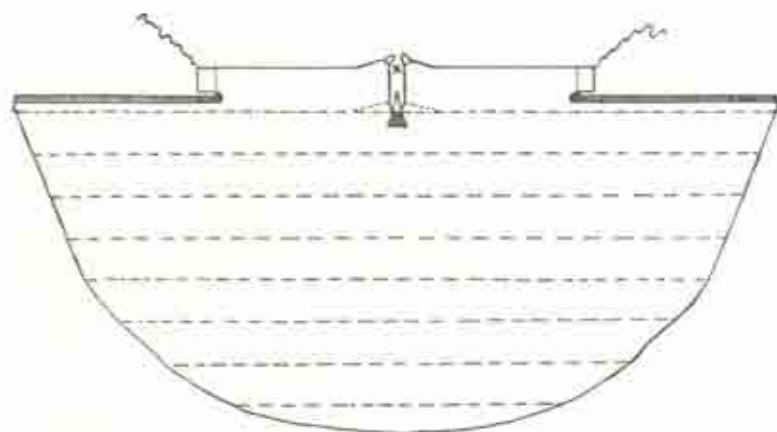


FIG. 122.—Pattern of a canvas tipi cover.

The best poles are straight as an arrow, smooth, pointed neatly at the butts, and seasoned so as not to sag under the weight of the tent covering. In use, they soon become coated with a protective varnish of shining soot, and will last for years. The Indians value them at one to two dollars each, and can hardly be induced to sell them at any price. In length, the poles measure fifteen to thirty feet; in greatest thickness, two to four inches. The number and length of available poles condition the size of a tipi, which varies from ten to twenty-five or even thirty feet in diameter. The smallest tents have about a dozen poles; the largest, thirty or more. In general, one may say that there is a pole for every thirty inches of tipi circumference. Of course, the more poles, the stancher the tipi.

The tipi is commonly made in the spring in preparation for the summer festivities and tribal gatherings. A number of women join in the work. The material (usually eight ounce duck) is cut into lengths and spread on the ground to form a rough half circle. The women run the widths together by hand, using stout white string for thread. Certain cuts are then made through the straight edge. Hems and reinforcements are added, holes for the skewers are made, and pockets are made and attached to the corners of the

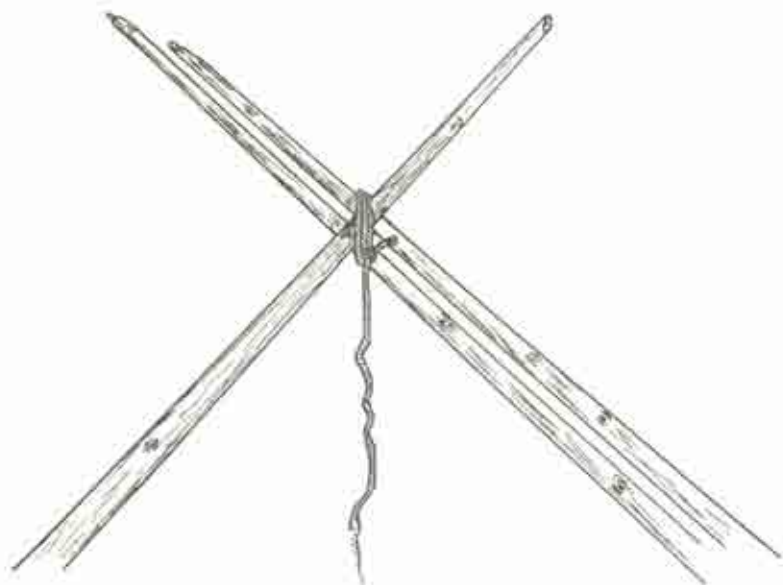


FIG. 123.—Showing the method of tying the three poles which are the foundation of the Cheyenne tipi.

smoke flaps. The canvas is then raised and fitted to the poles. The cloth is trimmed off even with the ground all round the tent, peg loops are added at the ends of the seams, and the tipi is finished.

The completed canvas of a tipi twenty feet in diameter is shown in figure 122. It approximates a half circle with a radius of twenty-two feet, the center (marked X) being between the smoke flaps. Dotted lines indicate seams; cross-hatching, reinforcements.

As compared with the Blackfoot tipis illustrated in Dr Clark Wissler's *Material Culture of the Blackfoot Indians*¹ the Cheyenne pattern presents interesting differences. All the principal seams run parallel with the straight edge of the canvas. The smoke flaps are longer and narrower and have small curtains or free flaps at their bases, quite lacking in the Blackfoot type. The space between the smoke flaps is much greater in the Blackfoot tipis. This is perhaps due to the neater and more compact nesting of the poles at the top of the Cheyenne tent which makes such a gap unnecessary. The Blackfoot tipis also lack the small triangles inserted in the seam at the back of the Cheyenne flaps. These triangles insure a snug fit of the canvas round poles set up in the Cheyenne manner.

As anyone who has pitched a tipi will readily agree, the arrangement of the poles is most important. The Cheyenne method is simple. Two women usually share the work of pitching. The canvas is unrolled and spread on the ground wrong side up. Two stout poles are laid across the canvas along its short axis, their butts extending several inches beyond the curved edge of the cloth. A third pole is laid across these at right angles so as to lie along one or the other of the straight reinforced edges of the canvas. The butt of this pole projects equally with the others. The poles cross at the juncture of the smoke flaps with the canvas proper. This measures the right place for the knot. One of the women now passes one end of a long rope three times round the crossing of the poles, draws it tight, and ties with a hard knot. Thus the tripod is made. The poles and knot appear as in figure 123.

Cheyenne tipis normally face east. The single pole of the tripod is the door pole and always stands just to the left of the door as you enter. When the tripod is raised this pole is carried to the east of the proposed site of the tipi, the two back poles to the west. The door pole is now seen to be tied on one side (north or south) of the back poles. In separating these back poles, care is taken to place the butt of the under or inner one to that side on which the

¹ *Anthropological Papers, American Museum of Natural History, Vol. V, Part 1*, p. 99.

etc.) four times, throwing her weight on the rope as she goes and giving it an occasional fillip so as to bind the poles tightly together. She spirals the rope down round the north back pole to a convenient height and makes it fast by drawing the end in a loop through a half hitch round the pole. In time of heavy winds this rope is stretched directly from the crotch to a huge anchoring peg near the center of the tipi.

The last pole (except the two flap poles) is now laid across the canvas along its shorter axis, the butt projecting a few inches beyond the curved edge of the cloth. The other end rests on the nib or tongue of cloth between the two smoke flaps. The nib is laid along the pole at this point and lashed to it by means of an attached strap, the ends of which pass round the pole (and nib) in opposite directions and tie, much after the old fashion of cross-gartering. The pole with the canvas thus attached is now raised and placed at the back of the tent. The women carry the sides of the canvas round the poles on opposite sides and meet at the door pole. There they pin up the canvas between the door and the smoke hole with dogwood skewers about the size and shape of a lead pencil. The left (south) side is lapped over the right, and the skewers are thrust in from right to left. The smoke hole of a large tipi is so high above the ground that a stepladder is used for this work, as formerly a travois. Such a tent is fastened together by a pair of straps knotted together just below the smoke hole inside so as to take the strain off the skewers.

The poles now stand in a circle somewhat smaller than the tipi is to be. The women move them out and adjust the canvas to fit. By means of a sharpened stake or a pointed iron bar, holes are made and the poles sunk a few inches in the ground to prevent their slipping. If the tipi is to stand for some time all the poles are sunk as much as eighteen inches, allowance having been made for the extra length when the tripod was measured on the canvas. Slanting holes are drilled and the poles thrust into them. A sharp twist is enough to make a pole slip easily under the rope at the top of the framework. Naturally, the tripod poles are sunk first.

Pegs are now driven through the loops all round the tent. A

peg is about two feet long and an inch thick and usually made of a forked branch so as to have a spur angling downward to hold the loop more securely. The flap poles are raised and their tops thrust into the pockets of the smoke flaps so as to support these. The cords hanging from the bases of the smoke flaps are tied to a convenient peg. The flap poles rest against the tipi. By manipulating these the wind is kept out of the smoke hole and a good draft for the fire is assured. Last of all, the door flap is hung on the lowest skewer.

The tipi is steeper behind than in front. This enables it to brace the better against storms, which come from the west in this region. Apparently the height of the tipi is greater than its width, but actually not so great. The floor is not circular but ovoid, flattened behind and longer from front to back than from side to side. The fireplace (excavated with a butcher knife) is somewhat nearer to the back than to the front of the tipi, and measures about twelve by eight by four inches deep.

Beds are made at the back and sides and protected by large canvas flies or linings (often elaborately decorated with beads and pendants) which are stretched from pole to pole all round and line the walls to a height of about six feet. These linings catch any moisture that may get in above, and deflect upwards any air that may enter below, thus preventing drafts from striking the people and also assisting in clearing the lodge of smoke. Though tipis are sometimes made of the flimsiest of unbleached muslin, the linings are almost invariably of good duck. In heavy beating rains they form the principal shelter, as the water penetrates the outer covering in a steady drizzle. Indeed, without them a tipi is apt to prove a cheerless habitation. It has been said that the Indian lives in his chimney. In view of the importance of these linings, one might add that the house itself is inside the chimney.

The place of honor is opposite the door. It is least subject to drafts, and no one need pass between that place and the fire. Here is the couch of the head of the family, unless guests are installed there, when he sleeps on the south side. Weapons and medicine bundles usually hang at the head of his bed. Saddlery lies next the

door on the south, as the woman's utensils on the north. Water hangs in a bucket (formerly a paunch) from one of the poles out of reach of the dogs. Wood is piled just south of the door outside. Nearby, is a shelter or kitchen for cooking in warm weather.

Occasionally one sees miniature tipis, furnished and decorated at all points, in which little girls "play house."

For ceremonial use, a tipi is pitched anew on a fresh site. No linings or furnishings are introduced. The earth is bared, and sage spread all round for seats. The fire is made on level ground and not in an excavation, except in the mescal tent. Altars are on the west side, or just west of the fire.

Painted tipis are now extremely rare, though I saw one at the sun dance in 1913. Painted linings are almost as rare. Some time ago I saw one which Yellow Hawk was making. It contained a dozen figures and was said to represent a battle with the Pawnee. This art, depending as it does upon individual initiative, will soon be lost.

On the other hand the ornamentation authorized by the women's guilds is commonly employed both for tipis and linings, and examples may be seen in every camp. These decorations consist of beaded disks and pendants like those described by Dr Kroeber in his account of Arapaho art.¹ The disks are called "stars," and on offering to buy one I was told that it is "against the Indians' religion" to cut them from a tent. Far from being moribund, this style of decoration is sometimes even applied to commercial wall tents!

By comparing modern tipis with old photographs and with models in the Field Museum, we may check up their differences. At a little distance a camp of today must greatly resemble one of old times, for Alexander Henry tells us that the Cheyenne tipis were "almost as white as linen." The arrangement of the poles has not changed, and pegs and skewers show no variations. The substitution of canvas for buffalo hides is the most obvious departure, and all others seem to spring from this.

In the earliest times tipis were held down by stones piled round

¹ *Bulletin, American Museum of Natural History*, Vol. XVIII, Part I, p. 59 ff.

the edges. Later, perhaps following the introduction of steel knives, pegs came into use. These were driven through holes in the hides. Canvas will not bear such treatment, and the Cheyenne have learned to attach loops through which to drive their pegs. These are attached in a novel manner that bears every evidence of aboriginal invention. A pebble or other small object is thrust into the cloth from the under side so as to form a pucker or pocket. A piece of small rope is tied round the pucker below the pebble so that it cannot escape. The ends of the rope are knotted and the peg is driven through the loop thus formed.

Apart from the notching of the edges (a measure at once protective and decorative in leather work) the smoke flaps of old hide tipis appear about as regular in outline as modern canvas ones, and exhibit none of the fantastic raggedness so noticeable in the tents depicted in the *Travels* of Prince Maximilian. Whether this is an innovation since his time, it is impossible to say.

Since coming to Oklahoma the Southern Cheyenne have given up the cut doorway of oval shape with skewers below it, and now use only the straight-edged doorway shaped by use. This may be due to the influence of canvas, or to the fact that the snowless winters of this region make a high doorway unnecessary. In any case it is a choice of two existing modes and not a departure from old custom.

The toughness of the old hide tent made reinforcements almost superfluous. In measuring the large cowhide tipi of Cheyenne make in Chicago (Field Museum, 96787) I found only two, a small one on either side the rib to which the pole is tied when pitching the tipi. The flaps of this tent measured four feet across the top. All the modern tipis I have measured have flaps three feet wide. This standardizing I believe due to the fact that eight ounce duck runs thirty inches wide. This width, eked out by the small triangle inserted at the back of the flap, makes up the three feet. In wrestling with this leather tent I learned to appreciate the place of polygamy in Indian culture. One woman could hardly be expected to manage a large tipi. This one weighed 112 lbs. Some idea of the sheer stubbornness of the thing may be formed from our guesses at the weight, which ranged from 225 to 300 pounds!

It is now the custom to build windbreaks round tipis in winter (fig. 125). These are circular barriers formed of the upright dried stalks of sunflowers, willows, or other brush supported on posts and bound together with withes. Men who knew the Cheyenne here in early times say this is an innovation. The thickness of the old hide tipis and linings made such extra shelter superfluous.



FIG. 125.—A Cheyenne tipi within a windbreak.

The unsightly and ill-ventilated wall tent is gradually supplanting the tipi and, as poles become more and more difficult to get, will continue to gain ground. At the last sun dance a careful count revealed a proportion of about five tents to one tipi in the camp circle. Although many of the Indians had undoubtedly left their tipis

at home because of the greater ease of transporting the wall tents, it is safe to say that not half the families in the tribe now possess tipis. Consumption increases as the tipi loses ground.

In conclusion, I wish to swerve from the ideal of "science for science's sake" to bear witness to the many excellent qualities of the tipi as a practical white man's tent. It would be a thousand pities if this staunchest, handsomest, and most comfortable of tents should be lost to American civilization.

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NOTES ON PREHISTORIC PALESTINE AND SYRIA

By CHARLES PEABODY

CONSIDERING the abundance of work done and of books written concerned with the proto-historic and the historic periods in the Near East, and especially in the regions immediately bordering on the Mediterranean to the east, the earlier prehistoric ages have been comparatively neglected. It was therefore a great privilege and pleasure to be permitted to accompany Professor Max Kellner of the Episcopal Divinity School in Cambridge, Massachusetts, when in June, 1914, he returned to Palestine for purposes of exploration. On a camping trip in the Lebanon in 1913 he had made the acquaintance of Neolithic and Palaeolithic sites, in the open air and in caves, secured a large and appetizing private collection of flints, and the assurance of coöperation and of permission from former workers in the field. Acting, then, on his invitation, the writer spent six weeks in his company, studying and exploring, and gathering notes. A few of these may be of more general interest.¹

SITES IN THE OPEN AIR

Palestine and Syria abound in "flinting" grounds; almost anywhere within a few hours' ride specimens of quality and beauty

¹It is not necessary to insert a complete bibliography; the most important explorations and publications of the Stone Ages in Palestine and Syria follow: *The Excavations at Gezer*, by R. A. Stewart Macalister (Publications in 1912); references in the works of Père Vincent and especially in his *Canaan*. Cf. the Dominican collections in Jerusalem; the researches of Père Germer-Durand and the Assumptionist collections at Jerusalem; the explorations near Beyrout, in the Lebanon, Coele-syria and the Anti-Lebanon of the Professors of the Université St. Joseph, Beyrout (especially those of Professors Zuroffien and Desribes). The former has published *La Phénicie Avant les Phéniciens*, 1900, and two articles in *Anthropoz*, viz., 1908, pp. 431 ff., and 1910, pp. 143 ff. Further see Hugo Obermaier, *Der Mensch der Vorzeit*, pp. 171, 317, etc.; (in *Der Mensch Aller Zeiten*); and see also A. Kohn *Die Prähistorischen Perioden in Palästina* (Mitteilungen der Anthrop. Ges. in Wien, XLIV, III and IV, 1914), pp. 81 ff.

may be gathered. Most of them, as is the case elsewhere are Neolithic and there may be picked up an abundance of knives, front and side-scrapers, perforators, hammerstones, chipped and polished celts and their fragments, refuse chips of considerable variety and interest, nuclei, nodules, and spalls. These include the well-known saws and sickle-blades already familiar in Egypt, distinguished by their brilliant partial luster and their rectangular shape. On the surface specimens every variety of patination may be observed, a great deal of weathering and frequent alteration of substance. Localization is always present; the importance of this factor in the distribution of flints has hardly been recognized and the phenomenon insufficiently explained.

The writer has searched fields from the Jordan to the Rio Grande and finds as a rule that not only is a particular part of a particular field the richest, but that types of implements may gather themselves together after their kind. That the specialized and sedentary life of the Neolithic flint-knappers accounts for this is probable, but a good many questions remain unanswered.

Perhaps ninety per cent of all the flints picked up on any Neolithic site are chipped on one side only; we took pains to observe the frequency of the occurrence of the flints with the smooth face up; the impression that wind, water, soil-creep, etc., as well as the effects of ploughing tended to the placing of the specimens in this position was more or less disproved; the larger number do so lie; the seeming greater majority is explained by the greater ease with which such flints are detected; a greater surface in one plane is exposed to sight, and with its smooth quality makes a better reflector for the light.

Certain cautions are to be observed: (a) in a mountainous country there are ample opportunities for nature to imitate artificial forms; flints falling from a height or rolling and hitting each other come to look like Neolithic "turtle-backs" or Palaeolithic "*coups de poing*"; (b) the variations of temperature and the sand-blast along the sand dunes play tricks with fractures that are not always easy to recognize; (c) "starch," a natural fracture is deceptive here as elsewhere; particularly on the Râs Beyrout do these

parallel-faced forms occur; (d) gun flints have been made for centuries and the chips left over in their manufacture must be looked out for; (e) even the Turks macadamize the roads and in a country where the flint seems everywhere to crop out of the native rock it is an easy matter for many chips to be left by the road-makers; (f) the Palestinian harrow is embellished on its under surface with sharp flints set in as teeth; of course, these have been artificially chipped and a modern atelier of this kind is interesting; we found the vestiges of one near Gebel Osa (Hosea's Tomb); (g) others besides ourselves have searched the fields, sat down and "chucked" the flints they did not want, making little "localizations" in quite a secondary sense.

Discounting the cautions, "flinting" is a real pleasure; no two sites are alike and there is always a chance, while traveling, of happening on one completely virgin or offering new or unknown forms.

MT SKOPUS

Near Jerusalem, Mt Skopus to the north offers a hundred acres or more carrying many flints; precautions as above are to be observed. Apparently, man has lived here continuously from the early Palaeolithic days to the present; deeply and characteristically patinated "*coups de poing*" or "Bouchers" occur, mixed with specimens of any given age, or youth. Geological changes since late glacial times have been few, no ice covered the land, the temperature seems to have been such that man was not driven away and the floods seem not to have washed away his implements.

This mixture in open air sites causes the judgment to depend on types and consequently to be less certain than in Europe.

The Mt Skopus specimens show localization near a megalithic structure or "high place" on the top; it is tempting to connect the two, giving a prehistoric date to the "high place" and a ceremonial significance to the flints.

Of course, the constant tale of "circumcision knives" is just as important as its name implies; if such flints continued in use there were hundreds already in existence for pattern or adoption

ten thousand years before circumcision became historic. We do not forget, however, that it is now well recognized that flints continued everywhere to be used well into the metal ages; Palestine is no exception.

MUSH-RA

"Beyond Jordan", leading up the left or south bank of the Wadi Hesbân is a series of dolmens and stone circles some of which have been described by Vincent, Benzinger (in Baedeker) and others. A rather remarkable row of dolmens lies on a ridge over against Umm el Guttain (Mush-Ra), to the northwest; this is near where the water from the Wadi Hesbân enters the Jordan flood plain. The remains of four dolmens distant sixteen, eleven, and seventeen meters respectively, form a nearly straight line on the ridge in a southwest-northeast direction; they seem to have had interesting cellas and one of them has a perforated perpendicular stone standing across the cella. Flints abound round about.

TELL EL MATÂBA'

Four or five hours further on, on the upper road to Hesbân, not far from several stone circles is a site providing a series of small flints, scrapers, and perforators, sometimes with reversed chipping. We had been led to look for a site, possibly Tardenoisian in the neighborhood; the microliths here are, however, undoubtedly Neolithic. They are found scattered over the surface near Tell el Matâba', southeast of the road to Hesbân about three quarters of an hour west from where the road, after continuously going up from the Jordan valley, begins to descend.

HESBÂN

Near Hesbân on a ridge dominating the valley that leads south into the head of the Wadi Hesbân, to the west of Râs el Moïe are numerous "cupules"; as many as seven were counted in a rocky surface, within the space of a few square meters. They range from three to twenty centimeters in diameter at the top and from three to ten centimeters deep. Two such cups were found with

their rims about three centimeters apart, connected by a shallow channel, not over one centimeter deep; the centers presented a line east-west, fifteen degrees northeast. A study of the monuments in the region, with the theories of Dr Marcel Baudouin in mind would be, in the least, interesting. Near Râs el Moïe was found a humanly chipped flint bearing "pin-head", or spot luster, heretofore not noticed by us outside of England.

Near Beyrout are three excellent open-air sites: Râs Beyrout, Râs el Kelb, and Ain Dehni.

RÂS BEYROUT

This promontory, extending boldly into the sea at Beyrout, west of the lighthouse, is rich in flints and has long been a happy hunting ground. There is now nothing particularly noticeable, except a quantity of flint pencils of the natural "starch" fracture; they present a length of ten or twelve centimeters, and a polygonal cross-section from one half to one centimeter thick; they would make excellent "*retouchoirs*" or flakers, but prehistoric man apparently thought otherwise. Further south, for ten or more kilometers, the coast is defended by a fine series of dunes, rising as much as twenty meters and extending over a space a kilometer broad. These energetic and mobile sand-hills move about, driven by the steady west winds on a substratum of hard, red indurated sand of earlier date and of quite stable position. The dunes are now threatening the southwestern part of the city and make walking to and from it a fearful bore; on their progress, however, the dunes cover and uncover the level red sand spaces and with them the flints left by the Neolithic inhabitants. There is no end to the specimens, and in spite of the superb collections in the University and its Medical School, there are plenty for the newcomer.

Our particular luck consisted in finding fifteen quite charming "*becs de perroquet*", near each other, strikingly localized; the patina is a superb cream yellow, and the luster, a sand-blown polish familiar to the Egyptian traveler. (See plate xxxviii, b.) All the specimens that we found are probably Neolithic, but the very acute Professor Desribes of the Medical Faculty thinks he may

have discovered a Solutrean atelier on this site. The "*becs de per-roquet*" came from one kilometer west of Boui.

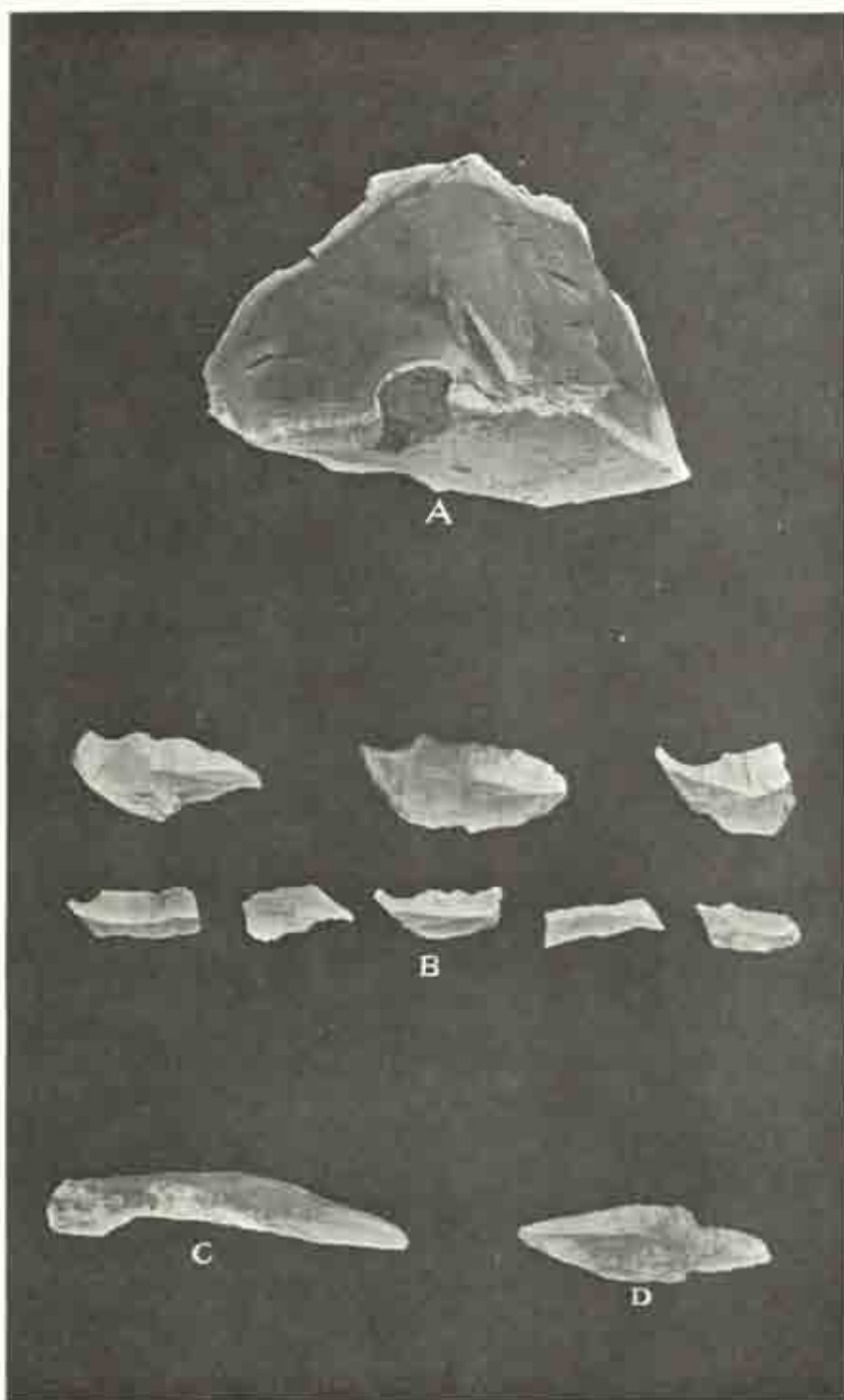
RÂS EL KELB

The bold cape at the mouth of the Nahr el Kelb or the Dog river needs no introduction to archeologists and historians; Assyrians, Egyptians, Greeks, Romans, and French have proudly set up their trophies of passage, and yet thousands of years before the earliest, Palaeolithic man flaked his flints, threw them away, and died off. Trickling water indurated his forgotten stones into a breccia all ready for the Romans to cut through when they made their road around the point. On the contrary, the surface specimens are mostly Neolithic; one of the latter is a chipped nodule which in a thickness of seventy-five millimeters shows a total alteration of substance of twenty-five millimeters; this seems to have occurred since the original human chipping.¹ Whatever may be true of the prehistory, in the light of present conditions of warfare, the history of the setting up of trophies may be incomplete at Râs el Kelb.

AIN DEHNI

This lies in a beautiful situation on the summit of a ridge about two kilometers southeast of Deba'a on the steam tramway ten kilometers north of Beyrout; it begins at the group of houses commanding the western pitch off and covers the whole plateau with part of its slopes towards Lebanon. This ridge is that immediately to the south of that on which stands the Monastery of St George Aourka, and was pointed out to us by Mr von Heidenstamm, a Swede, who has the direction of the Beyrout waterworks at Deba'a. This is one of many kind things he did for us; the last was to offer to keep all our heavier specimens, incapable of transport in a steamer trunk, in safety till after the war. Scattered over the plateau and rolled into the little gullies lay celts, scrapers, hammerstones, etc., of good workmanship. We also found an unmistakable tanged arrow point, chipped on both sides; this find was duplicated by us

¹ See plate xxxviii. a.



A. A SPECIMEN SHOWING ALTERATION OF THE FLINT ON A WORKED FACE, SURFACE OF RAS EL KELB. B. A SERIES OF BEAKED FORMS OR "BECS DE PERROQUET," SURFACE OF THE SAND DUNES NEAR BEYROUT. C. A NEOLITHIC TANGED ARROW-POINT, SURFACE AT AIN DEHNI. D. A GOUGER OR PUSHER WITH AXES IN TWO PLANES, ANTILYAS.

but once; we had suspected that arrow points in collections were immigrants. (See plate XXXVIII, c.)

SITES IN CAVES

Of far greater importance than the open-air sites are the caves; of these we studied and excavated three; a small one in the Râs el Kelb mentioned by Zumoffen,¹ that of Djaïta at the sources of the Dog river and that of Antilyâs. The first situated very near the road and tramway about six hundred meters southwest of the station of Nahr el Kelb, gave us little but chips and a retouched "point" that at first looked Mousterian, but is probably later. Allowing for differences of patination, the whole deposit in the little cave may be Neolithic and perhaps slipped in from the surface above; the easier explanation is however to place it in late Palaeolithic times.

Before beginning work we of course called on those who had done the work heretofore; it may now be said that during a life accustomed to courtesy the author has never met a more charming and efficient willingness to help than that afforded by these men. Special mention should be made of Pères Zumoffen, Devrijil, Roncevalles, and Desribes of the University and of Professor Howard Bliss, President of the Syrian Protestant College, and of Dr Alfred E. Day, Professor of Geology in that Institution. The Cave of Djaïta entailed a walk of seven kilometers up the beautiful valley of the Dog river; the path lay for a major part of the distance along the stones forming one side of the Beyrout water aqueduct; at places it was rough, slippery, and high; failing other expected adventures, this walk went a certain distance in making them up. Plans are here given of the two larger caves; they are taken from Zumoffen with a few additions which will show where we worked.²

In the larger caves the specimens lay in breccia closely indurated, or between such blocks; some of the breccia, especially where it has been exposed to dry air and sun is as hard as marble; we once

¹ "La Phénicie Avant les Phéniciens," p. 22.

² With the permission of Professor Kellner, these plans are published; he has the permission of Père Zumoffen to use the latter's published material.

had recourse to dynamite; fissures, however, occur, and in Djaïta, they may have allowed a slight mixture of industries.

In Antilyàs, too, we found what seems to be a piece of metal more than a meter down; as a whole, in spite of this, the industries of the two caves as we found them were similar and homogeneous and fit into a Palaeolithic, rather than a Neolithic scheme.

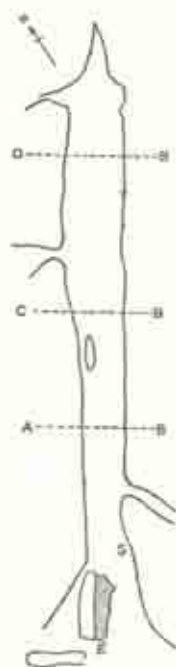


FIG. 126.

FIG. 126.—Plan of Djaïta cave (after Zumoffen). Scale .003 to the meter. D, B, Trench in soft deposit. E, Excavations in 1914. S, Stalagmite, thin layer.

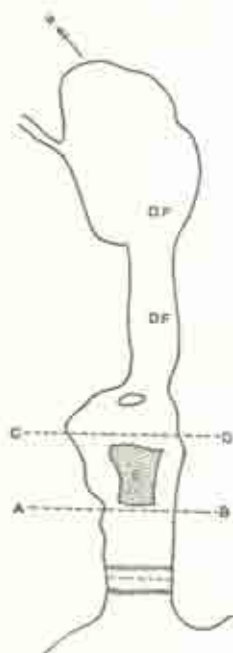


FIG. 127.

FIG. 127.—Plan of Antilyàs (after Zumoffen). Scale 1: 400. E, Space excavated in 1914. F, F, Earlier trial pits.

Specimens occasionally seem to have gravitated into the crannies and they show a strange localization, as where Dr Kellner found in Djaïta forty minute knives in a small pocket a meter down. Flints and bones in the breccia proper were hard to extract, and ran great danger of being broken.

Before commencing the search in the breccia we examined the soft deposit in the rear of Djaïta cave, and dug a trench from wall to wall near B-D (fig. 126).

The cave is five and one-half meters wide and the western three meters are covered with a soft deposit a meter and a half deep in places. In this trench no stone of any kind was found, but the deposit was horizontally stratified with as many as twelve parallel strata; these differed in color and so were distinguishable in the candle-light; they looked red, black, and white, and a specimen of each was brought home for analysis.

It is highly desirable to know what the influence of fire has been in cave deposits, fire being almost exclusively man's agent, and the question relates directly to the length of occupation.¹

The analyses follow; they were kindly made by Dr W. G. Foye, of Harvard University.

Specimen A. (Red)

Contains kaolin, calcite, little or no quartz, little evidence of charcoal; effervesces with hydrochloric acid.

Ignition: Loss below 100° C. 4.78%.

Loss above 100° C. 32.66%.

"Can't say as to fire—if anything this is the final residue of fire mixed with humic acid and plant remains."

Specimen B. (Black)

Contains kaolin, calcite, little or no quartz, some bits that resemble charcoal. Effervesces with hydrochloric acid—no permanent foam left.

Ignition: Loss below 100° C. 5.38%.

Loss above 100° C. 19.88%.

"This specimen seems to give best evidence of influence of fire. Charcoal remains are present."

Specimen C. (White)

Contains kaolin, quartz, and calcite—alone visible. Effervesces freely with hydrochloric acid; no permanent foam.

Ignition: Loss below 100° C. 2.31%.

¹ For instance in Jacobs cavern, Missouri, one hundred and fifteen cubic meters of ash had accumulated at the time of exploration. See Peabody, *Verhandlungen* xvi, *Intern. Cong. Americanists* (Vienna, 1900).

Loss above 100° C. 19.52%.

"Same as A but leached of all impurities."

These analyses are inconclusive as to the amount of ash or charcoal; the distinct stratification is hard to explain from natural causes; if human agents are responsible there seem to be represented more than one occupation.

At Antilyâs, is a bit of breccia adhering to the northwest wall two meters above the highest present level of the threshold and three meters higher than the rock-floor of the cave. That a quantity of breccia ever existed sufficient to fill the whole cave to this level is unlikely; we know there was once a very great quantity of breccia that has been removed, but the existence of this "mushroom" of breccia so high on the wall remains unexplained.

One more note on Antilyâs; on climbing up the western wall a catch or hand-hold was found two meters above the present deposit-level of the cave; this bit of protruding rock is polished and falls into the series of "polished rock" problems; such luster of unknown origin has also been noted near the Ozark caves.

THE SPECIMENS

There were four of us to explore the breccia; our faithful guide, dragoman, and friend, Lars Lind of the American Colony, Jerusalem, an Arab workman of doughty frame, and ourselves.

The results of the fourfold labor present a series of small flints, no one of which is perhaps unique but which form a collection new to this country and giving a good cross-section of what is almost certainly a Palaeolithic culture.

In addition to hundreds of flakes, the ordinary accompaniments of a work site, there are unretouched flakes apparently intended for use as such. Their use as arrow points is likely, and as other simple implements, not unlikely.¹

This is suggested by the rude tangs suitable for hafting, made, (a) by little notches on one or both edges of the flake, (b) by stop-

¹ See discussion in re southern France; Peabody, *Bull. Société Préhistorique française*, June 26, 1913.

ridges, (c) by humps, and (d) by shoulders. (See pl. XXXIX, figs. 1, 2, 6, 8, 9, 10, 11.)

Other flakes sharp and slender, quite useful as projectile points occur; they are carefully worked but without secondary chipping, retouching, or marks of use. (See pl. XXXIX, fig. 5.)

There is a class of unretouched flint blades as fine and tenuous as the end of a steel letter-opener; they are found localized in such a way as to presuppose carefully meditated effort in the making. (See pl. XXXIX, fig. 3.)

The cave-dwellers did not lack skill in retouching these fine blades; on many, the edges show a fine beading worthy the steel of a jeweler; so fine are they that one is tempted to call in the theory of virtuosity to account for them. (See pl. XXXIX, fig. 4.)

Few graters or "burins" were found; this is to be expected as practically no art of the kind that demanded their use in Palaeolithic Europe has here been discovered. (See pl. XXXIX, fig. 12.)

Side-scrapers, or "racloirs" are proportionally not common, front-scrapers or "grattoirs" of fine quality are on the other hand, abundant. (See pl. XXXIX, figs. 13, 15.)

Nuclei and nucleiform scrapers we frequently found. Some of them show the undercutting characteristic of the English nuclei and there occur good examples which show the two used or scraping edges in planes at right angles to each other. (See pl. XXXIX, fig. 14.) There are discs and various carenated forms, and a series of rough, concave-convex implements that look like pushers.

Students from California may remember the characteristic flakes from Santa Cruz, with a triangular cross-section giving three narrow faces; of these two are smooth and one bruised; forms almost exactly similar are not uncommon in the Syrian caves: flints with a face or "dos rabattu." (See pl. XXXIX, fig. 7.)

Little or no worked bone was found by us and no human remains, though they have been found in Antilyās.

As yet, identification of our animal bones has failed to add to the species reported by Zumoffen; the most striking feature is the presence especially at Djaïta of thousands of specimens of *Helix pachya*; they form much of the substance of the indurated breccia;

large snails seem to have been the great staple of the diet of the inhabitants.

It has been suggested with really much plausibility, that the fine beaded points were of use in extracting these animals from the shell, a process assisted by the roughening of the edges and point.

The general aspect of the flint collections is late Palaeolithic, possibly Magdalenian; specimens from Bruniquel in the Peabody Museum and Magdalenian blades and scrapers show analogies; but Hugo Obermaier, to whom a series was sent by the Beyrout professors, declares them Aurignacian—and Obermaier is not credulous.¹ All would agree that there was some mixture in Djaïta; we ourselves found a few fragments of pottery at the top of the deposit under a thin layer of stalagmite.

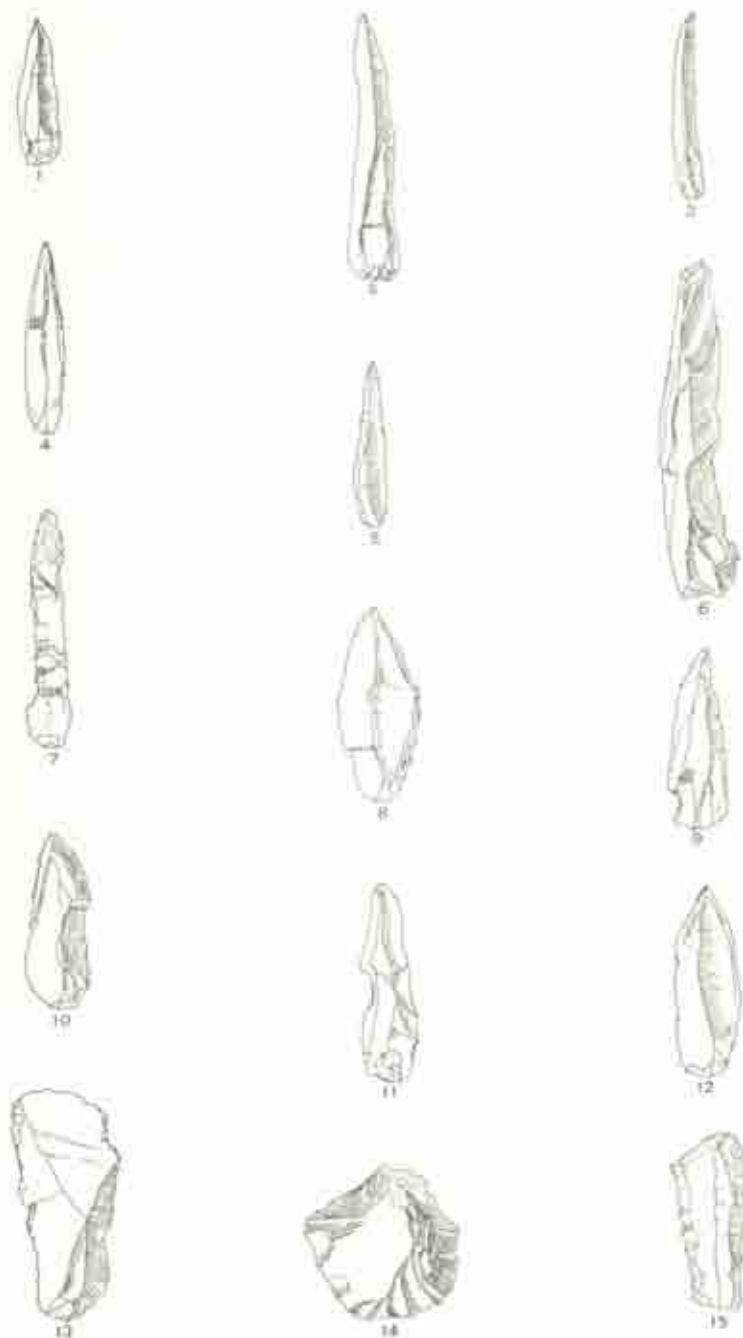
Our kind friends of the Université St. Joseph gave us great encouragement for future work: that probably virgin caves were to be found along the inland slopes of the Lebanon.

If the frightful war, which in August of course cut short our work, shall happily come to an end, no more inviting field exists for us to reënter or for others to try at first hand.

DESCRIPTION OF PLATE XXXIX.

1. An unretouched flint point with worked base and stop-ridge.
2. A long unretouched point or knife, with worked base, stop-ridge and shoulder.
3. A slender perforator or needle with minute retouching near the point and a small worked tang.
4. A characteristic point retouched on both edges.
5. A slender point retouched on both edges and with a stop-ridge.
6. A "shover" or pusher, unretouched, with two stop-ridges.
7. The bruised face of a flake, triangular in cross-section; the other two faces are smooth.
8. A lozenge-shaped graver with a shouldered tang.
9. A graver with a notched tang.
10. 11. Points with rude barbs near the pointed ends.
12. A graver with traces of use or retouching near the point.

¹ See *Der Mensch der Vorzeit*, p. 347.



FLINTS FROM ANTILYAS AND OJAITA. ONE-HALF SIZE

13. A double front scraper or "grattoir" by reversing the flint, the upper end (as seen in the drawing) becomes the scraping edge.
14. A nucleus or nucleiform scraper from Djaita.
15. A double side scraper or "racloir" and single front scraper or "grattoir" combined.

PEABODY MUSEUM,

HARVARD UNIVERSITY.

RACE IN THE PACIFIC AREA, WITH SPECIAL REFERENCE TO THE ORIGIN OF THE AMERICAN INDIANS: ANTIQUITY OF OCCUPATION

By GEORGE GRANT MACCURDY

THE Pacific washes the shores of both the Old World and the New; hence the Pacific area is a large one. It is at least indirectly in connection with the birthplace of man, for it is accessible from all the great land masses. Whether the American or Asiatic portion of this area was first occupied by man is a question of wide interest. An answer to this question would be of help in locating the spot, if indeed it was a single one, from which man has spread over the face of the earth.

Physically man is a vertebrate and belongs to the great class of so-called Mammalia. We may differentiate still further and place man in one of the families composing the Order of Primates, which includes not only the *Simiidae* but also the lemurs. Eocene lemurs are found in both the western (Puerco beds of North America) and eastern hemispheres. The *Simiidae*, however, the family most nearly approaching man in physical structure, all belong to the Old World: the gorilla and chimpanzee to Africa, and the orang and gibbon to the Far East. The presumption is strong, therefore, that the human race also originated in the Old World.

Structurally, Europe is the keystone of the Old World arch—still firmly planted against Asia and once in more intimate contact with Africa than at present. On this account it is not surprising that the beginnings of things human, so far as we have been able to trace them, have had their fullest exemplification in Europe. Asia and Africa have not been so thoroughly explored, prehistorically speaking, as has Europe. Both are full of archeological possibilities. Darwin looked with favor on Africa as the place where man might have originated because of its being the present home of the gorilla and chimpanzee. Moreover *Propliopithecus*, a fossil

ape recently discovered in the Oligocene of Egypt, seems to be the ancestor not only of all Simiidae but also of *Hominidae*. But Africa is not a part of the Pacific area. If it was the original home of man, his arrival in the western hemisphere was relatively late.

The superficial resemblance between the archaic Neandertal race and modern Australians led Schütensack to the belief that Australia was the first home of man. Such a view is untenable for several reasons. In the first place Australia, like Patagonia and Madagascar, belongs to an early Tertiary southern land mass, where beginning with the Miocene epoch, mammalian evolution came almost to a standstill. Again the resemblance of modern Australians to *Homo neandertalensis* is more fancied than real. The architecture of the skull is quite different; the Neandertal face is long, while the Australian face is short. The Australian limb bones are long and light, those of the Neandertal race are short and stocky; and other minor differences might be noted.

In discussing Asia's claims one naturally thinks first of the fact that it is not only the home of the orang-utan and the gibbon, but also of *Pithecanthropus erectus*. In this connection it is well to recall the main features of Klaatsch's theory. He compared certain early types of man with certain anthropoids, and found that the differences between the gorilla and the orang-utan are in a measure parallel to those between the man of Neandertal and the later type of Aurignac. On this as a basis two lines of human descent are postulated. One goes back to an ancestor in Africa, common to the gorilla and *Homo neandertalensis*; the other to an ancestor in Asia, common to the orang-utan and *Homo aurignacensis*. These two types met and mingled in Europe, producing a new type that was dominant at the close of the Paleolithic period. The Klaatsch hypothesis has met with a rather cold reception, especially at the hands of Professor Keith, who is especially fitted to expose its weaknesses on account of his familiarity with the anatomy of the orang.

To the Pacific area belongs the well-known fossil ape man from Java, *Pithecanthropus erectus*, which according to the associated fauna and flora is of lower Pleistocene age. Owing to the frag-

mentary nature not only of the *Pithecanthropus* remains but also of available collateral evidence, three rather distinct views are still held as to the status of the Java specimen. In the first place there are those who with Dubois believe it to represent a transition form between man and the higher apes, and to be in a sense the precursor of man; in other words a creature that had won for itself the erect posture, but whose brain was still too primitive to be called the brain of *Homo*.

Then there are those, who like Professor Keith, believe the name given by Dubois to be justified in a zoological sense; but who, seeing so many human characters, would go a step farther and call it *Homo javanensis*. For them the human line of descent would lead directly to and through *Pithecanthropus* on its way back to the parent trunk.

Lastly, there are those who believe that *Homo* and *Pithecanthropus* go back to a common ancestor, but that they represent different limbs of the parent trunk. Viewed in this light *Pithecanthropus* would have no living lineal descendant.

The Selenka Trinil Expedition of 1907-08, one of whose results was to reduce the age of the *Pithecanthropus* remains from Pliocene to lower Pleistocene, secured a tooth that is said by Dr Walkoff to be definitely human. It is a third lower molar found not at the Trinil site but in a neighboring stream bed and in deposits older (Pliocene) than those in which *Pithecanthropus* occurred. Should this prove to be the case, *Pithecanthropus* could no longer be regarded as a precursor of man; it would give us instead the cross-section of a different limb of the Primate tree from the limb whose branches represent the various types of *Hominidae*.

The principal event of the Australian meeting of the British Association for the Advancement of Science one year ago was the presentation of a fossilized human skull from Darling Downs on the border between New South Wales and Queensland. Unfortunately, this specimen was not found *in situ*; but is in the same state of fossilization as are the remains of extinct animal species from the same locality. The latter are said to be of Pleistocene age. The "solidly fossilized" human skull (that of a youth) is

evidently not of the Neandertal type; nevertheless the authorities present were of the opinion that it represents an extremely primitive type. When archeologists become thoroughly awake to the possibilities of China a new chapter in the antiquity of occupation of the Pacific area will in all probability be recorded.

Passing to the American Pacific shores a good deal has already been accomplished, especially in California; but the results do not point to a great antiquity of occupation. Man probably entered the Americas by way of Bering strait after the final retreat of the last maximum glaciation. Bearing directly on this point is the discovery in 1912 by Dr Hrdlička of vestiges of an ancient population in northeastern Asia persisting there perhaps since late Paleolithic times, and which possibly gave rise to the American Indian. This is in line with the results of the Jesup North Pacific Expedition, and future archeological discoveries may confidently be expected to support the same point of view. As a seat of human occupation therefore, China probably antedates Mexico and Peru.

YALE UNIVERSITY,
NEW HAVEN, CONN.

FREDERIC WARD PUTNAM¹

By A. L. KROEBER

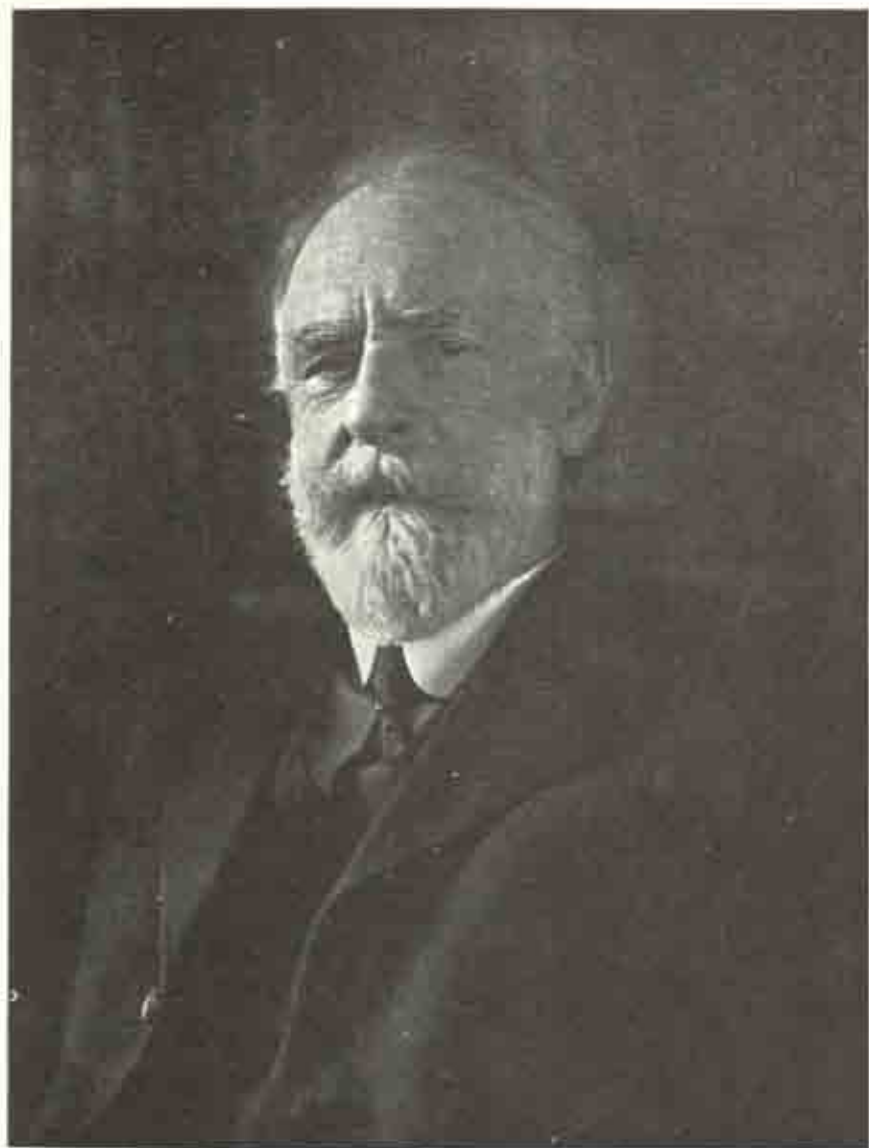
FREDERIC WARD PUTNAM, was born in Salem, Massachusetts, April 16, 1839, and died at Cambridge, in the same state, on August 14, 1915.

Professor Putnam was descended from a long line of Putnams, Appletons, Fiskes, Wards, Higginsons, and other New England families, some of which, as that whose name he bore, date back in Massachusetts to 1640, while all have been long established in America. He married in 1864 Adelaide Martha Edmands, to whom were born Eben Putnam, Alice Edmands Putnam, and Ethel Appleton Fiske Lewis. In 1882 he married Esther Orne Clark, who survives him.

From the earliest years of his education, which was divided between careful home tuition and private schooling, Frederic Ward Putnam evinced an unusual interest in the observation of nature. He assisted his father in the cultivation of plants, studied assiduously the birds within his range, and in 1856, at the age of sixteen, entered the ranks of writers in natural history with a published list of the birds of his home county. In the same year he began a remarkable career of nearly sixty years of tenure of scientific positions in museums and other institutions, with his appointment as Curator of Ornithology in the famous Essex Institute of his native town.

In 1856 he also entered Harvard, where he immediately fell under the spell of Agassiz, between whom and the youth a profound and loving intimacy sprang up, of which the latter's seven-year service as assistant to the master, from 1857 to 1864, was only an outward manifestation. To the last, Professor Putnam esteemed the influence of the great naturalist upon himself as of the deepest; and he never wearied of telling his own students, in a manner which

¹ See frontispiece.



Cordially yours
J. M. Putnam

(p. 712)

could not fail to impress as well as to charm, the story of how his guide put him to work at his first problem.

There was more in this relationship than the influence of a mature mentality and character upon a developing one. Agassiz must have perceived, and at any rate encouraged, the special bent of mind toward direct, candid, and lucid observation of natural phenomena, unhampered by the technical modes of literary scholarship, that remained characteristic of Professor Putnam all his days and was perhaps his highest virtue in the domain of science. Few men knew better than he how to make use of books; but few read so little of them for the sake of reading. His mind was restless for knowledge—not the knowledge of others, but that to be had directly from specimen, organism, or phenomenon. The obtaining of this knowledge was to him a source of never-ending satisfaction in itself. He recognized the value of the investigations of others and made full employment of their results in correlating his work with the sciences which he pursued. But the impulse to his studies came wholly from within; he stood on his own ground, and not on the shoulders of others. He was early and remained to the last a natural historian, in the highest and dignifiedly old-fashioned sense of that word.

Under the association with Agassiz he soon drifted from ornithology into ichthyology, though his interests were always too living to become specialized in one secluded field. His studies at Harvard were irregular, self-directed, and therefore the more fruitful. His progress in achievement in these early days is shown by the fact that at an age where most boys are going through the routine of courses in trigonometry and examinations in Latin, or hesitatingly deciding the choice of a career, he was not only doing the work he loved but making contributions to the records of the science of life, and filling incumbencies in institutions of standing. From 1864 to 1866 he was Curator of Vertebrates, and from 1869 to 1873 Director of the Museum in the Essex Institute; from 1859 to 1868, Curator of Ichthyology at the Boston Society of Natural History; from 1867 to 1869, Superintendent of the Museum of the East Indian Marine Society. Beginning with 1869, he filled for four

years the same office at the Peabody Academy of Sciences. He was State Commissioner of Fish and Game for Massachusetts from 1882 to 1889, Assistant in the Kentucky Geological Survey during 1874, and Assistant to the United States Engineers in the Surveys West of the One Hundredth Meridian from 1876 to 1879. From 1876 to 1878 he was Assistant in Ichthyology in the Museum of Comparative Zoölogy of Harvard University. It is significant that most of these positions were held by him in an honorary capacity.

Two appointments which came to Professor Putnam about his thirty-fifth year, marked the entry of his activities into a new phase, characteristic of the middle period of his life. In 1873 he was elected permanent secretary of the American Association for the Advancement of Science. As the one fixed post in the ever rotating personnel of the great mother organization of American associations of learning, the policy of this secretaryship is perhaps even more deeply influential upon the destiny of scientific endeavor in the New World than is generally recognized. Professor Putnam held to this task, which is always arduous and often thankless, for twenty-five long years, in the course of which his quiet foresight and balance, as well as his unobtrusive native tact and kindliness, were brought to bear on countless occasions. His duties led him into contact with thousands of colleagues who became as many well-wishers and often friends; and rendered him one of the best known of American men of science. In 1898 Professor Putnam laid down this burden, and was honored by the grateful Association with the highest gift in its bestowal, its presidency.

The second and even more determining appointment at the opening of this period was Professor Putnam's selection in 1875 as Curator of the Peabody Museum of American Archaeology and Ethnology of Harvard University. This event signalled the recognition of his organizatory ability, and definitely decided a drift, which he had already begun to undergo, from the natural history of animals to that of man. The Peabody Museum was the first American institution specifically devoted to that science, or group of sciences, which subsequently came to be most generally known as anthropology; its name points to its early origin, and accentuates

the pioneering quality of Professor Putnam's work within and from within its walls. No greater tribute can be paid to his memory than to recall that, self-educated as he was, he broke athwart the classical and scholarly tradition of his day, in the greatest and oldest center of this tradition; and that he did so only as the result of persistent endeavor, and with repute, esteem, and the gain of affection. After eleven years, the Peabody Professorship—again the first in its field—was added to the Peabody Curatorship, and from this time on the steady development of a department of university instruction in anthropology was joined to the enlargement and perfection of the museum.

His endeavors in the latter direction seem to have continued to lie nearest of all to Professor Putnam's heart. No one can inspect the Peabody Museum without sensing something of the devotion and love that he lavished upon it for forty years. There are larger collections and more sumptuously housed and displayed ones even in America; there is none that specimen for specimen is of so high an order, in which quality tells so consistently, and that makes so unmistakable an impression of well-rounded care and completeness. It was one of the deep satisfactions of Professor Putnam's life, and an unalloyed cause of gratification to his friends, that he was able, only two years before his death, to arrange the ceremony of groundbreaking for the completing wing of the edifice in which and for which he had labored so unremittingly.

The final stage and fruition of at least the outward manifestations of Professor Putnam's career commenced with the great Chicago Fair, the "World's Columbian Exposition," as Chief of whose Department of Ethnology he served from 1891 to 1894. As in its whole spiritual effect on American life, so the influence of this exposition upon American anthropology, under the guidance of Professor Putnam, was so profound as to have served ever since as a point from which one dates. Collections were assembled from all parts of the world and housed in a building which for the first time bore over its portal the name of the science. The studies prosecuted enlisted young men whose careers were determined for all time. And—this directly and in the beginning solely at the

instigation of Professor Putnam—the foundations were broadly and substantially laid for one of the great museums of America.

Scarcely, however, were the steps taken which were to assure this reality, when Professor Putnam was called away to a no less important task, the organization of an anthropological department—a division, it might more properly have been called from its broad scope—in the American Museum of Natural History, in New York. From 1894 to 1903, while never ceasing from his work at Harvard, he was able to devote enough time to this new undertaking, as Curator of Anthropology, to assemble a conspicuous staff, to double the collections, to set into movement a series of explorations, researches, and publications, and above all, to plan and shape all these accomplishments into a flexible organic system which has proved its merit by remaining the scheme of the anthropological activities of the institution to the present day.

This labor, in turn, Professor Putnam resigned to undertake a like but newer one, upon the same terms of joint service to Harvard University, on the farther shore of our country. In 1903 he became the first Professor of Anthropology and Director of the Anthropological Museum of the University of California. He was then sixty-four years of age; but in spite of the handicap of remoteness during a large part of each year, he threw into his Californian service all the habitual vigor and unrelenting care of his youth, plus the seasoning of his mature experience. The writing of his hand remains in the broad outlines of this institution as visibly as in those on which he had fashioned before. In spite of ill health in which there became manifest before long the first symptoms of the disease to which he was ultimately to succumb, he continued to the utmost of his strength his activities in California, until his retirement at the statutory age of seventy in 1909.

Professor Putnam's writings number more than four hundred, as they appear in the bibliography added to the volume issued in his honor in 1909 on the occasion of his seventieth birthday. These publications are about equally divided between those devoted to natural history, to archeology, and to scientific administration. The range of his archeological work, which in most cases rested

upon his own explorations, is evidenced by reports upon shell-heaps in Maine and Massachusetts, mound builders' remains in Ohio and Wisconsin, aboriginally inhabited caves in Kentucky, the geological antiquity of man in New Jersey and California, and conventionalization in the ancient art of Panama, to mention only a few random samples. His largest work is the report entitled "Archaeology," forming Volume 7 of the Wheeler Geographical Survey, in which, with the assistance of numerous collaborators such as he characteristically encouraged, he inclusively reviewed the pre-history of California. After nearly forty years the book remains the broadest and most fundamental treatment of the subject.

His formal honors were too many to enumerate. He was a distinguished member, and frequently an officer, of probably all American national societies of general scientific character or devoted to the subjects of study which he pursued; and belonged also to innumerable local associations, academies, and historical societies, in all parts of the United States. His honorary and corresponding memberships in foreign learned bodies were scarcely less numerous, and extended from London to Florence, from Paris to Edinburgh, from Lima to Stockholm. He received the cross of the Legion of Honor from the Government of France, the Drexel Gold Medal from the University of Pennsylvania, and the degree of Sc. D. also from this University.

Professor Putnam's helpful influence on men, especially young men, at the outset of their scientific careers, was no less profound than his accomplishments for science through his upbuilding of institutions. He never encroached on their freedom, met even abnormalities of thought with patient tolerance, and if he requested heavy drafts of their time, he was always and instantly ready to reciprocate with equally generous measures of his own hours. Above all, he looked upon them as friends; they were human beings in need of encouragement and assistance, not mere thought machines to be perfected and turned adrift. Each and every one of his students he helped. Their existence for him did not end with their departure from the university or exploring camp. His most

valuable aid frequently began only then, and if occasionally the relationship thus established atrophied, instead of becoming warmer with the passage of years, the fault was never his and the regrets were on his side. It is no exaggeration to say that at least half of the anthropologists of the country today owe not only counsel but their first professional recognition to the influence of Professor Putnam. In the vast majority of cases they admitted and continued to appreciate this debt toward their Dean, whose hours in his later years were frequently cheered by visits that bore testimony to the unwavering friendship and respect of former pupils and assistants.

In all his relations with men, Professor Putnam showed the same high qualities of sincerity, helpfulness, and unassuming modesty, charged at all times with a genuine and practical benevolence. The humblest of those dependent upon him regarded him with affection; and it was precisely the qualities which on the one hand caused janitors and doorkeepers at institutions he had long left to mourn his death, which on the other accorded him the respect and the hearing of men of affairs and endowed him with an unvarying influence upon his boards of trustees.

In 1909, at the age of seventy, Professor Putnam became Professor Emeritus at both Harvard and California, and Honorary Curator in charge of the Peabody Museum, and in 1913, Honorary Director of the latter institution. He spent his so-called years of retirement in Cambridge, in fair health, full activity of mind, and well-earned comfort. The struggles of earlier days were behind him; his old students remained loyal; and in their company, that of his associates, and of his family, he lived out the full measure of his years. He left behind him friends, but not an enemy; he harmed no man and helped innumerable; he placed anthropology in America upon its present foundation; he fulfilled all his capacities; and he leaves a rare memory, not only as a scientist but as a man.

BOOK REVIEWS

METHODS AND PRINCIPLES

Les Formes élémentaires de la vie religieuse. Le système totémique en Australie. ÉMILE DURKHEIM. Felix Alcan, Paris, 1912. 647 pp. and tribal map of Australia.

A contribution by Émile Durkheim always commands attention. His *Les règles de la méthode sociologique*, *De la division du travail social*, and *Le Suicide* have exercised an appreciable influence on sociological theory and are still remembered and read. As editor of *L'Année sociologique*, Durkheim deserves credit for a methodical and extensive survey of anthropological and sociological literature. In this task he was ably assisted by his disciples and sympathizers, Hubert, Mauss and others. It is to be regretted that this excellent annual has now gone out of existence, its place having been taken by a triennial publication supplemented by occasional monographs constituting a series of *Travaux de L'Année sociologique*, of which *La vie religieuse* is the fourth volume.

As the title indicates, the work deals with Australian totemism, but is also meant as a general theoretical inquiry into the principles of religious experience. Durkheim is a veteran in Australian ethnology. It will be remembered that the first volume of *L'Année sociologique* (1896-1897) contained a study from his pen devoted to "La prohibition de l'inceste et ses origines." Volume V (1900-1901) of the Annual contains another study, "Sur le totémisme"; and volume VIII (1903-1904) one on "L'organisation matrimoniale australienne." One need not therefore be surprised to find Durkheim's latest work replete with abundant and carefully analyzed data. In this respect the volume compares most favorably with much of the hazy theorizing called forth in such profusion by Spencer and Gillen's descriptive monographs. But Durkheim's work contains, of course, much more than a merely descriptive study. He had a vision and he brings a message. To these we must now turn.

While a comprehensive analysis of all of Durkheim's propositions is entirely beyond the scope of a review, his cardinal doctrines may be discussed under the headings of five theories: a theory of religion, a theory

of totemism, a theory of social control, a theory of ritual, and a theory of thought.

Theory of Religion.—Durkheim vigorously objects to the theories of religion which identify it with belief in God or in the supernatural. A belief in the supernatural presupposes the conception of a natural order. The savage has no such conception nor does he know of the supernatural. He does not wonder nor inquire, but accepts the events of life as a matter of course. The attempts to derive religion from dreams, reflections, echoes, shadows, etc., find as little favor with Durkheim. Is it conceivable, he exclaims, that religion, so powerful in its appeal, so weighty in its social consequences, should in the last analysis prove to be nothing but an illusion, a naïve aberration of the primitive mind? Surely, that cannot be. At the root of religion there must lie some fact of nature or of experience, as powerful in its human appeal and as universal as religion itself. Durkheim sets out in search of that fact. Presently, the field of inquiry is limited by the reflection that the beings, objects, and events in nature cannot, by virtue of their intrinsic qualities, give rise to religion, for there is nothing in their make-up which could, in itself, explain the religious thrill. This, indeed, is quite obvious, for do not the least significant beings and things in nature often become the objects of profound religious regard? Thus the source of religion may not be sought in natural experience but must in some significant way be interwoven with the conditions of human existence. Now the most fundamental and patent fact in all religion is the classification of all things, beings, events in experience into sacred and profane. This dichotomy of the universe is coextensive with religion; what will explain the one will explain the other. The next important fact to be noted is that the content of religion is not exhausted by its emotional side. Emotional experience is but one aspect of religion, the other aspects being constituted by a system of concepts and a set of activities. There is no religion without a church.

The fundamental propositions thus advanced by Durkheim do not impress one as convincing. In claiming that primitive man knows no supernatural, the author fundamentally misunderstands savage mentality. Without in the least suspecting the savage of harboring the conception of a natural order, we nevertheless find him discriminating between that which falls within the circle of everyday occurrence and that which is strange, extraordinary, requiring explanation, full of power, mystery. To be sure, the line of demarcation between the two sets of phenomena is not drawn by the savage where we should draw it, but surely

we should not thereby be prevented from becoming aware of the existence of the line and of the conceptual differentiation of phenomena which it denotes. If that is so, Durkheim commits his initial error, fatal in its consequences, in refusing to grant the savage the discriminating attitude towards nature and his own experience which he actually possesses. The error is fatal indeed, for the realm of the supernatural, of which Durkheim would deprive the savage, is precisely that domain of his experience which harbors infinite potentialities of emotional thrill and religious ecstasy.

Durkheim's objection to the derivation of the first religious impulses from what he calls illusions, strikes one as peculiar. For what, after all, is truth and what is illusion? Are not the highest religions, of undisputed significance and worldwide appeal, also based on illusions? Are not ideals, in more than one sense, illusions? Should one therefore be shocked if religion were shown to have its primal roots in an illusion? Thus Durkheim's search for a *reality* underlying religion does not seem to rest on a firm logical basis. The author's definition of religion, finally, represents a conceptual hybrid, the application of which could not but have the gravest consequences for his study. A religion, says Durkheim, is an integral system of beliefs and practices referring to sacred things, things that are separated, prohibited; of beliefs and practices which unite into a moral community called the church all those who participate in them. This apparently innocent definition involves a series of hypotheses. While all will concede that religion has a subjective as well as an objective side, that belief is wedded to ritual, the equating of the two factors in one definition arouses the suspicion of an attempt to derive one from the other, a suspicion justified by a further perusal of the work. Closely related, moreover, as are belief and ritual, they belong to different domains of culture, their relations to tradition, for instance, and to individual experience, are quite different, and the methodology of research in the two domains must be radically different. Unless this standpoint is taken at the outset, inextricable situations are bound to arise. That the body of believers constitutes a moral community is another proposition which one may set out to prove but which should not be taken for granted in an initial definition. The proposition further prejudices the investigator in favor of the social elements in religion and at the expense of the individual elements. The introduction of the term "church," finally, as well as the designation of the religious complex as an "integral system," brings in an element of standardization and of unification, which should be a matter to be proved not assumed.

Theory of Totemism.—Durkheim takes pains to set forth his reasons for discarding the comparative method of inquiry. The pitfalls of this mode of approaching cultural problems being familiar to ethnologists, we may pass over the author's careful argumentation. As a substitute for the antiquated method Durkheim proposes the intensive study of a single area; for, he urges, the superficial comparison of half-authenticated facts separated from their cultural setting is pregnant with potentialities of error, while the thoroughgoing analysis of one instance may reveal a law. Australia is the author's choice; for from that continent come detailed and comprehensive descriptive monographs; moreover, there, if anywhere, are we likely to discover the prime sources of religion: the social organization of the Australians being based on the clan, the most primitive form of social grouping, their religions must needs be of the lowest type. The author thus takes as his starting-point the Australian clan, which he conceives as an undifferentiated primitive horde. Each horde takes its name from the animal or plant most common in the locality where the group habitually congregates. The assumption of the name is a natural process, a spontaneous expression of group solidarity which craves for an objective symbol. To the totemic design or carving must be ascribed an analogous origin. Of this type of symbolism tattooing is the earliest form; not finding much evidence on that point in Australia, the author borrows some American examples. The paintings and carvings of the Australian being very crude and almost entirely unrealistic, the author is again tempted to refer to the American Indian, while ascribing the character of Australian totemic art to the low degree of their technical advancement. The theory of social control will show us how the concept of power, *mana*, the totemic principle, originates in the clan. Here we take it for granted. Thus, on ceremonial occasions the individual is aware of the presence of a mysterious power; through the vertigo of his emotional ecstasy he sees himself surrounded by totemic symbols, *churingas*, *nurtunjas*, and to them he transfers his intuition of power; henceforth, they become for him the source from which that power flows. Thus it comes that the totemic representations stand in the very center of the sacred totemic cycle of participation; the totemic animal or plant, and the human members of the totemic clan become sacred by reflection. When so much is granted, the other peculiarities of totemism follow as a matter of course. Totemism is not restricted to the clans, their members, animals, carvings, but spreads over the entire mental universe of the Australian. The whole of nature is divided and apportioned between the clans, and all the beings, objects, phenomena of nature partake, to a

greater or less degree, of the sacredness of the totemic animal or plant or thing with which they are classified. This is the cosmogony of the totemic religion. Individual totemism, the worship of the guardian spirit, is a later derivative of clan totemism, for whereas clan totemism often appears alone, individual totemism occurs only in conjunction with clan totemism. Every religion has its individual as well as its social aspect. The guardian-spirit cult is the individual aspect of totemism. The subjective embodiment, finally, of the totemic principle is the individual soul. But whence the totemic principle? Before passing to the theory of social control which brings an answer to the query, we must pause to examine the theory of totemism as here outlined.

While the author's rejection of the comparative method deserves hearty endorsement, the motivation of his resolve to present an intensive study of one culture arouses misgivings. For thus, he says, he might discover a law. Applicable as this concept may be in the physical sciences, the hope itself of discovering a law in the study no matter how intensive of *one* historical complex, must be regarded as hazardous. And presently one finds that there is more to the story, for Australia is selected for the primitiveness of its social organization (it is based on the clan!) with which a primitive form of religion may be expected to occur. That at this stage of ethnological knowledge one as competent as Émile Durkheim should regard the mere presence of a clan organization as a sign of primitiveness is strange indeed. For, quite apart from the fact that no form of clan system may be regarded as primitive, in the true sense of the word, clan systems may represent relatively high and low stages of social development. Moreover, even were the social organization of the Australian to be regarded as primitive, that would not guarantee the primitiveness of his religion; just as his in reality complex and highly developed form of social organization appears side by side with a markedly low type of industrial achievement. Also from the point of view of the available data must the selection of Australia be regarded as unfortunate, for, in point of ethnography, Australia shares with South America the distinction of being our dark continent. A most instructive study in ethnographic method could be written based on the errors committed by Howitt, and Spencer and Gillen, as well as Strehlow, our only modern authorities on the tribes from which Durkheim derives all his data. The fact itself that the author felt justified in selecting the Australian area for his intensive analysis, shows plainly enough how far from realization still is the goal which his own life-work has at least made feasible, the *rapprochement* of ethnology and of sociology.

But let us pass to the concrete points. The conception of a clan name being assumed as an expression of clan solidarity is suggestive enough. On the other hand, one must not be forgetful of the fact that a name serves to differentiate group from group, and that at all times names must have been given by group to group rather than assumed by each group for itself. Not that names were never assumed by groups—such names as, "we, the people" or "men," etc., bespeak the contrary—but this process must be regarded as the exception rather than the rule. Moreover, groups of distinct solidarity such as phratries or the Iroquois maternal families, often appear without names (in the instance of the maternal family this is indeed always the case), so that the consciousness of solidarity in a group may not be regarded as inevitably leading to expression in the form of a name. As to the objective totemic symbol, the totemic carvings or drawings, it is discussed most loosely by our author. Not finding the totemic tattoo in Australia, he appeals to American examples, but this device, of course, does not strengthen his case except by showing that totemic tattoo occurs in America. Also, he completely neglects the cardinal differences between the totemic art of the Northwest Coast and that of the Aranda—to both of which he refers—in failing to note that whereas among the Tlingit or Haida the carved crests are positively associated with the totemic ideas, among the Aranda the churinga or ground and rock designs are at best but passive carriers of momentary (although recurrent) totemic associations. It is, in fact, quite obvious that the geometrical art of the area has neither originated in nor been differentiated through totemic ideas, but being of an extra-totemic origin, has been subsequently drawn into the totemic cycle of associations without, however, ever becoming actively representative of them. Similarly, with the so-called totemic cosmogony, the fact that social organization tends to be reflected in mythology cannot indeed be disputed; this fact, however, altogether transcends, in its bearing, the problem of totemism. Hence, when we find a sociological classification of the universe coexisting with a totemic complex, we are fully justified in regarding the two phenomena as genetically distinct and secondarily associated. The burden of proof, at any rate, falls upon those who would assert the contrary. Durkheim's treatment of these as of other aspects of the Australian totemic complex reflects his failure to consider that view of totemism which was designed to show, at the hand of relevant data, that totemic complexes must be regarded as aggregates of various cultural features of heterogeneous psychological and historical derivation. Needless to add,

the adoption of that view would strike at the very core of Durkheim's argument necessitating a complete recasting of the fundamental principles of *La vie religieuse*. Nor does Durkheim's discussion of the relative priority of clan totemism carry conviction. Here his facts are strangely inaccurate, for far from it being the case that "individual totemism" never occurs unaccompanied by clan totemism, the facts in North America, the happy hunting-ground of the guardian spirit, bespeak the contrary. Whereas that belief must be regarded as an all but universal aspect of the religion of the American Indian, it has nowhere developed more prolifically than among the tribes of the Plateau area who worship not at the totemic shrine. To regard the belief in guardian spirits, "individual totemism," as an outgrowth of clan totemism is, therefore, an altogether gratuitous hypothesis! Having satisfied himself that all the elements which, according to his conception of religion, constitute a true religion, are present in totemism, Durkheim declares totemism to represent the earliest form of a religion which, while primitive, lacks none of those aspects which a true religion must have. Thus is reached the culminating point of a series of misconceptions of which the first is Durkheim's initial view and definition of religion. For had he given proper weight to the emotional and individual aspects in religion, the aspect which unites religious experiences of all times and places into one psychological continuum, he could never have committed the patent blunder of "discovering" the root of religion is an institution which is relatively limited in its distribution and is moreover, distinguished by the relatively slight intensity of the religious values comprised in it. In this latter respect totemism cannot compare with either animal worship, or ancestor worship, or idolatry, or fetichism, or any of the multifarious forms of worship of nature, spirit, ghost and god. Several of these forms of religious belief are also more widely diffused than totemism and must be regarded as more primitive, differing from totemism in their independence from any definite form of social organization. Resuming the author's argument, we now return to the "totemic principle," the origin of which must be accounted for.

The Theory of Social Control.—Analysis shows that society has the qualities necessary to arouse the sense of the divine. Social standards, ideals, moods, impose themselves upon the individual with such categorical force as to arouse the consciousness of external pressure emanating from a force transcending the powers of the individual. Through the action of this social force the individual on certain occasions behaves, feels, and thinks in a way which differs from the psychic activities of his

daily experience. The psychic situation of the orator and his audience, on the one hand, and, on the other, the actions and psychic experiences of individuals in the crusades or during revolutions, may serve as examples. Now the social unit with which the Australian is most intimately allied is the clan. The life of the clan mates consists of periods of non-eventful daily activities alternating with periods of violent emotional disturbances accompanying ceremonial occasions. While "the secrets" hold sway, to speak with the Kwakiutl, the individual lives on an exalted plane, manifesting qualities which altogether transcend those he possesses under ordinary conditions. The periodic recurrence of these two sets of ideas, emotions, acts, cannot but evoke in the individual the tendency to classify the totality of his experience into profane and sacred. The former embraces all that is strictly individual, the latter all that is social. The sense of external power which acts through the individual on social occasions will tend to crystallize into a concept of an undifferentiated, powerful, mysterious force, which pervades nature and absorbs the individual who feels himself external to that power and yet part of it. This power, as it appears to the Australian clansman, may be called the *totemic principle*. It is not the clan emblem, the totemic design, which is worshiped, nor the totemic animal, nor the various beings and things which form part of the totemic cycle of participation; but the totemic principle, the mysterious substance which pervades them all and constitutes their holiness. It was shown in the preceding section how this sense of power, craving for objective expression, attaches itself to the totemic symbols which surround the individual on ceremonial occasions and thus gives the initial stimulus to the formation of a sacred totemic world. Comparison with American data shows that the totemic principle is a forerunner of the *wakan*, the *orenda* as well as of the Melanesian *mana*. The concept is the same, the only difference being that the totemic principle, originating as it does within the clan, reflects the clan differentiation of the tribe, whereas, the *wakan*, the *orenda*, etc., belonging to a higher stage of development, have freed themselves from the constraint of the clan limit, and transcending it, have acquired that character of generality and homogeneity which distinguishes these concepts.

Thus a solution is reached not alone of the totemic problem, but of the problem of religion. The reality which underlies religion is society itself. In the Australian situation society appears in its most primitive form—the clan. The totemic principle, the nucleus of the most primitive religion, is the clan itself reflected in the psyche of the individual. Not aware of the real source of his subjective sense of power, the Australian

objectifies the latter in the form of religious symbolism, thus giving rise to the infinitely varied world of the concrete carriers of religious values. Thus, while here also there is illusion, it extends only to the content not to the existence of the ultimate reality, which is eternal.

We may first consider the minor issue raised in this section, namely the identification of the totemic principle with *mana*. On reading the pages devoted to this discussion the unprejudiced student soon perceives that the facts supporting Durkheim's contention are altogether wanting. There is no indication that the beliefs underlying totemic religion are generically the same as those designated by the terms *mana* or *orenda*; and that the *wakan* and *orenda* concepts should represent later stages of religious evolution, having superseded a stage in which the totemic principle reigned, is an imaginary construction which cannot be described otherwise than *aus der Luft gegriffen*. The main issue of the section, however, is the derivation of the totemic principle. This, in fact, is Durkheim's theory of religion, which is represented as a symbol of social control. Durkheim's theory has the charm of originality, for no one else before him has, to my knowledge, held such a view, nor has the author himself, in his former writings, ever gone so far in his social interpretations of psychic phenomena. Our first objection to the derivation of the sacred from an inner sense of social pressure is a psychological one. That a crowd-psychological situation should have aroused the religious thrill in the constituent individuals, who—*nota bene*—were hitherto unacquainted with religious emotion, does not seem in the least plausible. Neither in primitive nor in modern times do such experiences, *per se*, arouse religious emotions, even though the participating individuals are no longer novices in religion. And, if on occasion such sentiments do arise, they lack the intensity and permanence required to justify Durkheim's hypothesis. If a corroborree differs from an intichiuma, or the social dances of the North American Indians from their religious dances, the difference is not in the social composition but in the presence or absence or pre-existing religious associations. A series of corroborrees does not make an intichiuma; at least, we have no evidence to that effect, and human psychology, as we know it, speaks against it. Durkheim's main error, however, seems to our mind to lie in a misconception of the relation of the individual to the social, as implied in his theory of social control. The theory errs in making the scope of the social on the one hand, too wide, on the other, too narrow. Too wide in so far as the theory permits individual factors to become altogether obscured, too narrow in so far as the society which figures in the theory is identified with a

crowd, and not with a cultural, historic group. The experience of all times and places teaches that the rapport of the individual, as such, with the religious object is of prime importance in religious situations. While, on the one hand, religious emotions are stimulated (not created) by the social setting, the leaders of religious thought, prophets, reformers, individuals whose lives must be conceived as protracted communions with the divine, do not require the social stimulant, they shun the crowd, the church, the world, their god is within them, and their emotional constitution is a guarantee of an interminable succession of religious thrills. The lives of saints are one great argument against Durkheim's theory. The psychic cast of many a savage medicineman, magician, shaman, is another. If the social pressure, the ceremonial whirl is so indispensable a factor in the religious thrill, how is it that the world over the novice, in anticipation of the most significant, if not initial religious experience of his life, withdraws from human companionship, spends days, nay months in isolation, fasts and purifies himself, dreams dreams and sees visions? If phenomena of this type are so important in religion at all times, can one with impunity brush them aside in his search for a plausible origin of religion? Or would Durkheim claim that the religious thrill, socially produced, did then in some way become part of the psychic constitution of man in the form of a hereditary predisposition? But our author has not advanced this theory, and it would perhaps be unfair to attribute it to him.

On the other hand, the scope of the social in the author's theory is too narrow. For, significant as are the functions ascribed to it, the content of the social setting, in Durkheim's religious laboratory, is curiously restricted. Religion, he says, is society, but society, we find, is but a sublimated crowd. The only aspect of the relation of the individual to the social drawn upon in Durkheim's theory is the crowd-psychological situation, the effect on the individual of the presence of other individuals who, for the time being, think, and above all, feel and act as he does. We hear nothing of the effect on the individual of the cultural type of the group of the tribal or national or class patterns of thought and action, and even emotion, patterns developed by history and fixed by tradition. Of all this we hear nothing. The only factor called upon to do such far-reaching service is that whimsical psychosociological phenomenon which equates a crowd of sages to a flock of sheep. Strange fact, indeed, that one who expects so much from the social should see in it so little!

Theory of Ritual.—It will be impossible to fully discuss in these pages

Durkheim's suggestive analysis of rituals, negative and positive, mimetic, representative, and piacular. We shall restrict our remarks to the types of ritual which bear directly on the theories here discussed. Ritual is essential for belief. Nature goes through certain periodic changes; evidently, thinks the Australian, the divinities controlling nature must go through similar transformations. To this spectacle man may not remain indifferent; he must assist the divinities with all the powers at his command. The divinities, totems, etc., derive their sacred character from man, hence, the sacredness will decline unless revived. The group gathers intent on relieving the situation. But presently they feel comforted: "They find the remedy because they look for it together." On such occasions society becomes rejuvenated, and with it the soul of the individual, for is it not derived from society?

In the mimetic dances of the *intichiuma* the performers believe that they *are* the animals whose multiplication they crave, hence they imitate them in cries and actions. This identification of man and animal exists only to the extent to which it is believed, and the rite feeds the belief. The ceremony is beneficent for it constitutes a moral re-making of the participants. Hence the feeling that the ceremony has been successful. But it was intended to further the multiplication of the totemic animal, and now the belief that such multiplication has actually been achieved arises as a correlate of the feeling that the ceremony was successful. Such is ritualistic mentality.

In this case as in others the real justification of a religious rite is in the rite itself, that is, in the effect it produces on the social consciousness. The economic or other uses to which a rite is put are secondary, they vary and the same rite often does service for different purposes.

Another aspect of the ritualistic situation is what one might call an overproduction of thought, emotion, and activity. The elaboration of these processes is accompanied by pleasurable emotion, it becomes an end in itself. This is the threshold of Art.

A striking example of Durkheim's conception of ritual and of its effect on belief, is presented in his interpretation of mourning. When an individual dies, the social solidarity of his family is shaken. Driven by the shock of their loss, they unite. At first this leads to an intensification of sorrowful emotion; a "panic of grief" sets in, in the course of which the individuals sob, howl and lacerate themselves. But presently the effect of this exhibition of solidarity in sorrow begins to be felt. The individuals feel comforted, reassured. The mourning is brought to an end through the agency of the mourning itself.

But the individual remains perplexed. He must account for the strange exhibitions of mourning. Of social forces he knows nothing. All he is aware of is his suffering, and he seeks the cause for it in an external will. Now, the body of the deceased can surely not be held accountable, but his soul is there and it must be vitally concerned in the processes of the mourning rite; but these processes are highly disagreeable, hence the soul must be evil. When the mourning frenzy subsides, and a pleasurable calm ensues, the soul is again held responsible for the change, but now it appears as a benevolent agency. Not only the properties, but the survival itself of the soul, may, according to Durkheim, be an afterthought, introduced to account for the mourning rites.

Thus the ritual in this and similar cases appears as a spontaneous response of the group to an emotional situation. The beliefs, on the other hand, arise out of speculative attempts designed to interpret the phenomena of the ritualistic performance.

Durkheim's psychological interpretation of ritual, must, on the whole, be regarded as the most satisfactory part of his analysis. Nevertheless here, as elsewhere, he permits himself to lapse into a rationalistic and behavioristic attitude. While it is, of course, true that divinities exist only to the extent to which they are believed in and that belief is stimulated by ritual, this dependence of the gods on belief is certainly a fact which never enters the mind of the native. He, for one, is profoundly convinced of the externality and objectivity of his spiritual enemies or protectors, nor does he believe in the waning and waxing of their powers, to keep pace with the periodic changes in nature. Moreover, while the rite may properly be regarded as a battery by means of which the participants are periodically re-charged with belief, this function of ritual may easily be exaggerated, nor should other sources be disregarded which tend to preserve accepted belief, such as the forces of tradition, teaching and more strictly individual, as contrasted with social, experience. It must be remembered that ritualism on an extensive scale is, while a common, by no means a constant nor even a predominant characteristic of primitive society. An analysis, from this point of view, of the North American area, for instance, reveals the suggestive fact that ritual *en masse* occurs mainly in the Southwest, Southeast, Northwest, Plains area, and part of the Woodland area, whereas among the Eskimo, in the Mackenzie and Plateau areas and in California, ritual is, speaking generally, an individual or family function. In other words, ritual *en masse* is associated with tribes of a complex social type, where the group is differentiated into many definite social units some of which

appear as the carriers of ceremonial functions; while the tribes with a relatively simple social structure, based on the individual family and the local community, are on the whole foreign to ritualism of the above type. This generalization cannot be accepted without certain reservations. The situation is really more complex, and other factors, such, for instance, as diffusion of rituals, would have to be taken into account: such tribes, moreover, as those of the Western Plains or the Nootka combine with a relatively simple type of social organization a relatively complex type of ritualism. Within certain limits, however, the generalization holds. Now, it becomes at once obvious that the intensity of religious belief is not correlated with complex ceremonialism. Among tribes devoid of complex ritualism, other factors must be operative to strengthen and perpetuate the existing belief; and, if that is so, we are also cautioned against the exclusive emphasis on ritual as a generator of belief even where it does occur on a large scale. The gods live not by ritual alone.

As a most glaring instance of an extreme behaviorist position we must regard Durkheim's attempt to account for the qualities nay, in part, even for the survival of the soil, by means of the "ritualistic mentality." Elaborate criticisms of hypotheses such as this are futile, for it obviously represents a deliberate effort to disregard the many emotional and conceptual factors which go to the making of the soul-belief in all its aspects, in favor of a simplistic behaviorist explanation. When Durkheim interprets the belief in the efficacy of the intichiuma as a reflection of the rise in social consciousness brought on by the ceremony, he commits a similar error. It seems unjustifiable for instance, to disregard as a contributing factor in furthering the belief, the observation often made by the natives that the totemic animals and plants actually do multiply soon after the performance of the ceremonies. Durkheim does, indeed, note the fact, but he fails to utilize it in his theory.

Theory of Thought.—Whereas the prime object of the author's work is to trace the origin of religious beliefs and notions, he turns repeatedly to the more general problem of thought, of intellectual categories. While the author's remarks on that subject are not extensive nor systematic, enough is said before the volume draws to a close, to make his position stand out in bold relief. No less than the categories of religion the categories of thought are of social origin. The importance of individual experience and of tentative generalizations derived therefrom should not be underestimated, but isolated individual experience lacks the elements necessary to give the notions which thus arise that character of

generality and imperativeness which distinguishes the mental categories. *Mana*, the totemic principle, that objectified intuition of society, is the first religious force, but also the prototype of the notion of force in general; just as the concept of soul, the active element in man, is, as shown, of social derivation. Similarly with the category of causality. The "will to believe" aspect of ritualistic mentality, as manifested, for instance, in the *intichiuma* ceremonies, has been dwelt on at length. But the belief alone is not sufficient; it would, at best, result in a state of expectancy. The rites must be repeated whenever need is felt of them, and the emotional attitude must be supplemented by a concept, if the *intichiuma* as a method of constraining or assisting nature is to be counted on. The concept that like produces like becomes a fixed mental category, and behind it is a social mandate. "The imperatives of thought seem to constitute but another aspect of the imperatives of Will."

The notion that the qualities of objects can be communicated to their surroundings by a process of propagation, cannot be derived from daily experience, for the phenomenon in question does not occur within the domain of such experience, but constitutes a peculiarity of the religious world. Religious forces, qualities, being themselves but sublimated and transformed aspects of society, are not derived from objects but super-added upon them. The intrinsic virtues of the carriers of religious forces are thus indifferent, and the most insignificant things may become objects of greatest religious import. It is not strange that sacredness can be communicated by contagion from object to object for it is by contagion that sacredness becomes primarily fixed upon objects. Nor is this contagiousness of the religious irrational, for it creates bonds and relations between objects, beings, actions, otherwise disparate, and thus paves the way for future scientific explanations. What was heretofore called the cosmogony of totemism, the classificatory aspect of the most primitive religion, thus becomes the prototype of classification in general, the first source of the notions of genus, subordination, coördination.

The mental categories, concludes Durkheim, are not merely instituted by society, but they are, in their origin, but different aspects of society. The category of genus finds its beginning in the concept of the human group; the rhythm of social life is at the basis of the category of time; the space occupied by society is the source of the category of space; the first efficient force is the collective force of society, bringing in its wake the category of causality. The category of totality, finally, can only be of social origin. Society alone completely transcends the individual, rises above all particulars. "The concept of Totality is but the abstract

form of the concept of society: Society is the whole which comprises all things, the ultimate class which embraces all other classes."¹

The author's attempt to derive all mental categories from specific phases of social life which have become conceptualized, is so obviously artificial and one-sided that one finds it hard to take his view seriously, but the self-consistency of the argument and, in part, its brilliancy compel one to do so. In criticism we must repeat the argument advanced in another connection in the preceding section: in so far as Durkheim's socially determined categories presuppose a complex and definite social system, his explanatory attempts will fail, wherever such a system is not available. The Eskimo, for example, have no clans nor phratries nor a totemic cosmogony (for they have no totems); how then did their mental categories originate, or is the concept of classification foreign to the Eskimo mind? Obviously, there must be other sources in experience or the psychological constitution of man which may engender mental categories; and, if that is so, we may no longer derive such categories from the social setting, even when the necessary complexity and definiteness are at hand.

In this connection it is well to remember that the origin of mental categories is an eternally recurring event; categories come into being within the mental world of every single individual. We may thus observe that the categories of space, time, force, causality, arise in the mind of the child far ahead of any possible influence from their adult surroundings by way of conscious or even deliberate suggestion. To be sure, these categories are, in the mind of the child, not strictly conceptualized nor even fully within the light of consciousness, but their presence is only too apparent: the individual experience of the child rapidly supplements the congenital predisposition of the mind. Instructive conclusions, bearing on these and other questions of epistemology, could be drawn from a systematic analysis of the grammars of primitive languages. Grammar is but a conceptual shorthand for experience and the means by which a relatively unlimited experience is squeezed into the frame of a strictly limited grammar is classification. Now, while the psychic processes underlying grammatical categories fall notoriously below the level of consciousness, they do nevertheless represent the deepest and most fundamental tendencies of the mind which, without doubt, provide the foundation for later, more conscious mental efforts, in similar directions. While no intensive study of primitive grammars, from the above point of view, has as yet been made, enough is known to foresee that but a fraction of the categories thus revealed will prove of specifically social derivation.

There remains another equally fundamental criticism to be made of Durkheim's doctrine. As we have seen, the author maintains that infectiousness is a specifically religious phenomenon. It does not seem that even the infectiousness of the sacred has been satisfactorily accounted for by the author. For, granting that sacredness is not inherent in objects but projected into them, that fact would not, *per se*, explain why sacredness should be so readily communicable from object to object. The Australian is not aware of the extraneous character of the sanctity of things, and surely it would be impossible for him to believe that his consciousness is if not the ultimate, yet the proximate source of that sanctity. Hence, the infectiousness of the sacred remains, from that standpoint, inexplicable. Another instance of the psychologist's fallacy! This, however, is but a minor point. But can we follow the author in his assertion that infectiousness is peculiar to the sacred and that the quality is foreign to experience outside of the religious realm? Assuredly not. Daily observation brings before the mind of the savage numerous instances of the communicability of qualities. Wet comes from wet, and cold from cold; red ochre makes things red and so does blood, while dirt makes them dirty; touching rough surfaces brings roughness of skin and soreness; intimate contact with strongly smelling substances communicates the smell; heat, finally, produces heat—and pain. If the sacred is infectious, so is profane nature, and the mind which learns from the one its first lesson in categorizing can learn it from the other as well. It will be seen that the above criticism is based on a special instance. It must now be generalized. The exclusive emphasis on the religious and ultimately on the social as the source of the fundamental categories of thought is unjustifiable in view of the rich variety of profane experience which is amenable to like conceptualization. While the point, when made in this general form, is fairly obvious, much interesting research work in this neglected field of primitive mentality remains to be done. The magico-religious aspect of primitive life and thought has for years monopolized our attention to such an extent that the less picturesque but no less real concrete experience of the savage has remained almost completely in the background. What does the savage know? should be the question. A vast store of data is available, on which to base our answer, and more can be procured.

The principal criticisms here passed on Durkheim's work may now be summarized as follows:—

The selection of Australia as the practically exclusive source of information must be regarded as unfortunate, in view of the imperfection of

the data. The charge is aggravated through the circumstance that the author regards the case of Australia as typical and tends to generalize from it.

The Theory of Religion is deficient in so far as it involves the commingling in one definition of disparate aspects of the religious complex. Many of the special points made in the course of the work are thus prejudged; the individual and subjective aspect of religion, in particular, thus fails to receive proper attention.

The Theory of Totemism suffers from the disregard of the ethnological point of view which forces upon us the conviction that the institution must be regarded as highly complex historically and psychologically. The resulting interpretation of the totemic complex, while giving evidence of Durkheim's superior psychological insight and often brilliant argumentation, recalls by its one-sidedness and artificiality the contributions to the subject on the part of the classical anthropologists.

The Theory of Social Control must be rejected on account of its underestimation as well as overestimation of the social, involving a fundamental misconception of the relation of the individual to society. For, on the one hand, the individual becomes, in Durkheim's presentation, completely absorbed in the social; society itself, on the other hand, is not conceived as a historical complex but as a sublimated crowd.

The Theory of Ritual, while involving much true insight, is narrowly behavioristic and rationalistic and fails to do justice to the direct effect of experience upon the mind. The conception of the subjective side of religion as an after-thought, consequent upon and explanatory of action, must be vigorously rejected.

The Theory of Thought, finally, suffers from an exclusive emphasis on socio-religious experiences as the sources of mental categories, to the all but complete exclusion of the profane experience of the savage and the resulting knowledge of the concrete facts and processes in Nature.

Thus the central thesis of the book that the fundamental reality underlying religion is society, must be regarded as unproved.

A. A. GOLDENWEISER

AFRICA

Esquisse ethnologique des principales populations de l'Afrique équatoriale française. L. POUTRIN. Paris: Masson et Cie. 1914. 8°, pp. 129.

One of the most important studies of African ethnography so far made is this *esquisse ethnologique* of Dr Poutrin, published by the *Société*

antiesclavagiste de France. It is, of course, far from being a final monograph upon the peoples of French Equatorial Africa. Such a work cannot be produced for years to come. Knowledge of the populations that occupy an area extending through twenty degrees of latitude (4° S. to 15° N.) and stretching from the basin of the Nile to the shores of the Atlantic is, as yet, incomplete. Large regions are still almost unknown. Within this area, too, movements have taken place upon an enormous scale. Tribes have been displaced, slavery has carried individuals far from their place of origin, contacts and penetrations have taken place to an extraordinary degree. Only the most thorough and careful study can ever unravel the problems presented and produce order in the widespread confusion. If order is ever to be produced, pioneers must clear the way and this Dr Poutrin has done in more than creditable fashion. Within the region under consideration, some of the greatest movements of population in the history of the Dark Continent have taken place. During the sixteenth and seventeenth centuries occurred the great Jaga or Zimba migration; originating in the land of the Masai, they traversed Africa in every direction, south of the great equatorial forest, overwhelming Bantu populations in their course, crossing the Congo and reaching to the district of the modern Ba-Yaka, whom Poutrin considers a mixture of the invading Jaga with the Bateke. Even more important for this region was the great Pahouin (Fan) migration. They, too, started from an eastern home, but skirted the great forest on the north; coming from the high plateaus of eastern Africa, they are now represented by the Monbutto of the upper Ubangi and the Uelle. Lesser movements are traceable, among them those of Arab slavers. Two centers of ethnographic dislocation may be recognized, in the northeast Dar-Banda, in the southwest the Gaboon. Our author recognizes frankly the impossibility of studying the natives as if they formed part of some few homogeneous groups. He is compelled to take them up in little parcelings, bit by bit. In doing so, he divides the area studied into four zones: (a) the Gaboon and Middle Congo; (b) the zone of the great equatorial forest; (c) the zone of transition between the fetichist and the islamized country; and (d) the zone more or less completely islamized. Then taking up the little populations within these zones one by one, he presents a brief summary of what is known of each, somatologically, ethnographically, and in regard to origins and kinships. On the map accompanying the discussion, one hundred and thirty-eight different peoples are located by different marking, the colors used to some extent showing known or probable relations. This kind of work is not easy

and Dr Poutrin has done it with skill. His sketch well shows our present knowledge and must serve as a basis for all future work in this field.

FREDERICK STARR

Étude anthropologique des Populations des Régions du Tchad et du Kanem.
R. GAILLARD and L. POUTRIN. Paris: Emile Larose, 1914. 8°, pp. 111. (Extrait des Documents scientifiques de la Mission Tilho, Tome III).

In the study of the populations of the Chad region by Drs Gaillard and Poutrin, we have at once a contribution to knowledge and a model of method. The work is purely somatological and it is, in a sense, a trial case and a test. To what degree is physical anthropology worth while and to what results can it actually lead? The authors worked independently of each other upon the little-known populations of the islands and borders of Lake Chad: their methods of measurement being rigidly controlled and identical, the results are combined as if taken by one person. The measurements made were numerous and permit the calculation of a great number of proportions, indices, etc. Comparisons are made between the result secured and similar data relative to other peoples and races,—Congo natives, American Indians, Europeans. The peoples investigated form four well-marked groups,—the Boudouma, Kanembu, Oulad Sliman, and Jeda, the Oulad Sliman being Caucasian. The authors believe that their results permit successful solution of questions of origin and movement. A sketch map and a series of portraits accompany the work, which is also abundantly illustrated by curves, diagrams, and outlines.

FREDERICK STARR

Anthropological Report on Ibo-Speaking Peoples of Nigeria. Part IV. Law and Custom of the Ibo of the Asaba District, S. Nigeria. Part V. Addenda to Ibo-English Dictionary. Part VI. Proverbs, Stories, Tones in Ibo. NORTHCOTE W. THOMAS. London: Harrison and Sons, 1914. 8°, pp. vi, 208; xiv, 184; viii, 114.

In the three volumes before us, similar in form and style to preceding parts, Mr N. W. Thomas, Government Anthropologist, continues his studies upon the Ibo-speaking peoples. The populations here investigated are those of the Asaba district, which includes a number of large towns and a total population of 200,000 people. The town of Asaba itself is situated directly upon the Niger river at about 6° 20' N. While the population of the district is fairly homogeneous, four or five dialects

may be distinguished. There are Yoruba linguistic islands in the area and customs have been locally and markedly influenced by Benin city, with which relations were admittedly maintained. The population is true negro. Among the large towns are Ibuzo, said to have 40,000 inhabitants, Asaba with 27,000 and Oboluku with 20,000. Thomas's work is conscientious and deserves praise; his style, however, is tedious and dry, and his statements are so badly made as to be often ambiguous. His most interesting matter is certainly that regarding religion and magic, marriage, property, slavery, and law. The idea of reincarnation is found among these natives in various forms, among which the relation of the *ei* and the *ago* appears particularly suggestive; "a person stands in the relation of *ago* to another person alive or dead called their *ei* and the *ago* is believed to be the reincarnation of the *ei*, or to be sent into the world with their help." This idea enters again and again into custom and practice and exercises a wide influence. The author fully develops the idea regarding social ranks and titles; these peoples are sticklers for ceremony and the recognition of position; each person who has assumed a title is entitled to special consideration on that account and minute attention is given to the matter. Marriage customs are many and variable and among them are some practices that demand further study and investigation elsewhere. Thus, the relation between a woman and her lover, not a husband but a permanent companion, recognized and approved by her father is known as *idebue*; the woman is *idebue*, the man *mbwa*; the woman who is *idebue* may make her daughter such in turn, if she has no sons; she is herself usually without brothers, and standing to her father in the relation of a son, remains in his house. This custom is analogous to the *isomi* marriage, already described by Thomas elsewhere in connection with the Edo-speaking people. Another curious custom, complicated in itself and even more complicated through Thomas's confused style of writing, is the practice of woman marriage, which is stated to have practically the same distribution as the *idebue* custom. The discussions of slavery and property inheritance are among the most important and interesting in the books. In the part devoted to proverbs, etc., Thomas brings the list, begun in Part III, from 380 up to 1022 in number. As a whole the proverbs do not come up to the usual African grade, although it is probable that the translations do not do them full justice; nor does Mr Thomas have a quick perception of the pith and keenness of proverbs anyway—in his explanatory hints and notes not infrequently quite losing their evident point and wit. Phonographic records were made by Thomas of some stories and these records

have been subjected to rather careful study by experts. The result is a statement regarding tones in Ebo. Some changes are made in his earlier views of the matter; there are more tones in these languages than he at first believed, but he is in doubt as to how many must be recognized. The volumes are published and distributed by the Government of Nigeria, which deserves credit for its encouragement of anthropological study.

FREDERICK STARR

Specimens of Languages from Southern Nigeria. NORTHCOTE W. THOMAS.
London: Harrison and Sons, 1914. 8°, pp. 143.

Also by Mr Thomas and distributed by the Government of Nigeria is this volume of specimens of languages. For the most part the matter is arranged in tables, 151 numbered words or phrases being given in fifty different languages or dialects. The matter is varied and of varying value; its arrangement is rather confused and disorderly. The material will however prove useful in fixing linguistic forms and in tracing relationships.

FREDERICK STARR

The Languages of West Africa. FREDERICK WILLIAM HUGH MIGEOD.
London: Kegan Paul, French, Trübner and Co., 1911, 1913. 2 vols.
8°, pp. VIII, 373; IX, 436. (Price 35 shillings.)

No more important book regarding African languages has appeared than Migeod's *Languages of West Africa*. As a transport officer, the author has spent years upon the west coast and has an actual practical knowledge of several of the more important languages within his district. He estimates the number of languages spoken within the area of his investigation at four hundred, and his book is devoted to a comparative study of some of these. The work represents an astonishing industry and an unusual independence in thought and method. The plain and simple statement of some of the difficulties he has met is not the least important part of the book. Few persons realize the fundamental difference in operation between the negro and European minds,—nay between the mental operations of African and African. This difference renders the gathering of vocabularies and specimens of languages a difficult and uncertain task. It is doubtful whether most of the vocabularies collected by travelers and questionnaire workers have any value. Among the difficulties in the study of African languages one of the most immediate lies in the phonology. Not only are there strange sounds in

these languages, the sounds are also extraordinarily vague and fluctuating; the possibilities of permutations for euphony or ease of pronunciation, or in response to grammatical necessities are inconceivable; tone, too, enters into the utterance of words and the variations in tone profoundly affect meaning. Whether these strange and variable sounds are to be laboriously represented by special type, introducing strange diacritical marks and tonic accents is a disputed question. We believe that Migeod is wise in refraining from so doing; he uses as simple an alphabet as possible,—surely a sensible procedure as his work involves the citation of scores of tongues and does not in the least aim to teach the practical use of any. Believing that grammatical structure is far more important in tracing history and relationship of languages than lexical similarities, he lays chief stress on it. He first presents a tabular statement of grammatical rules in thirty-three languages; here at a glance one becomes aware of differences of the most striking and fundamental sort and gains a hint of groupings and relationships. This most instructive table, full grasp of which will demand profound study, is followed by a study of numeral words. Migeod reduces vocabulary comparison to a minimum; instead of bringing together long lists of words of every kind, he confines himself absolutely to numerals and pronouns. These he considers among the oldest of words and least subject to change; he believes that so far as vocabularies are capable of supplying data for judgment, they are adequate. Within his geographical area number systems vary; there are quinary, decimal and vigesimal usages,—clearly based on finger-counting. The words for 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 18, 19, 20, 30, 51, 58, 59, 100 will supply all the information necessary. Tables are given of the numerals from many languages. A third tabulation consists of language specimens from fifty-four different languages; they are selected to illustrate the most important points in grammar and are simple in the extreme. In special chapters devoted to the plural, the verb, the article, gender, the adjective, the pronoun, the preposition, time, and language building, the author brings out clearly the most important characteristics of his West African languages. He also gives interesting and easy chapters on the Hausa Language—as an example of one speech—Literature, and Vai Writing and Literature. In two chapters of analysis, comparison, and elimination, he reaches a tentative, though no doubt in its main features a final, grouping and classification. On the whole he inclines to recognize six groups;—

(1) Non-article Bantu type.

(2) Article Bantu type languages: (a) prefix; (b) suffix.

- (3) Masculine and feminine gender languages.
- (4) Direct object preceding verb languages: (a) pure; (b) Bantuised.
- (5) Primeval languages.
- (6) Modern languages, a mixture of others and not classifiable.

This part of the book is full of passages deserving quotation, but we have said enough to show that Migeod's work is of high importance and that its anthropological and psychological value is equal to its linguistic significance.

FREDERICK STARR

The Mende Language. FREDERICK WILLIAM HUGH MIGEOD. London, 1908. 16°, pp. xvii, 18-271. (Price 7s 6d.)

A Grammar of the Hausa Language. FREDERICK WILLIAM HUGH MIGEOD. London, 1914. 16°, pp. xii, 229. (Price 7s 6d.)

Mende Natural History Vocabulary. FREDERICK WILLIAM HUGH MIGEOD. London, 1913. 16°, pp. viii, 9-64. (Price 4s 6d.)

Three books by the same author and dealing with African languages have been published by the same house, Kegan Paul, Trench, Trübner and Co. *The Mende Language* is a practical handbook. It consists of four parts,—useful phrases, grammar, vocabularies, stories. The method of giving the stories deserves imitation: they are told in brief sentences, each given a line, while the translation is printed in corresponding lines opposite. *The Grammar of the Hausa Language* is also a practical book, but intended for students who have already acquired some knowledge of the tongue. The grammar is fully given; the vocabulary is full and diversified; the common idiomatic expressions are carefully selected and arranged to illustrate the rules fully. *The Mende Natural History Vocabulary* shows that the Mende are fair observers of nature; animals and plants are fairly discriminated although some bases of grouping show a viewpoint quite unlike our own. The author gives in connection with the names many interesting notes upon native uses and notions regarding living things, both animals and plants.

FREDERICK STARR

Angass Manual, Grammar and Vocabulary. H. D. FOULKES. London: Kegan Paul, Trench, Trübner and Co., 1915. 16°, pp. xviii, 313.

This book is not entirely a purely Angass manual; it is also, and largely, a discussion of Hausa analogies and problems. The Angass language is a monosyllabic language of extremely simple grammatical structure. Foulkes claims that its resemblances to Hausa are so many and striking

as to raise questions of relationship. Angass is "itself either the original or a variation of a group of dialects which are spoken by the neighboring tribes of the Montoils, Thal, Chip, Ankwe, Sura, and Mushere. . . . In very many essential words, but more especially in its construction it bears a very great similarity to Hausa, which leads to the fair inference that the latter is derived from Angass; for so far as we at present know, the Angass and its varieties are indigenous, whereas the Hausas are immigrants. . . . I should like the opinion of those whose knowledge of Hausa is more intimate than my own—if I am correct then Hausa is a negro and not a Hamitic language." Much of the author's purpose is to propound his views in this direction. In so far as this book is a manual, it is about evenly Grammar and Vocabulary.

FREDERICK STARR

INDONESIA

The Pagan Tribes of Borneo. By CHARLES HOSE and WILLIAM McDougall. Appendix by A. C. HADDON. 2 vols. London: Macmillan, 1912.

These two volumes are the result of the combined efforts of Dr Hose, who was for twenty-four years connected with the government of Sarawak as Resident Magistrate, and of Dr McDougall, a member of the Cambridge Anthropological Expedition to Borneo.

Dr Hose's duties necessitated constant intercourse with the natives and frequent long journeys into the interior. That he made the most of his opportunities to observe and record the life of the natives is evidenced by these volumes. In them he has preserved for us an excellent record of the daily life, social systems, methods of warfare, crafts, decorative art, ideas of spiritual existences and practices arising from them, and has also given a short treatise on myths, legends, and stories. In addition there are summarized, in three excellent chapters, the chief features and incidents of the geography, history, and government of Borneo. More than two hundred plates of unusual excellence and interest, as well as many drawings and maps, aid the reader in following the descriptions.

The authors separate the population into two great divisions,—the Mohammedan or Malay and the Pagan. The first, which they consider a very heterogeneous group with a foreign culture, is mentioned only incidentally to bring out its influence on the interior tribes. The Pagan people are said to number about two million and are placed in six principal divisions by reason of physical type, language, traits of culture, dress, and the like.

These divisions are:—

- (1) The Sea Dayak or Iban, who speak one language.
- (2) The Kayan, with a single language.
- (3) The Kenyah, with many dialects of a single language.
- (4) The Klemantin. This division holds about one half the total population, and comprises many diverse groups which vary considerably among themselves in language and customs.
- (5) The Murut of North Borneo, who resemble the Klemantin.
- (6) The Punan, made up of small nomadic bands, the language of which is apparently related to the Kenyah and Klemantin.

These are held to be natural divisions, each one of which presents certain peculiarities or "group marks" which make it possible to assign the majority of individuals to their proper places. However, there appears to be no great difference in their physical characteristics. A considerable amount of variation is observable in the members of each, yet the same variations are found, to a greater or less extent, in each; such for instance as the common occurrence of wavy or curly hair, the Mongoloid type of eye, or the occasional individual who closely approximates the European type of features.

Much attention is given to the probable origin of these Pagan people, and the authors have not hesitated to formulate a theory as to the ethnic affinities of all the principal tribes, although they admit that the basis on which it rests is slight. Briefly stated, their opinion is as follows: it is possible but not certain that, in the remote past, Borneo was inhabited by Negrito, or pigmy blacks; that at a time before Borneo, Java, and Sumatra were separated from the mainland, that part of the world was inhabited by members of the Indonesian race, who were then in a state of culture similar to that of the present-day Punan. These Indonesians are supposed to have resulted from the contact and blending of Caucasian and Mongoloid stocks in the southeastern corner of Asia (vol. II, p. 227). When Borneo was separated from the mainland a part of this stock was cut off, and it is from them that the Punan, Kenyah, and Klemantin are descended. At a much later period the Kayan reached the southern coasts of Borneo and began to penetrate toward the interior by following up the river courses. It is thought that these people represent a part of the Indonesian stock which remained in the region of the Irrawadi; there through the southward drift of peoples from China they received fresh infusions of Mongoloid blood and thus became much more Mongoloid in character than their kinsmen who were cut off in the Islands. During many centuries they moved slowly toward Borneo by

way of Tenasserim, the Malay peninsula, and Sumatra, learning or developing during this time the culture characterized by the cultivation of rice on burned land, the building of long houses, the use of boats, and the working of iron. Upon their arrival in Borneo they became the distributors of this culture to the tribes with whom they came in contact.

These important deductions are based on the historic movements of the Kayan people; on the traditions that they came across the sea and have recently reached their present locations by movement from the south; on the fact that the Kayan still make long journeys by water; and finally on alleged affinities in respect of physical characters and culture with the Karen, Chin, Kakhyen, and Naga, who are considered as the surviving branches of the original Indonesian population in southeastern Asia. These affinities are gathered from descriptions which are admitted to be meager and unsatisfactory, and which present quite as many radical divergences in culture as they do similarities.

It may well be that the population not only of Borneo but of all Malaysia came originally from southeastern Asia, but it appears to the reviewer that the attempt to connect the Kayan definitely with any tribe or set of tribes now living in that region is, at best, little more than an interesting speculation. Using the same material it would be equally easy to prove their relationship with nearly any of the more advanced of the pagan peoples of the Philippines, while a very good case might be made out for certain peoples in more distant lands.

The Murut tribe is held to be made up chiefly of immigrants from the Philippines or from Annam. This belief is based chiefly on the fact that their system of agriculture involves irrigation, the use of the water buffalo, and the raising of two crops a year on permanent fields; also on the absence of any axe or blow-pipe.

Here it should be noted that there is considerable evidence that the use of irrigated fields is not of great antiquity throughout the Philippines; also that the Borneo type of axe and the blow-pipe are found in several widely separated districts of the Philippine Islands.

The Sea Dayak, or Iban, are regarded as "Proto-Malays" who came into the southwestern corner of Borneo at no distant date. In the main they were brought from Sumatra by Malay pirates, who enrolled them as fighting men.

In addition to the above, there have probably been numerous minor invasions such, for instance, as the Javanese-Hindu and Chinese.

In the closing paragraph of this section, the authors re-affirm their belief that the Indonesian stock was largely Caucasian, and that the Kayan,

of all the Indonesians, have preserved most faithfully the ancient system. In support of this theory they attempt to show that the religious beliefs, the system of divination and of augury by the entrails of sacrificial victims strangely resembles, even in many details, the corresponding system practised by the Romans. Not content with this speculation they call our attention to the fact that the term *Bali*, which to the Kayan denotes anything sacred, is of Sanskrit derivation; that the name of the bird most used in augury is *Flaki*, thus bearing a suggestive resemblance to the German *Falke*, and the Latin *falco*; finally the Kayan for "omen" is *aman* which is strikingly like the Latin (p. 256).

We have here an interesting theory or set of theories which may lead to profitable discussion, but for the moment it must be admitted that the conclusions are based on doubtful and exceedingly speculative material.

The balance of the work is of quite a different character, being based on careful observation.

The first part of Volume II contains minute descriptions of the belief in spirits, the soul, animistic beliefs, the practice of magic, spells and charms. This material is analyzed in connection with the chapters on social organization, to discover if there is any evidence that a totemic system once flourished among these tribes. Certain customs which suggest totemism are discovered, such, for instance, as the refusal to eat an omen animal, the slaying and eating of certain animals only when accompanied by religious rites, the myth told by one community which claims to be related to the crocodile, the setting up of images of the hawk and crocodile before the house, and the belief that the soul of man assumes the form of some tabooed animal. The authors have found explanations for these customs and beliefs, and are inclined to reject the idea that they are vestiges of a once fully developed totemic system. However, they find in the *ngarong* of the Iban, which in many cases is hardly distinguishable from a fetish, "a very natural and possible mode of origin of totem worship" which is here prevented from development by the agricultural habits, the addiction to war and head-hunting which necessitates strict subordination of each community to its chief and to the prevalence of a belief in a supreme being (p. 113).

The methods and weapons of warfare receive careful attention, as does the custom of head-hunting. This custom is thought to have been introduced a few centuries ago by the Kayan from whom it spread to other tribes. Two theories for its origin are offered: one is that it arose from the extension of the custom of adding human hair to the sword hilt and to the shield, to complete the terrifying representation of the human

face. The second possibility is that it arose out of the custom of killing slaves on the death of a chief, in order to provide servants for him on his journey to the other world (p. 191).

In view of the wide spread of the custom of head-hunting and human sacrifice, not only in Borneo and the islands to the south but also in the Philippines and Formosa, it does not appear likely that it is a recent introduction through the Kayan or any single tribe; neither does it appear to be of such simple origin as the authors suppose. The explanations offered are only two of several possible motives, such, for instance, as the gratification of certain spirits who are thus induced to grant success in war, bounteous crops and the like; blood revenge, and the desire of warriors to be known as brave and successful members of their class.

The evolutionary scheme of Dr Haddon is closely followed in the fifty pages devoted to a description and analysis of the decorative designs found in tattoo, beadwork, woodwork, and painting.

Following a careful review of the moral and intellectual peculiarities of the tribesmen, the authors take direct issue with those who attempt to exhibit the mental life of savage peoples as profoundly different from our own. On page 222 we read:—

We have no hesitation in saying that, the more intimately one becomes acquainted with these pagan tribes, the more fully one realizes the close similarity of their mental processes to one's own. Their primary impulses and emotions seem to be in all respects like our own. It is true that they are very unlike the typical civilized man of some of the older philosophers, whose every action proceeded from a nice and logical calculation of the algebraic sum of pleasures and pains to be derived from alternate lines of conduct; but we ourselves are equally unlike that purely mythical personage. The Kayan or the Iban often acts impulsively in ways which by no means conduce to further his best interests or deeper purposes; but so do we also. He often reaches conclusions by processes that cannot be logically justified; but so do we also. He often holds, and upon successive occasions acts upon, beliefs that are logically inconsistent with one another; but so do we also.

The work closes with a detailed study of the physical characters of the races and peoples of Borneo by Dr A. C. Haddon. His conclusions agree, in the main, with those mentioned earlier in this review. Special emphasis is laid on the observation that the Bornean peoples may be of more complex origin than earlier generalizations suggest.

FAY-COOPER COLE

PHYSICAL ANTHROPOLOGY

Kraniologische Untersuchungen niasischer Schädel. VON KLEIWEG DE ZWAAN, J. B. VIII, 263 pp., 1 map, 156 figures and 2 tables.—Appendix: Zoologische Resultate, pp. 265-325. Martinus Nijhoff: Haag, 1915.

With the present third volume Kleiweg de Zwaan's Nias work comes to its conclusion. The first volume (1914) treated of "Die Heilkunde der Niasser," the second one (1914) of "Anthropologische Untersuchungen über die Niasser" (see review in vol. 17, No. 2, of this periodical). The systematic and scientific treatment of the material in the third volume also is carried out thoroughly and with care. The studies on the Nias skull by Bleeker, van der Hoeven, Swaving, Vrolik, Meyer, ten Kate, Schaaffhausen, Quatrefages, Hamy, Rüdinger, Danielli, and Zuckerkandl, only few in number and of earlier date, are severally reviewed by the author and utilized by him in comparing results in the course of his investigations. The anthropological literature on the Malay archipelago and peninsula is also frequently quoted. The material subjected to investigation consisted of 32 skulls from different sections of the island of Nias and collected by the author himself. Together with the skulls treated in the literature quoted above, the material ran up to more than a hundred specimens. A determination of sex was not attempted on account of the generally "gracile" formation of the skull. Asymmetries of the skull are quite frequent. Still they do not seem to be the results of attempts to correct obvious malformation of the newborn infant's head since such attempts are practised to a very slight degree and only for a very short time (pp. 231-235). Projections of the frontal bone are hardly noticeable, the supra-orbital region especially protrudes very little. The index of protrusion of the frontal bone amounts to 86.02, indicating together with the bregmatic angle of 58.10 only a slight protrusion of inclination, respectively. The orbits are of rectangular shape and large, this being an especially conspicuous feature if one considers the relative smallness of the skull. Their transverse diameter is slightly inclined. The *Pars nasalis* of the frontal bone proved to be of considerable length (10.6 mm.) relatively to the morphological height of the face. In this it corresponds to like conditions in R. Martin's *Inlandstämme der malaiischen Halbinsel* (8 mm.), and Sarasin's *Veddars*. In all these instances the frontal bone takes a large part in forming the medial partition of the orbit. The shallowness of the *fossa canina* seems to be another characteristic of the Niassers; Baelz first reported it from

the Japanese, but it is found also among the Battaks, Burmese, Chinese, Ainu. Of very frequent occurrence among the Nias skulls is the almost flat bridge of the nose with its occasionally saddle-like depression, the nasal bones lying nearly in one plane. They project, in such cases, to only a small extent over the frontal processes of the upper jaw. In a number of skulls the medial and lateral edges of the *nasalia* are of equal length; the lower edges of these bones are thus cut off evenly and the *apertura piriformis* receives a rectangular appearance. The *squama temporalis* is small and low. The zygomatic and mastoid processes are weakly developed. In the latter the *incisura mastoidea* as well as the *fossa glenoidalis* are quite shallow. The condyloid processes are as a rule small, closely approaching in front. In the parietal and occipital bones protrusions are not pronounced, a condition that holds true also for the reliefs of the bones.

The examination of the cranial sutures showed a lesser frequency for the obliteration of the sagittal one than for the obliteration of the *suturæ coronaria* and *spheno-frontalis*. This disposition is not found so regularly in other series, and is explained in detailed lists. Another characteristic seems to be the shortness of the *spheno-parietal* suture.

The cranial index, with an average of 77.0, indicates mesocephaly; its components amount to 171.6 mm. for the length, and 131.5 mm. for the width. For all three groups of the index the differences in length were greater than those in breadth. The latter measurement is for this reason the more constant one. The two dimensions just spoken of vary, however, more in the brachycephalous than in the dolichocephalous cases. These latter comprised 42.22% of the entire series, while the mesocephals ran up to only 30.77% and the brachycephals to 26.92%. Of great interest is Kleiweg's method of contrasting these figures with those obtained by him on 1,297 living Niassers (volume II of his work), of which 10.49% were dolichocephalic, 39.07% mesocephalic, and 51.43% brachycephalic. These results are exactly in inverse proportion to the skull measurements. From the fact that dolicho-, meso-, and brachycephaly occur side by side in large percental proportions in his skull series, the author infers that the population of Nias is of heterogeneous composition.

The height of the skull was determined according to the methods of Broca, Schwalbe, and E. Schmidt. It must suffice to speak of the first one only, which yielded a value of 130.6 mm. The higher values are united in the long-headed group, the lower in the short-headed one. The length-height index is hypsicephalic, with 76.5 units. According

to all these measurements the Nias skull appears as pretty long and narrow, but relatively not very high. The horizontal circumference 490.4 mm. is rather small. The components of the sagittal circumference amount to 145.5 mm. for the nasion-bregma arch, to 125.8 mm. for the bregma-lambda arch and to 112.5 mm. for the lambda-opisthion arch. Although these mean figures cover a considerable variety of individual variations, they still clearly demonstrate in general a receding of size of the occipital section. The inclination of the frontal bone is demonstrated by Schwalbe's "bregma angle" (bregma-glabella by glabella-inion), which amounts to 58.11 and thus falls within the range of variation given by Schwalbe for modern man (53° - 66°).

In the facial region nose and eye are of special interest. The nasal index of 52.05, mesorrhin, takes in the average length of 46.3 mm. of the nose, and its width of 24.1 mm. Applied to the three groups of the cranial index, every one of these shows a mesorrhin average. Among 27 skulls examined there are six leptorrhin specimens, eight that are mesorrhin and thirteen platyrrhin ones, showing a prevalence of the broad and short noses. Taking further into consideration that among the dolichocephals are found five platyrrhin, three mesorrhin and three leptorrhin ones, one is tempted to assume mixture because in the long heads long and narrow noses might be expected as a rule (p. 167). Such conditions are more constant in the brachycephals, indicating probably a slight influence of crossing on this group.

For the orbital width the *lacrimale* was used as the medial measuring point. It may be a matter of general knowledge that the Martin school has substituted the *maxillo-frontale* instead, i. e., that point where a prolongation of the medial margin of the orbital orifice in the down-upward direction meets the *sutura fronto-maxillaris*. This method has turned out to be very reliable. Kleiweg makes extensive use also of Kalkhof's method of orbital measurements (Josef Kalkhof, *Beiträge zur Anthropologie der Orbita*, Inaug. Diss., Freiburg, 1911), inclosing the orbital contours (Martin's dioptograph) in rectangles. Direct measurements, as well as angles, can thus easily be taken. The average width of the *orbita*, the *lacrimale* being employed, amounts to 36 mm., its height to 32.5 mm. giving rise to an index of 91.5, which the author terms "hypsophthalm." This index is of far more frequent occurrence in the brachycephals than in the dolichocephals. Contrary to all expectation, the bi-orbital width of 89.7 mm. in the brachycephals is also smaller than in the dolichocephals, where it amounts to 91.8 mm.

Puccioni's method was employed for the examination of the lower jaw

(Nello Puccioni, "Ricerche sui rapporti digrandezza tra corpo i ramo ascendente nella mandibola" *Arch.p. l'Antropologia e la Etnologia*, vol. xli, fasc. 1, Firenze, 1911). This author proposes six different ethnical types for the lower jaw, based on the differences especially of the height-width index of the *ramus* and the same index of the *corpus mandibulae*. Both authors arrive at different conclusions, as far as the racial affiliations of the lower jaw of the Nias man are concerned. While Kleiweg holds that the Niasser's jaw comes nearest to the Australoid type, Puccioni defines its character as Negroid.

Drawing his final conclusions Kleiweg compares the facial, nasal, and orbital indices to each of the three groups of the cranial index. Low and broad faces with flat and broad noses and broad and low orbits are found very frequently among the dolichocephalic skulls. Conversely there are many specimens among the brachycephalic ones with long and narrow noses, and high and narrow orbits. These correlations might be explained as effectuated by crossing, if one does not prefer to assume an aboriginal dolichocephalic type with a broad face and a broad nose. This peculiar type probably did not originate solely by means of crossing, for, if the brachycephalic element was not one of pure type, it hardly could have forced purely typical characteristics upon the dolichocephalic element, among which even more chamaeprosopic cases are found than among the brachycephals.

At the close of the anthropological chapters are found tables containing the outline drawings of the skulls examined in side and front views, photographic reproductions of the skulls, and a comprehensive list of literature. In the text a good many photographs are shown of somatic types, some of these reproductions from the originals preserved in the Rotterdam Museum. Pages 267-314 are filled with the zoological studies on fishes, amphibia, reptiles, and insects from Nias, for which science is indebted to Max Weber, L. F. de Beaufort, P. N. van Kampen, Nelly de Rooy, and C. Ritsema.

J. P. Kleiweg de Zwaan's Nias work represents a contribution of decided merit to literature on physical anthropology. It is with sincere pleasure that the reviewer is able to state this in justification of his lengthy and detailed review.

BRUNO OETTINGER

Lehrbuch der Anthropologie in systematischer Darstellung mit besonderer Berücksichtigung der anthropologischen Methoden, für Studierende, Ärzte und Forschungsreisende. Von RUDOLF MARTIN. XVI+1,181 pages, 460 text figures, 3 plates and 2 observation sheets. Jena: Gustav Fischer, 1914.

The sound notion that the fixation and interpretation of methods very materially assist in representing the meaning and object of a science, was the leading idea when Rudolf Martin undertook to write his comprehensive *Lehrbuch*, more especially since he had to cope with the task of cutting down in its extravagances everything that might appear fragmentary or speculative in anthropological practice, and of reducing it to such a degree of scientific quality as to render anthropology an academic science of absolutely safe standing. In German the term "anthropology" comprises a group of sciences that lend their specific qualities and research facilities for the establishment of man's habitus, such as biology, anatomy (comparative and human), physiology, geology, prehistory, mathematics; but only in so far as they afford the substratum for human typology, so far as they serve to silhouette man anthropologically. In this sense anthropology is synonymous with "physical anthropology," a term applied in this part of the world, in order to contradistinguish it from "anthropology," which is here taken more specifically to pursue ethnological aims. The designation "physical" seems to be superfluous considering that the Greek words *ἄνθρωπος* and *ἔθνος* have an unmistakable meaning. An international agreement as to nomenclature would for this reason be a real desideratum. But even anthropological methods are not stable and sometimes differ greatly in different schools and countries. For this reason it seemed an urgent necessity to write a *Lehrbuch*, attempting a discriminating and systematic representation of the science of anthropology and based on the best existing means and resources, as well as on wide personal experience. The author has succeeded astonishingly well in filling this gap if one considers the difficulties faced by him in such an undertaking.

The entire subject-matter in the thick volume of 1181 pages is divided into four large sections. A general orientation (pp. 1-103) is followed by discussions of the somatology (pp. 104-474), craniology (pp. 475-890) and osteology (pp. 891-1068). There is in addition an introductory preface, a classified up-to-date list of literature, and a general index. The work is copiously illustrated and contains two observation sheets for somatological and craniological inquiries.

In the general part Rudolf Martin deals with the nature, object and

system of anthropology, the latter in a manner bearing witness to the author's critical insight. It is a classic model for instruction in anthropology, built up on practical devices and has been empirically tested (cf. Rudolf Martin, "System der (physischen) Anthropologie und anthropologischen Bibliographie," *Korr.-Bl. Ges. Anthrop.*, 1907, vol. XXXVIII, pp. 1-15). The system comprises everything that might be subjected to utilization for anthropological purposes from somatological, morphological, physiological or psychological and pathological points of view respectively. The philosophical features as a basis for comparative ethnological studies were excluded from consideration in accordance with the principles outlined above. Instead Prof. Martin has always emphasized the importance of "anthropography," i. e., the monographic description of human races, where he himself and a goodly number of well known anthropologists have prepared the ground in an excellent manner. This section also contains an historical survey and a list of the anthropological societies in different countries with their respective dates of foundation and existence (pp. 4-5). Other chapters explain general concepts, besides treating of the Hominidae (with a geological table of chronology) and the classification of human races. There is an explanation of the anthropological methods of treating and preserving the material, as well as of the reproduction, measurement and description (in a general sense). A very detailed treatment is given to statistical methods; thanks to the valuable cooperation of J. v. Czekanowski and St Poniatowski.

The most remarkable sections are the second and third (pp. 104-890), containing the systematic treatment of somatology and craniology. Both are disposed of in the same way: following the description of the instrumentarium and the anthropological measuring-points, there are found the description of the measurements themselves, the consideration of the object *in toto* and of its several parts, their analytical description and, in craniology, geometric delineation as well. The measuring-points are designated with marvelous exactness, every single one being fixed linguistically and defined etymologically, and such as are in use with other schools are quoted as to their terminology and derivation in meaning. Innovations of technique, as for instance the measuring of the orbital width with the maxillo-frontale (mf) instead of lacrimale or dacryon, have proved their practical usefulness, as well as many others. The exhaustive treatment of the inquiry into the integument and its organs must also be pointed out; equally satisfactory is that of the soft parts of the head and the face. The investigator will find this chapter a splendid aid

in his studies. Studies of the soft parts have not been produced as yet in sufficient numbers. The points of contact with human anatomy are manifold here, which suggests the plausible conclusion that the thorough study of human anatomy should not be merely optional for the adept. One of the researches executed in late years and showing great ambition was published in 1912, E. Loth's *Beiträge zur Anthropologie der Negerweichteile* (Stuttgart: Strecker and Schröder).

The concluding chapters on osteology are again the first fundamental and comprehensive synthesis we possess on this subject. The stimulus to the morphological analysis of each bone or osseous complex of the human body, as well as of the anthropoids, is derived preëminently from the Paleolithic finds of pre-recent and recent dates. On the basis of this extensive guide to osteological research it may be hoped that this particular and somewhat neglected side of anthropological work will receive an impetus, as surely seems necessary.

Rudolf Martin's *Lehrbuch* as such is a highly valuable addition to anthropological literature, a very much needed book of reference, and a source of most excellent ideas for the anthropologist. It is really the first attempt at a systematic treatment of the entire subject-matter of anthropological investigation according to the present status of this science. Its value lies, as indicated repeatedly, in the exposition of fundamental concepts and the elaboration and establishment of a sound methodology answering most modern requirements. The work may pass as a manifestation of the Zurich school, but keeps in every respect within the limits of general exigencies in sane and reliable scientific work. Everyone who, like the reviewer, has been fortunate enough to pursue his studies under the inspiring guidance of the author, will know with how much care and unceasing thoroughness the building up of the system was carried on and how much time was spent on the testing of useful methods. It is natural that biological and physiological problems, as well as those of racial diagnosis and others that are as yet matters of debate and in a state of perpetual flux, could only be touched upon. Thus the character of the present work was inclined to become rather symptomatic than aetiological. But even as such it has become quite large and promises to grow by later additional chapters on the organs from an anthropological point of view. A division into two volumes may then be advisable; and the advantage of having everything combined in one volume may be sacrificed to that of greater handiness. A few instances of disproportionate treatment will then be eliminated. Not only the grateful disciples of Rudolf Martin, one of the most capable of whom, Otto Schlagin-

haufen, is now his successor at the University of Zurich, but the anthropological world in general should feel indebted to him and gratefully welcome his work.

BRUNO OETTEKING

SOME NEW PUBLICATIONS

BARBEAU, C. M. Classification of Iroquoian Radicals with Subjective Pronominal Prefixes. (Canada Geological Survey, Memoir 46, Anthropol. Series, No. 7.) Ottawa, 1915. Pp. 30.

CRAWFORD, M. D. C. Peruvian Textiles (Anthropological Papers of the American Museum of Natural History, Vol. XII, part III, pp. 52-104, 23 figs.) New York, 1915. (Price, \$.50.)

CZAPLICKA, M. A. Aboriginal Siberia. A Study in Social Anthropology. With a Preface by R. R. MARRETT. Oxford: Clarendon Press, 1914. Pp. xv, 374, 2 maps, 16 pls.

HOCART, A. M. Psychology and Ethnology. (Folk-Lore, 1915, pp. 115-137.)

KNOWLES, F. H. S. The Glenoid Fossa in the Skull of the Eskimo. (Canada Geological Survey, Museum Bulletin No. 9, Anthropol. Series, No. 4.) Ottawa, 1915. Pp. 25 (of which pp. 16-25 are plates and their explanations).

LOWIE, ROBERT H. Dances and Societies of the Plains Shoshone (Anthropological Papers of the American Museum of Natural History, Vol. XI, part X, pp. 803-835, 5 ills.) New York, 1915. (Price, \$.25.)

———. The Sun Dance of the Crow Indians. (*Ibid.*, Vol. XVI, pt. 1, pp. 1-50, 11 ills.) New York, 1915. (Price, \$.50.)

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DISCUSSION AND CORRESPONDENCE

ANTI-PROFESSIONS

A Reply to Dr A. L. Kroeber

In the second number of Vol. 17 of the *American Anthropologist* Dr A. L. Kroeber has published an article in which he expounds his anthropological creeds in the form of "Eighteen Professions." They have induced me to reply in a number of "Anti-Professions."

Dr Kroeber's distinction of historical anthropology, history, and sociology as history, and physical anthropology and psychology as biology is dogmatic. What empirical justification is there for labeling psychology as biology and for ostracizing all psychic phenomena which do not happen to be open to physiological experimentation from the horizon of our inquiries? To arbitrarily blindfold science towards any group of real phenomena whatsoever is an assault on scientific open-mindedness. Only such dogmatism can lead to the conception of anthropology as "no-man's land" and a "picnic-ground." The young field of anthropology is virgin soil. The infiniteness of its potentialities is open to the vision of the scholar, if he will but keep his eyes open. It becomes a "picnic-ground" as soon as he surrenders the naïveté of his vision and commits the cardinal sin of arbitrary elimination. Such is the case, when the anthropologist begins his work by an aprioristic attempt to delimitate "the scope of history from that of science." Delimitations of this kind can be conceived epistemologically only as the ultimate transcendental ends of our understanding. If formulated at the outset of our work, they are scholastic dogmas, because the relativity of their schematicism lays claim to the absolute.

Fields of investigation cannot be "surveyed" and "fenced" in the true sense of the word. "Fences" are but heuristic and subjective institutions demanded by the practical necessity of specialization. The less fences disturb our vision, the better for our view of the unity of the world of experiences. A fence between "history and science" is a bureaucratic police regulation.

(See first profession.) A definition of the "aim of history" clouds our vision by means of a normative formula. All real problems of history

are suggested by the world of experiences itself, not by a subjective norm of what the aim of history *ought* to be.

The demarkations of the various lines of inquiry are traditional and never inherent in the problems themselves.

(See second profession.) To limit the subject of historical inquiry to the *works* of man and to bar man himself in his psychical actuality from this inquiry is not feasible because self-contradictory. The man is his acts and the acts are the man. What possible meaning can there be in the statement that in religion, for instance, the man is distinct from his beliefs, "the manifestations" of his "activities"?

(See third profession.) A history "which is not concerned with the agencies producing civilization, but with civilization as such" is either a history à la Graebner or a philosophy that postulates "the entity civilization" as a Platonic idea.

The anthropologist is in a similar sense a psychologist as the psychologist proper is a physiologist. The psychology of the anthropologist is a real psychology applied to his specific field of inquiries.

(See fourth profession.) If the historian should, as Dr Kroeber states, interpret man's mind by the direct application of his own psychic activities, the admittance is tacitly made that he may deal with a form of popular psychology. What valid objection can there then be to the use and elaboration by the anthropologist—or if you like, historian,—of a really scientific method of psychological analysis and comparison?

(See fifth profession.) "True instincts" that "lie at the bottom and origin of social phenomena" is an expression that partakes of the vagueness of popular psychology. A discussion of the relation of these "instincts" to "social facts" is only feasible on the basis of a scientific psychological analysis of the specific phenomena involved.

(See sixth profession.) "The personal or individual" as an actual factor in all cultural life offers *real* problems. Whether these problems be labeled as historical, anthropological, or psychological, leads to a conflict of words.

(See fourteenth profession.) The statement that the process of the interaction of individual minds is "merely physiological" is but a specific expression of the dogma that psychology is biology. Conclusions are predetermined by the premises.

(See fifteenth profession.) To say that "there are no laws in history similar to the laws of physico-chemical science" is to state a tautology, masked by a confusion of concepts. The term "history" in itself implies that in its pursuit the focus of our interests is distinct

from that of those inquiries which are bent on finding "laws." In comparing "history" with physico-chemical science, it is not the heterogeneity of the objective empirical facts themselves that characterizes the one as finding "laws" in contradistinction to the other, but it is rather the fundamental difference of what in the two types of inquiry arouses our scientific curiosity. If we would approach the cultural phenomena of "history" from the same point of view as does the chemistry of which Dr Kroeber speaks, we would also find "laws," as philology, for instance actually does in the case of its generalizations. Indeed, natural science may also shift its focus of interest to the "historical" point of view. Where are the laws, for example, that the geologist finds when he studies the historical genesis of the geological configuration of a certain geographical area?

(See sixteenth and seventeenth professions.) The statement that the relations between cultural phenomena are "relations of sequence, not of effect" is a *contradictio in adjecto*. What is the principle of causality but the sequence of phenomena conceived in terms of logical correlation? Dr Kroeber's distinction between conditions *sine qua non* and causes exemplifies this confusion of logical concepts. The same fallible logic is implied in the assertion that "the causality of history is teleological." The principle of teleology is nothing more or less than the inversion of the principle of causality. They refer to opposite points of view in the logical interrelation of phenomena.¹ It is thus obviously meaningless to say that a certain kind of causality is teleological.

CONCLUSION

The cardinal conviction which Dr Kroeber professes is, if I understand him correctly, that a sharp line of division must be drawn between history and science (p. 283). Science must be absolutely eliminated from history and "historical anthropology." While it is difficult to ascertain what Dr Kroeber means by "history," it is clear how he conceives the scope of "science." It comprises that category of inquiries which deals with mechanical causality. Biology is science and psychology is biology. Psychology, as a branch of science, is therefore taboo in history and in "historical anthropology."

Every line of the "professions" whispers to us the moral of the whole argument: the psychologist must not meddle in the *métier* of the historian. The psychologist is a scientist and the historian is something else, whatever that may be. Psychology is the bugaboo that has con-

¹ See Wundt, *Logik*, 3rd edition, Vol. I, p. 629 et seq.

verted anthropology into a "picnic-ground." But like most bugaboos Dr Kroeber's psychological bugaboo is a gnome of subjective making. It exists only for him. For whom else is psychology biological? Such a categorical characterization is absolutely adverse to the objective nature of the problems of psychology. This science, which deals with the mind and *all* of its expressions, is *per se* the link between the natural sciences on the one hand and the mental sciences (*Geisteswissenschaften*) on the other. This absolutely unique characteristic of psychology finds its expression in the various methods this science employs. Thus the experimental method in psychology is conditioned by specific physiological expressions of psychic life. But equally justifiable, because determined by other types of expression of the same actuality, is the method of psychological analysis and comparison,—which method is elaborated in the historical *Geisteswissenschaften*.

The relation of "historical anthropology" to psychology is very similar to the relation of psychology to physiology. Modern psychology is inconceivable without physiology. Anthropology has as yet not perceived its relation to psychology with equal clearness. To build a high wall around "historical anthropology", as Dr Kroeber would have it, and to order psychology to stay out, is equally reasonable as to let psychologists lay claim to the brain and forbid the physiologist and anatomist to trespass. Let us remember that in all scientific work there is only specialization, no *métiers*.

As soon as Dr Kroeber will have become conscious of the dogmatism of his biological psychology, all other obstacles towards an understanding must fall like a house of cards. He will recognize the impossibility of building a cloister-wall about history, he will no longer look askance on the psychologically inclined anthropologist as a hybrid form of two distinct crafts, psychology will no longer be a bugaboo—in short there will be complete unison of the "professions" and the "anti-professions."

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NEANDERTAL MAN IN SPAIN: THE LOWER JAW OF BAÑOLAS

It is not generally realized that the first skeletal remains of what is now known as *Homo neandertalensis*, or Mousterian man, were found in Spain at Gibraltar in 1848. This preceded the discovery in the valley of the Neander by nine years. In many respects the Gibraltar skull is still one of the most important specimens of this type of early man.

Although its distinctive characters were early recognized by both Falconer and Busk, the discovery of the man of Neandertal coming at a more opportune time was the first to win and hold the attention of the scientific world; hence for the name of that race we have *Homo neandertalensis* instead of *H. calpicus* (from Callé, the old name for Gibraltar).

The history of the Gibraltar skull is almost paralleled by that of another discovery in Spain, not near Gibraltar but in the northeasternmost province, Gerona, and near the eastern end of the Pyrenean chain of mountains. Some 23 km. north-northwest of Gerona, the capitol of

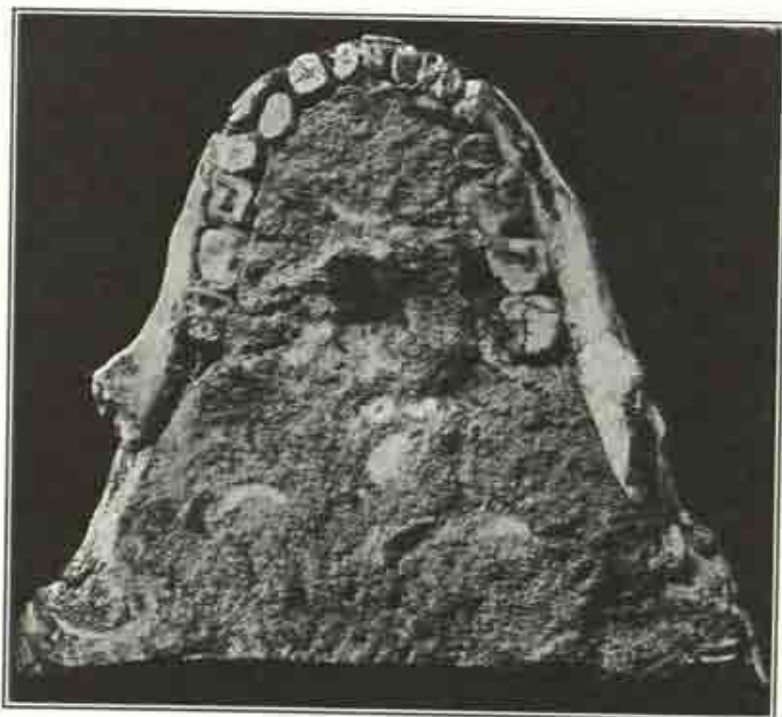


FIG. 128.—Lower jaw of Bañolas. After Hernandez-Pacheco and Obermaier.

the province of the same name, in the center of a depression lies the lake of Bañolas, now only a remnant of what it once was. Immediately to the east of the southern end of the lake is the town of Bañolas built on travertine beds left by the former greater lake. These rest on early Quaternary red clays and have been exploited extensively for building purposes. The quarry of Don Lorenzo Roura is near the northern limits of the town

in what is called "Llano de la Formiga." Here in April, 1887, he encountered a human lower jaw embedded in the hard travertine at a depth of from four to five meters. Fortunately Roura left the fragile jaw, almost complete, in its stone matrix and turned the block over to a Bañolas pharmacist, Don Pedro Alsius, who undertook the preparation of the specimen by the careful removal of the matrix from the bone. The relic is still in the private collection of Alsius, or rather of his family, for he died early in 1915. Although he published nothing concerning the specimen, Alsius recognized its archaic character. The first printed notice seems to have been that in "Anuari del Institut d'Estudis Catalans," Barcelona, 1909, by Professor Manuel Cazorro. Another note by Professor E. Harlé appeared in 1912 in the "Boletín del Instituto Geológico de España" (Madrid). Now comes an exhaustive study entitled "La Mandíbula Neandertaloide de Bañolas," by Professors E. Hernandez-Pacheco and Hugo Obermaier.¹

On account of its fragile character no attempt has been made to separate the lower jaw wholly from its matrix. Its inner surfaces are

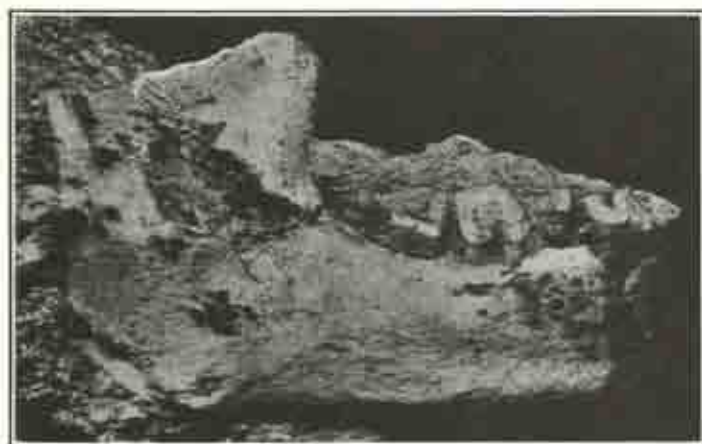


FIG. 129.—Lower jaw of Bañolas. After Hernandez-Pacheco and Obermaier.

therefore not accessible. The outer surfaces including a full set of sixteen teeth are laid bare. The bone is of the same color as the matrix and highly fossilized. The right side is fairly well preserved. The condyloid process however is entirely gone. The anterior portion of the coronoid process is nearly complete; but its highest point cannot be definitely

¹ Comisión de Investigaciones Paleontológicas y Práhistóricas, memoria número 6, Madrid (Hipódromo), 1915.

fixed. A small piece is missing from the angle at the junction of the horizontal with the ascending ramus, but its negative is so well preserved by the tufa that the gonion can be determined with accuracy.

The left half of the jaw was broken in seven pieces when discovered. These have been successfully united. But owing to a very early break the whole left half is shoved outward and backward to a slight degree, a defect which cannot be remedied. The left ascending ramus is not in so good a condition as the right. While the coronoid and condyloid processes are missing, the transverse diameter of the latter can be measured because of the tufa negative. Nearly the whole of the condyle lies inside the plane of the outer surface of the ascending ramus if extended, as is the case with the lower jaw of La Chapelle-aux-Saints.

The neck of the condyle is short; the coronoid process, low and blunt as seen in the nearly intact right ramus. The ascending branches are relatively low and broad. The body of the lower jaw is also low but robust. The chin is at least rudimentary if not wholly lacking; the angle of symphysis is 85° , placing the man of Bañolas in the same class with that of La Ferrassie. In some Neandertal examples the absence of chin is more pronounced and the angle of symphysis correspondingly greater as seen in the following table from Boule:

Recent man (individual variations)	57° to 93°
Lower jaw of La Ferrassie	85°
" " of Bañolas	85°
" " of La Naulette	94°
" " G and H of Krapina	99°
" " of La Chapelle-aux-Saints	104°
" " of Mauer	105°
" " of Malarnaud	105° to 110°
" " of Spy	106° to 111°
" " of the Gorilla	105°
" " of the Chimpanzee	115°
" " of the Orang	124°

The lower jaw of Bañolas belonged to a male, who had reached the age of about forty years. Morphologically it falls within the Neandertal group, being the second discovery of this type in Spain. Unfortunately it was associated neither with other skeletal remains nor with artifacts. The travertine and the lower jaw itself are undoubtedly Pleistocene. If not so archaic as the Gibraltar skull, it might well be as old as the remains from La Ferrassie, which were associated with a typical Mousterian industry.

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THE HEURISTIC VALUE OF TRADITIONAL RECORDS

IN his critical comment on Dr Swanton's and Dr Dixon's "Primitive American History"¹ Dr Lowie has raised an interesting point of ethnological method.² The gist of the critique is expressed in a crisp sentence: "I cannot attach to oral traditions any historical value whatsoever under any conditions whatsoever." In definiteness, at least, Dr Lowie's attitude leaves nothing to be desired.

It seems to me that Dr Lowie's position is erroneous and would, if accepted, deprive ethnologists of a valuable heuristic tool. The question is indeed one of method. We grant, without hesitation, that in the presence of linguistic, ethnological, and archeological evidence, traditional accounts, obviously of less evidential value, lose their significance, as unnecessary corroboration. Even in cases like the above, however, the agreement of traditional with other evidence of greater intrinsic merit, is of importance, for on the accumulated experience of such agreement rests the greater or less right of tradition to form part of ethnological method. Dr Lowie's statement that "we cannot know them (traditions) to be true except on the basis of extraneous evidence," while true, has no force. For obviously if internal symptoms could vouch for the veracity of traditions, they would, to that extent, constitute as good historical evidence as any other body of data. All agree that were traditions true, or were their truth ascertainable apart from other evidence, they could then be used as history. But as a matter of fact some traditions are wholly untrue, others are partly true, while still others may be wholly true. Hence the question arises; should *all* traditional evidence be discarded, as methodologically valueless, or do traditions, notwithstanding their unreliability, represent a heuristic tool of some value? The case of tradition thus stands and falls with the case of all doubtful, or imperfect, or tainted evidence.

Now, it seems perfectly obvious that such evidence cannot be summarily rejected, whether the point at issue is the diagnosis of a disease, or the examination of a murder case, or the reconstruction of a historic event. Poor evidence is poor evidence, but it is evidence, and the extent to which such evidence can be trusted is determined by the probability of its being true evidence, which again may be estimated from the frequency of agreement between such evidence and evidence of an intrinsically higher merit. Just as the physician is guided in his diagnosis of a disease by vague and doubtful symptoms until a positive one is forth-

¹ *American Anthropologist*, 1914, pp. 376-412.

² "Oral Tradition and History," *American Anthropologist*, 1915, pp. 597-99.

coming, just as the detective follows illusive and contradictory clues before establishing convincing proof of the crime, so the ethnologist, in the absence of better evidence—and surely this supposition will not be classed as academic!—follows the lead of tradition until further data, of higher evidential value, serve to confirm or to refute his preliminary conjectures or hypothesis. When the historicity of an event is established by irrefutable evidence, it is obviously too late to speak of ethnological method. The value of tradition as a method in reconstructing history evidently falls within that period of the investigation when the tradition constitutes the best evidence available to date. And its value, in that context, is the greater, the higher the probability that a tradition represents history. Ethnologists differ as to the degree of that probability. This, however, is a different problem.

Before closing I want to add that Dr Lowie does not strengthen his case by citing creation-myths as proof of the deficient historical sense of the Indian. Commonly enough, the Indians themselves distinguish between a myth and a historical tradition. But even were that not so, who would doubt the word of a woman who tells of having witnessed a child being run over by a street car, solely on the ground of his knowledge that the woman believes in ghosts?

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NOTE ON RACE.

THIS note refers to the more strictly scientific definition of race in contrast with the loose usages given in the dictionaries:

A race is a group of individuals possessing common somatological characters which serve to differentiate them from other groups of men. These somatological features have become transmissible and correspond to the unit characters of the biologist, which is described as an indivisible element of living beings hereditarily in its entirety, used practically in the well-known selective breeding of plants and animals.

In many respects the race corresponds to the aggregation called a species, having certain characteristics by which it may be distinguished or differentiated from other species. Specific characters which were once thought to be fixed have been subjected to investigations which show that crossings in some cases are possible between nearly grouped species and thus the distinction between species and varieties is no longer a hard and fast one. Races which are the product of isolation and close breeding

have, most of them, from before the dawn of history, been subjected to hybridization resulting through migration, conquest and other movements of population, so that today there are no pure races, only various approximations to standards of racial integrity. Apparently this mutation will go on until comparative homogeneity is approached. The classification of races, therefore, is a matter of differentiating somatological characters and in consequence there is as yet a great diversity of opinion as to the divisions of mankind, so that anthropologists have arranged man into from three to fifty units. It is generally believed that race formation is due to isolation and environment, which molding conditions, on account of great and increasing intercommunication, at present appear in a general aspect to be less operative.

WALTER HOUGH

CORRIGENDA TO FATHER MORICE'S "CHASTA COSTA AND THE DENE
LANGUAGES OF THE NORTH."¹

IN view of the fact that Father Morice has reviewed my *Notes on Chasta Costa Phonology and Morphology* in so evidently a friendly spirit it may seem a bit churlish to point out what seem to me to be either slips or misunderstandings in his recently published paper on Chasta Costa and more northern Athabaskan dialects. If, nevertheless, I venture to do so, it is not because of any desire to minimize the value of Father Morice's paper or to attach an overweening importance to my own very scanty contribution to Athabaskan linguistics, but to help advance our understanding of the problems of Athabaskan phonology and morphology. The chief value of Father Morice's paper seems to me to lie in the further light it throws on the Carrier language, of which previous papers have already shown he has an admirable mastery. I earnestly hope that Father Morice will not be content with the rather sketchy papers he has hitherto given us on the Carrier language, but will eventually publish a complete presentation of the intricacies of its phonetics and grammatical structure.

1. "Dr. Sapir's *a* is my *æ*, almost the sound of *a* in 'but,' more exactly that of *e* in the French *je, te, le*" (p. 560, footnote). My *a* of Chasta Costa words is to be pronounced like *a* of German *Mann* and thus in sound corresponds to Carrier *a*, not *æ*. My *a* is another vowel altogether, though often phonetically reduced from original *a*. It is prac-

¹ See *American Anthropologist*, N. S., 17, 1915, pp. 559-572.

tically identical in sound with *u* of *but* and doubtless corresponds phonetically, largely also genetically, to Carrier *æ*.

2. "This [C. C. *te!ac* 'bird'] is evidently none other than the Carrier *tʃæʃ* [Morice's *ʃ* and *ʒ* are described by him in a letter as sibilants midway between *s* and *ç*, and *z* and *j*, respectively; they correspond historically to Chipewyan *θ* and *ð* < Ath. *s* and *ʒ*], which in that language means not 'bird' but 'feather-down'" (p. 560, l. 15). This is not so evident. In fact it is phonologically impossible. Father Morice's Carrier form is clearly cognate with Chipewyan *-θ'áθ* (Goddard; my *-θ'laθ*) "soft feathers," Montagnais, *itkəpəh* (Petitot; *tə!əγθ* in my orthography) "plume servant à broder, côte de plume" (possibly mistranslated for "duvet"), Hare *kəwəw* (my *kʷəw*), Loucheux *itəw* (my *tə!aw*), Navaho *ts'òs* (Franciscan Fathers; my *ts'os*) "down feather." These forms imply original Athabaskan **ts'ez* (reduced **ts'əz*, **ts'əz*) and **ts'os* "down." This would be expected to appear in Chasta Costa as *tə!aθ* (very likely actually found in *tə!aθ-nā-yat-tə!oθ* "humming-bird," perhaps literally "soft-feathers fly-about-making-a-humming-sound"; for verb stem *-tə!oθ* cf. Hupa *-tsòts*, *-tsòs* "to make a kissing-like noise, to smack one's lips," Nav. *bełts'òs* "whistle" as noun). C. C. *te!ac* can have nothing to do with this *tə!aθ*, but must go back to Ath. **kʷlac* or **te!ac*.¹

3. "This possessive [C. C. *-it'e!e* '(his) dog'] entails in Chasta Costa the accretion of a sort of suffix which he writes *te!e*, the equivalent of my *tse*. Now *itse* means in Carrier, not somebody's dog, but she-dog!" (p. 561, l. 3). Father Morice's quandary is of his own seeking. *-tse* of his Carrier form is not at all connected with *-te!e* of my Chasta Costa one. Carrier *ti-tse* is simply compounded of *ti* "dog" and *tse* "woman." This *tse* (Ath. **te!e*) is found in Carrier *tʃəkkə*, Montagnais *itsə-kwi*, *itsə-k'è* (i. e., *ts'le-k'e*), Hare *itsə-linə*, *itsə-k'u*, Loucheux *itse-ndjə*, Kato *te'ek*, C. C. *ts'āxc*. Carrier, Montagnais, Kato, and Chasta Costa point to Ath. **te!e-k'e* "woman." C. C. *-te!e* of *-ti-te!e*, however, goes back, not to Ath. **te!e*, but to Ath. **kʷle* with glottalized anterior palatal *kʷ*; cf. Hupa *-lin-ke* "(his) pet" (read *kʷle*). How this peculiar possessive **kʷle* (cf. normal *-e* in, e. g., Hare *sə-lin-e* "my dog") arose I can not say. Its isolated character stamps it as probably archaic. Perhaps *-kʷ* of Ath. **lin-kʷle* is connected with *-g-*, *-k* of Ath. **lik*, **lig-*, which is parallel to **lin*; cf. Anvik *likk* (Chapman; my *lik*), Loucheux *l'égə-tsəllə*

¹ Since this was written Dr. Goddard has kindly called my attention to Hupa *kʷəw* (read *kʷəw*) "birds" which corresponds exactly to Ath. **kʷlac*. This eliminates Ath. **te!ac* as possible prototype and still more effectively disposes of Father Morice's analysis.

"petit chien" (i. e., *lega-*). (Incidentally, Petitot gives for "chienne" Montagnais *l'intsə*, Loucheux *l'entsi*. Are these forms errors for *-ttsə*, *-ttsi*?)

4. "*Thē-* . . . , at least in the north, does not merely mean 'in the water,' as Sapir would have it . . . but it hints at the 'bottom of the water'" (p. 561, l. 25). C. C. *t'e-* was defined as "in the water." That, in Pacific Athabaskan, it has no necessary reference to "the bottom of the water" is shown by several of Goddard's Hupa and Kato examples. Thus, some Hupa verbs with *t'e-* are translated "in the water it seemed about to tumble," "in the water she floated back," "when he put his hand in it (i. e., the water)," cf. Kato *t'e-* verb "she washed them." Evidently Goddard's definition of Hupa *t'e-* as referring "only to motion into water and under its surface" seems quite adequate. In Carrier *thinlthl* "thou art precipitately brought to the bottom, thou sinkest," second modal *-n-* (to use Goddard's terminology) is terminative in function, so that *t'e-n-* . . . *-lthl* necessarily denotes "to sink to the bottom of the water," even if *t'e-* by itself be assumed to mean "in the water." A wider range of significance for Ath. **t'e-* than Father Morice would assign it is implied also by such Navaho forms as *tgē-ñ* "water horse"; Navaho *tgē-* (i. e., my *txe-*) regularly corresponds to Ath. **t'e-*. Navaho *tgē-* forms are likely to be archaic, as Ath. **t'e-* has been almost entirely superseded in Navaho by Ath. **t'a-* (Navaho *tga-*); see below. Even in northern Athabaskan I do not find Father Morice's remark to apply without qualification, even if correct for Carrier. In Anyik Ath. **t'e-* appears as *tē-*, *tā-* (Chapman's orthography); note *tēyidoūtel* "floating in the water." In Loucheux Ath. **t'e-* appears as *tchi-* (Petitot's orthography), i. e., *tē'i-* (Loucheux *t'ē-*, i. e., *t'e-*, does not correspond, according to Loucheux phonetic laws that I have worked out, to Ath. **t'e-*, but to Ath. **t'a-*); note *tchi-dhüllé* "être à flot."

5. "*Tha-* . . . , which he gives as 'referring to the water' has really that signification [i. e., 'in the water']" (p. 561, l. 27). Ath. **t'a-* is undoubtedly found employed locally ("in the water") in practically all Athabaskan dialects; indeed it seems in some dialects (e. g., Navaho, to some extent apparently also Chipewyan) to have extended its sway at the expense of parallel Ath. **t'e-*. There is, however, plenty of evidence to show that Ath. **t'a-* is frequently substantival, not local, in force, that it is, in fact, an old noun stem ("water, wave, sea," parallel to more wide-spread Ath. **t'ə* "water") that has become a verb prefix. A local meaning is impossible, for instance, in the numerous verbs of

drinking found in Pacific Athabaskan (e. g., Hupa *ta-win-nan* "he drank it," Kato *ta-ya'-ō-nqñ* "let them drink," C. C. *l'ā-γact-nā* "I drink"). A direct substantival meaning, moreover, is obvious in such compound nouns as Navaho *igā-bā* "shore" (lit. "water-edge"), while in several Mackenzie Valley dialects Ath. **l'a* even occurs as uncompounded noun stem (Montagnais *l'a*, i. e., my *l'a*, "flot, onde"; Hare *l'a*; Loucheux *l'ē*).

6. "As to the verbal stem *-al*, which he believes to mean 'to come,' I more than suspect that it is but a corresponding form of *-ya*, which he represents as expressing the idea of 'going, coming,' and should be *-yal*" (p. 562, l. 11). That C. C. *an-γi-al* really means "come on!" and not, like Carrier *wñ inyal*, "go on!" (as suggested further on by Father Morice, l. 26) is conclusively proved by two facts. In my brief Chasta Costa text (p. 337, l. 3) *an-γi-al* occurs as translation of English "come here!" (this text, it should be remembered, was translated from English) under circumstances in which "go on!" would be quite out of place. Further, during my residence among Chasta Costa Indians in Siletz Reserve, Oregon, in 1906, I distinctly remember that *an-γi-al* was often used by elders in calling children to them. As to whether recorded C. C. *an-γi-al*, *an-γi-al* is to be understood as *an-γi-yal*, as claimed by Father Morice, or as *an-γi-al*, as I had assumed, I now incline to think that *-yal* is correct. This is because of such forms as Hupa *wiñ-yal* "come on" and Kato *gūn-yal* "walk," which seem to correspond exactly to C. C. *-γi(y)al*. Should *-al* prove to be correct, it would probably have to be compared with Loucheux *-a* "to go," Ath. **-ac* "two go" (with dualic *-c*).

7. "Dr. Sapir furthermore quotes the verb stem *-lō* as denotive of the act of swimming, while, according to him, that of paddling is rendered by the radical *-xe*. Now, in most northern Déné dialects, the former refers to paddling, while the latter indicates the act of navigating, or moving about in a canoe" (p. 562, l. 28). True, but there is plenty of evidence to show that Ath. **-k'e*, **-k'en*, **-k'ēñ*, **-k'i* frequently refers to or implies paddling. Thus, Goddard translates Chipewyan *-kī* by "to paddle a canoe, to travel by canoe" (e. g., *ta-kī-kwū* "when he paddled"). This is confirmed by Father Legoff, who defines *'ke'l* (i. e., *-k'el*): "est le progressif de *'ki*, et signifie proprement naviguer, en ramant" (e. g., *pes-'ke'l* "je rame, j'avance en ramant"). Similarly, for "ramer" in Hare Petitot gives not only *ē-llōh*, but also *ē-k'ē*. And in Anvik I find *-kan*, *-kahl* often translated as "to paddle" (e. g., *xū-kahl* "he is paddling," *ti-čū-kan* "he paddled on"). For C. C. *-lō* "to swim,

bathe" I find no exact parallels. It may, as Father Morice suggests, have primarily meant "to paddle" (denominative verb from Ath. **tlos* "paddle") and changed its force dialectically.

8. "The verbal stem *-lal* . . . , to which our author attributes the sense of 'to sleep,' has in Carrier the value of 'to dream of' (with a complement). Might not Dr. Sapir's informant have misunderstood his questioner and thus unwittingly misled him?" (p. 563, l. 1). I think we can manage without this hypothesis of misunderstanding. In Hupa *-lal*, *-lat* means not only "to dream," but also "to sleep" (e. g., *nit-te-sil-lal-le* "you would go to sleep"). Both meanings are given also for Kato *-lal*, *-lat* (e. g., *n-tō-lat* "let him sleep"). Turning to northern Athabaskan, we find that in Chipewyan (Montagnais) *-lal*, *-lat*, *-lal*, *-lat* regularly means "to sleep, to fall asleep, to put to sleep" (e. g., Goddard's *hī-tel-lal* "he is asleep"; Petitot's *in-t'es-l'al* s. v. "dormir debout," *es-l'al* s. v. "endormir"; Legoff's *in-t'es-la'l* "je m'endors"), while for "rêver" Petitot gives quite another stem in Montagnais and Hare. C. C. *t'e-θ-lal-(la)* "he's been sleeping," with its prefixed elements *t'e-* and (in definite forms) *-θ-*, corresponds remarkably to Hupa *-te-sil-lal-* quoted above, Kato *(n-)te-s-lat* "he went to sleep," and Chipewyan *(in-)te-θ-lal* "he is asleep." In Hupa and Kato *-lal*, *-lat*, when meaning "to dream" seems regularly preceded by *na-* (e. g., Hupa *kin-na-is-lal* "he dreamed," Kato *ū-na-s-lat* "he dreamed about").

9. . . . " *-lal*, or rather *-tlal*. . . . As may be seen by Sapir's rendering: *t'illal*. The double consonants *tl* and *ts* are of frequent occurrence in Déné and form as many indivisible groups. The syllables of all Sapir's verbs in the first person plural are wrongly cut up: the *l* which he attributes to the penultimate syllable should commence the last one: *-tlal*, *-tlal*, *-tlal*, *-tlal*, etc. Hence several of his verb stems are incomplete. For instance, *-se*, 'to cry,' should be *-tse* (Carrier *-tso*); *-si*, 'to cause,' should be *-tsi* (Carrier *-tsi*); *-lo*, 'to laugh,' cannot be understood without its *t*. . . . Were he familiar with the Dénés' syllabic way of writing their own language, he would have been spared this little inaccuracy" (p. 563, l. 1 and footnote 1). There are several comments I wish to make on this passage.

(a) That, in Chasta Costa, not *-tlal* but *-lal* is to be considered as true verb stem is quite unmistakably evidenced by such forms as *t'i-lal* "thou art sleeping," *t'ō-lal* "ye sleep." Were *-t-* part of the stem, there would be absolutely no reason for its disappearance in these forms (cf., for phonetic comparison, *t'ā-γū-nā* "thou drinkest," *t'ā-γū-θū-nā*

"ye drink," in which third modal prefix *-t-* is preserved between personal element *-i-*, *-d-*, and stem consonant *n*). These remarks apply also to C. C. *-lat*, not *-lat*, as Father Morice would have it. Comparison with Hupa and Kato, also Chipewyan, abundantly confirms my own analysis.

(b) There is no point whatever in quoting C. C. *t'it-lal* (not *t'it-lal*, as Father Morice has it) "we are sleeping" as evidence of a stem *-llal*. In Chasta Costa *-(i)t-* regularly appears as first person plural subjective prefix, except, as in Chipewyan, before third modal *-t-* and *-l-* (e. g., *γc-θit-t'* "we saw him," where Father Morice would hardly claim that *-t'*, not *-t*, is the true stem). That this *-t-* is indeed an organic element in the first person plural prefix is shown by comparison with Hupa *-d-* (e. g., *na-dit-le* "we are painting"), Kato *-d-* (e. g., *na-dal-yic* "let us rest"), Chipewyan *-it-*, *-d-* (e. g., *c-git-t'* "we saw it"), Loucheux *-di-* (e. g., *i-di-kwoil* "nous amenons"). What has apparently misled Father Morice in his analysis of Chasta Costa is that Ath. first person plural (and dual) **-(i)d(ē)-* has in several dialects, perhaps by analogy of third modal *-t-* and *-l-* verbs where *-d-* regularly disappeared (I am inclined to think that in Hupa and Kato *-d-* has in these cases been restored by analogy), been replaced by *-i-*, *-t-*, e. g., Carrier *nd-t-ta* "we are both sick" (Carrier first personal plural prefix *t-ta-*, i. e., *t-ta-*,¹ does not seem to be a widespread Athabaskan element, though Father Jetté has recorded for Ten'a *ts-* forms of like meaning, perhaps to be understood as *ts-t-*); Hare *i-ssi* "nous deux faisons" (*ya-issi* "nous faisons"); Navaho *ch'i-ne-t-kd* "we two carry milk out" (*ch'a-de-t-kd* "we carry milk out"). Even in these dialects, however, survivals of the old *-d-* are found in such cases as allowed of its carrying over into the stem syllable, e. g., Carrier *nī-tas* "we two walk," i. e., *nī-t-as*, morphologically equivalent to *n-t-as* (cf. *na-ha-as* "they walk two together"); Hare *witta* "nous deux allons," i. e., *wi-t-la* (Ath. **zi-t-as*), morphologically equivalent to *w-t-a* (Ath. **z-id-as*); Navaho *da'-di-t'a* "we put a round object on" (equivalent to *da'-d-it'a*), *ba'-nī-nīl* "we two put several things on" (equivalent to *ba'-n-it-nīl*), *i-gyē* "we two marry" (equivalent to *id-yē*, cf. *i-yē* "he marries"). There can be no talk in such cases of stems *-t-as*, *-t-a'*, *-nīl*, and *-gyē* but only of phonetic resul-

¹ I strongly suspect, as is indeed indicated by Father Morice himself (see "The Déné Languages," 1891, p. 193) that this *t-ta-* is really impersonal in meaning, to begin with; with Carrier *na-t-ta-tit* "we walk"; cf. *na-t-ta-ya* "one walks." For reasons of modesty, perhaps, it may have become customary to say "people (in general) do so and so" instead of "we do so and so." This indefinite Carrier *t-ta-* is quite possibly cognate with Hupa *te-*, i. e., *te'*, of third personal forms applying to adult Hupa (e. g., *tce-xauW* "he is catching," originally perhaps "one catches").

tants of first person plural *-d-* plus stems *-as*, *-a'*, *-nil*, and *-ye* (Ath. **-ye*).

(c) As regards syllabic division, I must emphatically disagree with Father Morice. It is quite clear that in many Athabaskan dialects the *-t-* (*-d-*) of the first person plural belongs to the following syllable, as we have just seen. This proves nothing, however, for Chasta Costa, nor do I see how familiarity with the Carriers' syllabic way of writing their own language would have materially helped my ear in its perception of Chasta Costa sound combinations. As a matter of fact, my informant Wolverton Orton was particularly careful in syllabifying and I was practically never in doubt, in recording his forms, as to where syllabic division was to be placed. Hence *t'u-lat* is not to be "corrected" to *t'i-lat*, *t'e-nit-lat* to *t'e-ni-lat*, *γit-lō* to *γi-lō*, *te'at-t'i-θal* to *te'at-t'i-θal* (Father Morice's *-lōm*). Father Morice's *-thac* is simply another orthography for my *-t'ac*. I may point out that were we dealing in these Chasta Costa forms with such consonantal groups (affricatives) as *tl* and *th*, preceding *i* would appear lengthened to *ī*, because completing its own syllable. That I have consistently misheard both vocalic quantity and syllabic division in these words (e. g., *t'u-θal* for *t'i-θal*) I cannot admit. Naturally I do not deny that *tl* and *th* also occur in Chasta Costa as true affricatives, though *th* seems to have regularly developed to *θ*.

As to C. C. *-lō* (I have no example of C. C. affricative *tl*, *dl*, nor does it seem to occur in Hupa or Kato), I am uncertain, as I pointed out in my "Notes," whether this is to be understood as directly representative of Ath. **-dlo* (as preserved, e. g., in Carrier, Chipewyan, and Navaho) or as analyzable into third modal *-t-* and stem *-lō*. For Ath. *dl*: *l*, *cl*. Ath. **-dlo*, **-dli* "to be cold": Montagnais *ē-lū* "cold," Kato *lō* "frost," C. C. *-lō* "to laugh" might well correspond to Kato *-lō* "to deceive" (primarily "to laugh at").

(d) As regards C. C. *-se* "to cry" and *-si* "to cause," Father Morice is going altogether too far when he says these stems are incomplete for *-tse* and *-tsi*. As I have already stated in my "Notes" (p. 287), Ath. *tc'*, of which Carrier *ts* is reflex (Ath. *tc'* is preserved as such in Navaho, Jicarilla Apache, Kato, and, as labialized *tc'w*, in Hupa), has always been simplified in Chasta Costa to *s* (Ath. *tc' > ts > s*; cf. Ath. *ts > tθ > θ*). Hence to "correct" C. C. *-se* to *-tse* is as justifiable as it would be to "correct" French *chef* to **kep* because, as no one denies, derived from Latin *caput*.

10. "If Dr. Sapir will allow me, I will also observe that the desinence *-t'ac* [probably misprint for *-t'ac*], which he gives as a distinct verbal

element, is nothing else than the plural stem of the same [Carrier] verb *nanisthi*, whose derivative *nthasthih* effectively means 'to lie down, go to bed' (p. 563, l. 7). Father Morice then goes on to compare C. C. *-t'ac* directly with Carrier *-thés, -théz, -thas* (plural stem). These statements are misleading. It is evident from my Chasta Costa material (e. g. *dā-nal-t'ac* "I go to bed") that *-t'ac* applies to singular subjects. This is confirmed by comparison with Hupa *-tūw* (which corresponds regularly to C. C. *-t'ac*) and Kato *-tūc* (e. g., Hupa *tcin-ne-tūw* "she goes to bed," Kato *na-nūn-tūc* "lie down again"). This Ath. **-t'éc* is characteristic in Pacific Athabaskan of "indefinite" forms as contrasted with "definite" Ath. **-t'in, *-t'én, *-t'i* (Hupa *-ten, -tiñ*; Kato *-tin*; Carrier *-thi*; Montagnais *-t'i*; Navaho *-tqf*); in most Athabaskan dialects **-t'e* or **-t'c* is used in "indefinite" forms (Hupa imperative *-te*; Montagnais eventual *-t'è*; Navaho present *-tqe*, future *-tqet*). "Indefinite" *-c* forms are in general apparently characteristic of Pacific Athabaskan. C. C. *-t'ac* is phonetically practically identical with Carrier *-thas*, but not morphologically. Carrier "proximate future" *-thas* is reduced from present *-thés*; in other words *-s* (Ath. *-c*) is here found in all forms, "definite" and "indefinite." This plural (and dual) stem Ath. **-t'ec, *-t'ej, *-t'ée* (cf. Hupa *-tetc*; Montagnais dual *-t'ez*; Navaho *-tec*; Jicarilla Apache *-kec*) contains dualic *-c* (cf. Ath. *-oc* "two go"; Navaho *-esh, -'esh, -'ish* "to act upon two animals"). We now see clearly that Father Morice was misled by a phonetic convergence of morphologically distinct, though genetically related, forms.

II. "Unless I am very much mistaken, what he adduces as the equivalent of 'I am seen, you are seen, he is seen,' etc., really means simply: 'people see me' (French: *on me voit*), 'people see thee,' etc." (p. 563, l. 22). Father Morice is, in my opinion, quite right. In fact he merely repeats what I had already pointed out (p. 332): "*ts!al-*, which appears in these forms, probably contains third modal *-l-* preceded by deictic *ts!* implying indefiniteness of logical subject: 'mann sieht mich.' " Surely Father Morice knows that German *man sieht mich* is identical in force with French *on me voit*.

I take this opportunity of modifying my analysis of C. C. *ts!a-*. I do not now think that it is comparable to C. C. deictic *tc!*, which denotes lack or indefiniteness of *object*, not *subject*, of transitive verbs; this *tc!* goes back to Ath. *kʷ!(ē)*, which is preserved as such in Hupa. C. C. *ts!* (Ath. **tc!*) of such forms as *nes-ts!al-t'* "one sees me, I am seen,"

¹ I use "definite" and "indefinite" in Goddard's sense. "Definite" tenses are present definite and past definite, all others are "indefinite" (including present indefinite, imperative, eventual, and other forms).

however, is clearly subjective and impersonal in force and very probably corresponds to Carrier indefinite *ts(a-)*, see 9 b above. Goddard's Chipewyan *ts'* is probably identical with this Chasta Costa and Carrier impersonal prefix (e. g., *ts'e-Lū* "he was caught," i. e., "one caught him"); this means that Goddard's comparison of Chipewyan *ts'* with Hupa *k(ʔ)* is incorrect (see p. 133 of his "Analysis of Cold Lake Dialect, Chipewyan"), and indeed we should in that case, as in Kato and Chasta Costa, have expected *tc'*. I do not know how to reconcile with these subjective impersonal forms (Ath. **tc'* > Kato *tc'*, *ts'*, *s'*; C. C. *ts'*; Carrier *ts'*; Chipewyan *ts'*) Petitot's Montagnais, Hare, and Loucheux indefinite *tse-* forms. Could he have throughout misinterpreted *ts'e-* (in his orthography *ttse-*) as *tse-*?

E. SAPIR

A NEW SHOSHONEAN TRIBE IN CALIFORNIA

During inquiries made in 1912 as to the former line of division of Chumash and Shoshonean Indians in Ventura or Los Angeles counties, California, the writer encountered Juan Jose Fustero, aged perhaps sixty-five, and resident in Piru cañon some miles above the town of the same name. Fustero was born near Piru; his father and mother at San Fernando mission; and at least some of his grandparents at the San Francisquito ranch, or San Francisco land grant, on which the town of Newhall is now situated. Fustero spoke, besides Spanish, the "Haminat" or northwestern form of the Serrano Shoshonean language, i. e., the dialect of the Kitanemuk of upper Tejon creek and southward.

His grandparents, however, spoke another language. This he had forgotten, and it seems to be extinct. The Ataplili'ish, as the neighboring Chumash called his grandparents' people, were a small tribe, whose survivors apparently adopted the Kitanemuk speech as their own numbers became fewer and mission life enforced commingling.

All that persistent effort, coupled with willing endeavor on his part, could extract from Fustero's memory of the "*idioma de los abuelos*," were the phrase *hami'kwa umi*, 'where are you going?' corresponding to Kitanemuk *kaimukat mūmi*; and the place name Pí'íduka (whence modern 'Piru'), named after a "tule" or other plant called *pívuht* in Haminat. The differences seem not very great. The informant was also positive that the Ataplili'ish speech was totally distinct from both the Chumash of mission San Buenaventura and the 'Gabrielino' Shoshonean dialects of missions San Fernando and San Gabriel.

The territory of these ancestors can no longer be accurately defined.

It seems to have comprised most if not all the upper course of the Santa Clara river, perhaps with the greater number of its affluents. Downstream were the Ventureños, that is, the Chumash, of Santa Paula (Mupu) and Sespe (*Sek'spe*, *Shekshpe*). Their boundary toward the Ataplili'ish lay between the latter place and Piru. Upstream, Fustero thought more vaguely, his ancestors ranged to Soledad cañon or pass, that is, toward the headwaters of the Santa Clara. Of the tributaries, Piru creek was Ataplili'ish at least as far as the headwaters of its affluent Alamos creek, Pak-hahung; or possibly this name refers to the Los Alamos land grant, on Pastoria creek, on the San Joaquin side of Tehachapi watershed. Fustero was also inclined to believe that Castac lake, at the summit of the watershed, was in territory of his ancestors. At other points information failed him.

A few names of places, probably in their Haminat forms, were obtained. These are: *A-kava-vi*, "his ears," corresponding to *Kash-tu*, "my" or "our ears" in Chumash, three or four miles above the town of Piru; *Puhiüt a-tekuit*, "roadrunner's mortar," across the stream from Akavavi; *Etseng*, some three miles farther up Piru creek, where Ramona's home was; *Huyung*, at Lakely, a mile or two farther up the cañon; and *Küung* (the name of a yellow flowered, food-bearing plant), a mile or so above, where Fustero now has his home. *Tsawayung* was on the San Francisquito ranch near "Castac depot," that is, near the mouth of Castac creek. This may be the place called *Kash-tük*, "my eyes," by the Chumash.

Castac lake, which lies in Tejon pass between the head of the Alamos tributary of Piru creek and the Cañada de las Uvas draining into the San Joaquin valley, is somewhat beyond the headwaters of Castac creek, though the latter evidently provided an important trail leading to it and the great valley beyond. The native names of the lakelet, and of the mouth of the stream, are alike in meaning in three languages: *Kash-tük*, "my eyes" in Chumash, as just mentioned; *A-ava-pya*, "en los ojos," "in his eyes," the Kitanemuk designation of lake; *Sasa-n*, the same place in Yokuts, is "at the eye" or "in the eyes" or "eye place." The Castac land grant extends from Castac lake north in the San Joaquin valley drainage.

It may be recalled that a Kitanemuk informant¹ has given "*Akawaik*" as the name of a place near "Camulos or Piru"—probably the "*Akavavi*" referred to above. He stated that the San Fernando language was spoken there. He also placed people of Fernandean dialect on Pastoria

¹ *Univ. Calif. Publ. in Am. Arch. Ethn.*, IV, 138, 139, 1907.

creek—which may tally with Fustero's less definitely located "los Alamos." It would seem that these Kitanemuk statements, though not according exactly, substantiate at any rate Fustero's basic assertion of a distinct tribe between Camulos and Pastoria creek.

In this connection it is worth observing that Fustero was of the impression that the Mohave adjoined his people on the east (actually the Möhineyam Serrano and the Chemehuevi intervened); and that Mohave and Kitanemuk speech were nearly the same. The curious and widely spread Indian belief that these two totally different languages are identical or similar, has been noted before.¹ The Mohave themselves, who call the Kitanemuk Kuvahaivima and do not claim them as linguistic relatives, tell of the Kwiahta Hamakhava, or "like-Mohave" tribe in the same region or farther to the west. These "like-Mohave" in all probability are the Ataplili'ish.

The speech of the Ataplili'ish was Shoshonean, and most probably of the Serrano type, according to the one recorded phrase. Chumash affinities are not to be thought of. The idea of an undiscovered tribe of Yuman lineage in this vicinity, to which several separate Indian statements point, is fascinating to entertain, but cannot be pressed seriously. Even the sound *ð* (dh as in English 'the') of Pi'iauku, which recurs in Mohave, proves nothing; since *ð* is secondary in Mohave and wanting in most Yuman dialects, and has made its appearance, also as a secondary phenomenon, in one Shoshonean dialect, the Luiseño.

As between the several Shoshonean branches, Serrano and Gabrielino are the two to be considered on the ground of proximity. The descendant of the Ataplili'ish makes this language positively different from Gabrielino, as well as from the Serrano familiar to him; the Serrano informant identifies it with Gabrielino, perhaps principally on the ground that it is not like his Serrano. A distinct idiom, and that of Shoshonean origin, is therefore certain; the precise dialectic affiliation remains undetermined.

A. L. KROEBER

THE FOLLOWING MISPRINTS which occurred in Dr Sapir's article on "The Nadene Languages" should be corrected as follows:

P. 540, note 3: change *xu-* to *xu-*.

P. 544, l. 25: change *impossible* to *possible*.

P. 553, l. 6 of Tlingit column: change *i'ín* to *i'ín*.

P. 553, l. 19 " " " *sja'x^u* to *sja'x^u*.

P. 553, l. 18 of Haida " " *tcju* to *tcju*.

P. 553, l. 23 " " " *ga* to *ga*.

P. 557, l. 7 " " " *i, ee* to *i, e, e*.

¹ *Ibid.*, 136.

ANTHROPOLOGIC MISCELLANEA

Anthropology in the Canadian Arctic Expedition.—A report as to the work of the Southern Party of the Canadian Arctic Expedition has come to the Geological Survey from Dr R. M. Anderson. This report is dated July 29, 1915, from Bernard harbor, Dolphin and Union straits, N. W. T. The portions of this that relate to anthropological work are here quoted:

"Ethnologically, Mr D. Jenness has been able to accomplish a great deal of work among the hitherto little-known groups of Eskimo in this region, including numbers of Akuliakattagmiut, Haneragmiut, Uallirmiut, Puipirmiut, Pallirmiut, and Kogluktogmiut. He finds that these groups are not as definite as was formerly supposed, in fact, the groups are pretty thoroughly mixed. Both by intermarriages and by families shifting from one group to another, nearly every group contains individuals from other groups more or less remote. He has made good progress in linguistic work and vocabularies, made fifty or more gramophone records of various Eskimo songs and spoken words which he has had repeatedly reproduced before the natives so that he could get the text letter-perfect and translated for comparison with other Eskimo dialects. A considerable number of photographs of Eskimo people with their life and customs, have also been made by Mr Jenness and other members of the party.

"In the early spring, arrangements were made for Mr Jenness to spend the summer with the Eskimo in the heart of Victoria island. He had a good quantity of provisions hauled across Dolphin and Union straits in early April and cached on the south side of Victoria island for his use if necessary in the fall. He engaged a middle-aged Eskimo named Ikpuquao (who had been in that part of Victoria island before) together with his family, to accompany him and help him during the summer. Mr Jenness supplied the man with a rifle and ammunition, which together with a tent and other things are to be given him if he serves Mr Jenness faithfully and returns with him in the fall. Mr Jenness started on April 13, 1915, for Victoria island, and this family of Eskimo, and a few others who were thinking more or less seriously of joining the party. They started about the time the Barren Ground caribou began to migrate across to Victoria island in numbers, planning to follow

the caribou migration north across the Wollaston peninsula, then go up to the head of Prince Albert sound, ascend a large river to a large lake called Tahieryuak, in the interior or west central part of Victoria island. When the snow disappeared they intended to cache their sleds, either at the head of Prince Albert sound or at the lake, and continue their journeys during the summer with pack dogs. That region is the summer hunting and fishing ground of a large number of Kañlürmiut (Eskimo of Prince Albert sound) and Mr Jenness hopes to gather much new and valuable ethnographical material concerning this hitherto little-known group of Eskimo. Mr Jenness expects to live with these Eskimo all the coming summer, and return to the south side of Victoria island in the fall, following the caribou to the southward again, and return to the station at Bernard harbour as soon as the ice is strong enough to cross Dolphin and Union straits in the fall. . . .

"Mr G. H. Wilkins brought a cinematograph outfit with him from the Northern Party's base on Banks island, and exposed about two thousand feet of cinematograph film, principally on views of the local Eskimo. Mr Wilkins has made a very good series of portrait studies of most of the local Eskimo, men, women and children, in full view and in profile, for Mr Jenness's ethnographical work."

THE following anthropological field-work was carried on by the Geological Survey of Canada during the year 1915:—C. M. Barbeau carried on ethnological researches among the Tsimshian of Port Simpson, B. C., with special reference to the social organization of the tribes gathered at this point; during the summer he made a large collection of folk-tales among the French Canadians of Kamouraska county, Quebec, in continuation of work of this sort begun in 1914 among the French-speaking Huron of Lorette, Quebec. F. W. Waugh continued his ethnological researches among the Iroquois Indians of Six Nations reserve, Ontario, the greater part of the time being employed in the collection of a large number of Iroquois folk-tales. J. A. Teit spent the summer in ethnological researches among Athapascan tribes of the interior of northern British Columbia, chiefly the Tahltan and Kaska. E. Sapit secured information on the social organization of the Nass river Indians, of Tsimshian stock, from a chief of the tribe visiting Ottawa on government business. H. I. Smith made archeological reconnaissances in British Columbia, chiefly along the Skeena river. W. J. Wintemberg continued his intensive archeological work at the Iroquoian Roebuck site in Ontario, and made a reconnaissance of various other points of

archeological interest in the province. W. B. Nickerson continued archeological research in the mound country of southern Manitoba. F. H. S. Knowles continued his anthropometric investigations among the Iroquois, begun in 1912, obtaining sets of measurements from Tonawanda reserve, New York, and from Six Nations reserve, Ontario; researches were also carried on at various museums in Toronto and Buffalo on skeletal material belonging to Iroquoian and Algonkian tribes.

New anthropological Memoirs ready for publication include:—"Huron and Wyandot Mythology, with an Appendix of Earlier Sources," by C. M. Barbeau; "Iroquois Foods and Food Preparation," by F. W. Waugh; "The Labrador Eskimo," by E. W. Hawkes. There are also two new Bulletins ready for publication:—"Hunting Territories of the Micmac Indians," by F. G. Speck; and "Time Perspective in Aboriginal American Culture, a Study in Method," by E. Sapir.

As a result of the explorations of the Siberian expedition of the Museum of the University of Pennsylvania, the university will shortly be the possessor of a valuable collection of ethnological specimens from the primitive Tungus tribes in the arctic regions of Siberia, and the scientific world enriched by writings and data on a branch of the Mongolian race of which hitherto virtually nothing has been known. More than 700 miles were traveled by the explorers through a country almost without food and sometimes with a temperature as low as 80 degrees below zero. The University Museum's Amazon Expedition has forwarded an account of its discovery of the original habitat of the Mundurucus Indians, a little-known tribe of savages who behead their enemies and then boil the heads. Dr William C. Farabee, who is in charge of the expedition, spent a long time among the Mundurucus, studying their language, their manners and customs and making a vocabulary and writing down much of their folklore, as a result of which he expects to settle absolutely the long-vexed question of the relation of this tribe to the Tupi. He also visited the villages of the Apiacas and Manes and got important data.—*Science*.

AFTER a long and useful service Dr George A. Dorsey resigned from the curatorship of the Department of Anthropology in the Field Museum of Natural History on August 25 of this year. After conducting anthropological investigations in South America for the Chicago Exposition 1891-92, and after teaching anthropology at Harvard for several years, he became associated with the Field Museum in 1896 as assistant curator of anthropology and was appointed curator in 1898. The rapid

growth of the department has largely been due to his vigor and energy. He took the initiative in every new field and expanded the work of the institution beyond the boundaries of America, to the Malayan archipelago, the South sea, and western Asia. His work in American ethnology and physical anthropology is well known to every anthropologist. Dr Berthold Laufer, former associate curator of Asiatic ethnology, has been appointed his successor.

THE activities of the Peabody Museum of Harvard University for the past summer consisted of the following archeological expeditions:—Dr Charles Peabody, Curator of European Archaeology, in the Ozarks; Dr E. A. Hooton, Curator of Physical Anthropology, and Jay Camp, a student, in the Canary islands; Dr Samuel G. Guernsey, Assistant Curator and Dr R. G. Fuller, at Marsh Pass, Arizona; Mr Orie Bates, Curator of African Anthropology, in the Egyptian Sudan; Dr F. N. Sterns, Associate in Anthropology, and Mr Karl Guthe, Assistant in Anthropology, in Nebraska; and Mr Arthur Carpenter, in Michigan. Mr Carpenter has been appointed Field Director of the annual Central American Expedition. He will leave in December for Guatemala.

DR J. WALTER FEWKES of the Bureau of American Ethnology spent the months of August, September, and October in the exploration and repair of ruins in the Mesa Verde National Park. The results of this work have proved of the greatest importance to the study of the cultures of the Southwest.

SEVERAL NUMBERS of the *American Anthropologist* are entirely out of print. In case any of the members or subscribers have duplicate copies of any numbers of the *American Anthropologist* it will be considered a favor if they are returned by express collect to The New Era Printing Co., Lancaster, Pennsylvania.

DR A. V. KIDDER has returned from a successful season at Pecos Pueblo for the Department of Anthropology at Andover. Mr and Mrs Samuel Lothrop, students of anthropology at Harvard and Radcliffe, were with him throughout the summer.

DR TRUMAN MICHELSON spent about five months, from June to October, continuing his investigations of the ethnology and languages of the Fox Indians of Iowa and the Sauk of Oklahoma.

MR CHARLES C. WILLOUGHBY has been appointed by the Harvard Corporation, Director of the Peabody Museum.

DR W. H. R. RIVERS has been for some months attached to the Red Cross Hospital, Maghull, near Liverpool, treating by psychological methods, military patients suffering from nerve shock and insanity.

Dr Rivers has recently delivered a series of lectures before the Royal College in London. He has received the honor of the Royal Medal of the Royal Society.

THE ethnological and linguistic studies of Dr J. P. B. de Josselyn de Jong, and his service in the *Rijks Museum* at Leyden, have been interrupted since more than a year by service in the Dutch army.

DR THEODOR KOCH-GRÜNBERG assumed his duties as director of the Linden Museum in Stuttgart on October 1. His academic relations have been transferred from Freiburg to Heidelberg.

THE ethnographical section of the *K. K. Naturhistorisches Museum* in Vienna are in process of complete reinstallation under the direction of Hofrath Franz Heger.

MOST of the past year has been spent by P. W. Schmidt on a hospital train. The resumption of a more active publication of *Anthropos* is contemplated.

DURING October and November Dr John R. Swanton continued his studies of the Creek and Chickasaw Indians and the remnant of the Natchez.

THE fifth volume of the collected publications of Professor Eduard Seler has recently appeared. The fourth volume is in preparation.

DR RODOLF PÖCH of the University of Vienna has in recent months made measurements of many thousands of Russian prisoners of war.

DR C. G. SELIGMAN is in government service as bacteriologist.

DR R. R. MARETT, Mr Henry Balfour, and Miss Barbara Freire-Marreco are maintaining anthropological work at Oxford. Mr T. A. Joyce of the British Museum is in the Press Bureau.

INDEX TO AUTHORS AND TITLES

- AESTHETIC activities, 648
- AIKEN, R. T., note about, 629
- ALGONKIAN SOCIAL ORGANIZATION, Family hunting band as the basis of, 289
- ALGONKIN LANGUAGES of California, a reply, 188
- AMERICAN ANTHROPOLOGICAL ASSOCIATION, Annual meeting, notice of, 630
- list of members, 423
- Philadelphia meeting of, 235
- proceedings of, for 1914, 357
- San Francisco meeting of, 627
- AMERICAN ETHNOLOGICAL SOCIETY, Proceedings of, 364
- AMERICAN MUSEUM OF NATURAL HISTORY, field work of, 417
- AMERICANISTS, NINETEENTH INTERNATIONAL CONGRESS OF, 624
- ANDERSON, J. D., work reviewed, 184
- ANTHROPOLOGICAL SOCIETY OF WASHINGTON, meetings of, 418
- proceedings of, 610
- ANTHROPOLOGY at the British Association, 210
- ANTI-PROFESSIONS, 756
- ARCHAEOLOGY OF SALVADOR, Notes on, 446
- ARTIFICIAL MOULDING of infant's head among the Scandinavian Lapps, 245
- AUDET, CAPT. RENÉ, death of, 419
- BABCOCK, WM. H., review by, 582.
- BAÑOLAS, the lower jaw of, 759
- BEAN, R. B., The growth of the head and face in American, German-American, and Filipino Children, 525—Some ears and types of men, 529
- BERLIN music archive, 216
- BICKMORE, DR. ALBERT S., death of, 220
- BINGHAM, HIRAM, leads expedition, 418
- Types of Machu Picchu pottery, 257
- BLACKFOOT Relationship terms, 603
- BOAS, FRANZ, International School of American Archeology, 384
- BONE IMPLEMENTS, 683
- BOOY, THEODORE DE, Pottery from certain caves in Eastern Santo Domingo, West Indies, 69
- BOURLON, CAPTAIN, death of, 419
- BRITISH ASSOCIATION, anthropology at, 210
- BUSHNELL, DAVID L. JR., The "Red-Paint people"—11, 207
- CALIFORNIA ACADEMY OF SCIENCES, acquires a collection, 417
- Algonkin languages of, 188.
- CAMPBELL, STANLEY, The Cheyenne tipi, 685
- CANAAN, T., work reviewed, 352
- CASANOWICZ, I. M., review by, 160, 352, 353
- CEREMONIALISM, Interpreting, 609
- CHASTA COSTA and the Déné languages of the north, 539
- Corrigenda to, 765
- CHEYENNE DICTIONARY, a, 213
- Tipi, 685
- CHIEFTAINSHIP and the sister's son in the Pacific, 631
- CLASSIFICATORY SYSTEMS of relationship, Exogamy and, 223
- COLE, FAY-COOPER, review by, 742—Degree granted, 416
- CONGRESS OF AMERICANISTS, Nineteenth International, 624
- CUMMINGS, BYRON, Kives of the San Juan drainage, 272
- DAY SIGN Manik, The Maya, 488
- DECHLETTE, JOSEPH, death of, 419
- DÉNÉ LANGUAGES of the North, Chasta Costa and the, 559
- DIXON, R. B., Reply of, to Lowie, 599
- DURKHEIM, EMILK, work reviewed, 719
- EARS and types of men, 529

- EASTERN ALGONKIAN Wabanaki Confederacy, 492
- EHRLINGSDORF, Interglacial man from, 139
- EIGHTEEN PROFESSIONS, 283
- ESKIMO SCREW as a culture-historical problem, 306
- EXCAVATION of a ruin near Aztec, San Juan County, New Mexico, 666
- EXOGAMY and the classificatory system of relationship, 223
- EXPERIMENTS in Synesthesia, Certain further, 143
- FAMILY HUNTING BAND as the basis of Algonkian social organization, 289
- FARABEE, W. C., note on the work of, 219
- FEWKES, J. W., work of, 420
- FIELD MUSEUM OF NATURAL HISTORY, 628
- FOLKMAR, DANIEL. Proceedings of the Anthropological Society of Washington, 610
- FOULKES, H. D., work reviewed, 741
- FRIERE-MARRECO, BARBARA. Kinship terms, Hano Dialect of Tewa, 198. Work reviewed, 341
- GAILLARD, R. and POUTRIN, L., work reviewed, 737
- GILBERTSON, ALBERT N. Lingual consonants in India and Norway, 202
- GLUE MOLDS, the use of, in reproducing aboriginal monuments at Quirigua, Guatemala, 128
- GODDARD, P. E., review by, 343
- GODS and divine ancestors, 631
- and the Polynesian chiefs, 635
- GOLDENWEISER, A. A. The heuristic value of traditional records, 763. The knowledge of primitive man, 249. Review by, 719
- GÖTTE, A., work reviewed, 174
- GREENLAND ARROWPOINTS without screws, 9
- GROWTH of the head and face in American, German-American, and Filipino children, 525
- GUBLE SINGER, the, and his songs, 58
- HAERERLIN, H. K. Anti-Professions, 756
- HAGAR, STANSBURY. The Maya day sign Manik, 488
- HANO DIALECT of Tewa, Kinship terms, 198
- HATT, GUDMUND. Artificial moulding of infant's head among the Scandinavian Lapps, 245
- HARRINGTON, M. R., work reviewed, 576
- HARRINGTON, J. P. and HENDERSON, JUNIUS, work reviewed, 173
- HEAD AND FACE. The growth of, in American, German-American, and Filipino Children, 525
- HENDERSON, JUNIUS and HARRINGTON, J. P., work reviewed, 173
- HEURISTIC VALUE of traditional records, 763
- HOCART, A. M. Chieftainship and the sister's son in the Pacific, 631
- HODGE, F. W., "Pawnee," "Tatarax," and "Harahey," 215
- HOME STUDY in Ethnology, 409
- HOSE, CHAS., and McDUGALL, WM., work reviewed, 742
- HOUGH, WALTER. Note on race, 764.
- HOVGAARD, WM., work reviewed, 582
- HRELIČKA, A. Nineteenth International Congress of Americanists, 624. Review by, 161
- INDIA AND NORWAY, Lingual consonants in, 202
- INDIVIDUAL INITIATIVE and social compulsion, 647.
- INTERGLACIAL MAN from Ehringsdorf near Weimar, 139.
- INTERNATIONAL SCHOOL OF AMERICAN ARCHEOLOGY, 384.
- INTERPRETING CEREMONIALISM, 600
- IRELAND, Science notes from, 204
- JOYCE, THOMAS A., work reviewed, 166
- JUDD, NEIL M. Use of glue molds in reproducing aboriginal monuments at Quirigua, Guatemala, 128
- TEN KATE, H., review by, 164
- KIDDER, A. V., review by, 173

- KINSHIP TERMS compounded with prefix 'e, Hano dialect of Tewa, 198
- KIVAS of the San Juan drainage, 272
- KLEWEG DE ZWAAN, J. P., work of, reviewed, 164, 591, 747
- KNOWLEDGE of primitive man, 240
- KROEBER, A. L. - Frederic Ward Putnam, 712. A new Shoshonean tribe in California, 773. Eighteen professions, 283. A reply to, 756. Work of, 629
- LANGUAGES of the natives in the Patagonian Channels. Additional notes on the, 411
- LAUFER, BERTHOLD. Eskimo screw as a culture-historical problem, 396. Work reviewed, 350
- LEADERSHIP, 648
- LINGUAL CONSONANTS in India and Norway, 202
- LINGUISTIC POSITION of the tribes of southern Texas and northeastern Mexico, 17
- LLOYD, THOMAS, work reviewed, 169
- LOOMIS, F. B., AND YOUNG, D. B., work reviewed, 346
- LOWIE, R. H. Exogamy and classificatory system of relationship, 223. Oral tradition and history, 597. Proceedings of the American Anthropological Association for 1914, 357. Proceedings of the Ethnological Society, 364. Reviews by, 177, 329, 359, 354, 575, 588, 597
- MACCURDY, G. G., Interglacial man from Ehringsdorf near Weimar, 139. Neandertal man in Spain: the lower jaw of Bañolas, 759. Race in the Pacific, with special reference to the origin of the American Indians, 708. Reviews by, 170, 174, 187. The San Francisco meeting, 414
- MACHU PICCHU pottery, Types of, 257
- MARITAL RELATIONS, 647
- MARTIN, RUDOLF, work reviewed, 161, 751
- MAYA day sign Manik, 488
- MCDUGGALL, WM. AND HOSE, CHAS., work reviewed, 742
- MEGALITHS, Sun-Cult and, in Oceania, 411
- MEXICO, Northeastern, Linguistic Position of the tribes of, 17
- MICHELSON, TRUMAN, Rejoinder, Algonkin languages of California, 194. Review by, 184, 576
- MICMAC, 302
- MIGDON, Fred'k Wm. Hugh, works reviewed, 739, 741
- MILLS, WM. C., work of, 628
- MONUMENTS at Quirigua, The use of glau molds in reproducing, 128
- MOONEY, JAMES. The Berlin music archive, 216. A Cheyenne Dictionary, 213. Science notes from Ireland, 204. Review by, 156
- MOORE, CLARENCE B., The "Red-paint people"—II, 209
- MORALITY in early culture, Links between religion and, 41
- MORICE, A. G., Chasta Costa and the Déné languages of the North, 559. Reply to, 765. Review by, 347
- MORRIS, EARL H., The excavation of a ruin near Aztec, San Juan County, New Mexico, 666
- NA-DENE LANGUAGES, A preliminary report, 534. Corrigenda, 775
- NAHUAL, Southern Paiute and, 98, 306
- NATIONAL ACADEMY OF SCIENCES, publications of, 219
- NEANDERTAL MAN in Spain: The lower jaw of Bañolas, 759
- NEBRASKA CRANIA, A study of, 500
- , eastern, Stratification of culture in, 124
- NELSON, WM., death of, 217
- NEW YORK ACADEMY OF SCIENCES, work of, 628
- NORWAY, Lingual consonants in India and, 202
- NOTES on the Archeology of Salvador, 446
- ORTTEKING, BRUNO, reviews by, 342, 591, 747, 751

- OGBORN, W. F.: note concerning, 627
 ORAL TRADITION and history, 597
 ORIGIN of the American Indians, 708
- PAIUTE, Southern, and Nahuatl—A study in Uto-Aztecan, Part II, 98, 306
- PALESTINE and Syria, prehistoric, Notes on, 695
- PAN-AMERICAN SCIENTIFIC CONGRESS, Second, 625
- PAKKER, A. C., work reviewed, 180, 581
- PARSONS, ELSIE CLEWS. Home study in ethnology, 409. Interpreting ceremonialism, 600. Links between religion and morality in early culture, 41. Work reviewed, 343
- "Pawnee," "Tatarax," and "Harahey," 215
- PEABODY, CHAS. Certain further experiments in synesthesia, 143. Notes on prehistoric Palestine and Syria, 695
- PENOBSCOT, 299
- PLUGS and other implements with screws, 11
- PORSILD, MORTEN. The principle of the screw in the technique of the Eskimo, 1.
- POTTERY DESIGNS, 676
 — from certain caves in eastern Santo Domingo, West Indies, 69
 — Machu Picchu, Types of, 257
- POUTIN, L., work reviewed, 735
 — and GAILLARD, R., work reviewed, 737
- POYNTER, C. W. M., Study of Nebraska crania, A, 509
- PREHISTORIC PALESTINE and Syria, Notes on, 695
- PRIMITIVE MAN, Knowledge of, 240
- PUTNAM, FREDERIC WARD, death of, 629
 — an appreciation of, 712
- QUIRIGUA, Monuments at, The use of glue molds in reproducing, 128
- RACE in the Pacific area, with special reference to the origin of the American Indians, 708
- RACE, Note on, 764
- RADIN, MAX, review by, 169
 "RED-PAINT-PEOPLE"—II, The, 207, 209
 — of Maine, 406
- RELATIONSHIP TERMS, Blackfoot, 603
- RELIGION, 649
 — and morality in early culture, Links between, 41
- RIDGEWAY, WM., review of work presented to, 156
- RIVERS, W. H. R. Sun-Cult and megaliths in Oceania, 431. Work reviewed, 175, 529, 588. Visits America, 418. Receives medal, 780.
- RUIN near Aztec, San Juan County, New Mexico, The excavation of a, 666
- SALVADOR, Notes on the archeology of, 446
- SAN FRANCISCO MEETING, Announcement of, 414
- SAN JUAN DRAINAGE, Kivas of, 272
- SANTO DOMINGO, West Indies, Pottery from certain caves in, 69
- SAPIE, E. Algonkin Languages of California, A reply, 188. Epilogue, 198. Corrigenda to Father Morice's "Chasta Costa and the Déné Languages of the North," 765. Na-déné Languages, The, A preliminary report, 534. Southern Paiute and Nahuatl—A study in Uto-Aztecan, Part II, 98, 306. Note about, 628. Work reviewed, 347.
- SCANDINAVIAN LAPPES, Artificial moulding of the infant's head among, 245
- SCHMIDT, R. R., work reviewed, 170
- SCHUFELDT, R. W., work reviewed, 573
- SCHULLER, RUDOLPH, Erroneous interpretation of the "Tears Greeting," 607
- SCIENCE NOTES from Ireland, 204
- SCREW, Eskimo, an aboriginal invention, 14
 — in the technique of the Eskimo, 1
 — types and manufacture of, 2
 — geographical distribution of, 8
 —, Eskimo, as a culture-historical problem, 396

- SHOSHONEAN TRIBE in California. A new, 773
- SISTER'S SON, The rights of the, 641
- , Chieftainship and the, in the Pacific, 631
- SKINNER, ALANSON, reviews by, 180, 185, 341, 577, 579, 581. Work reviewed, 581
- SKOTTSBERG, CARL, Some additional notes on the languages of the natives in the Patagonian channels, 411
- SMITH, HARLAN L., work of, 219
- SOCIAL COMPULSION, Individual initiative and, 647
- SOLLAS, W. J., work reviewed, 575
- SOUTHERN PAIUTE and Nahuatl—A study in Uto-Aztekan, Part II, 98, 306
- SPECK, F. G. Eastern Algonkian Wabanaki Confederacy, 497. Family hunting band as the basis of Algonkian social organization, 289. Work reviewed, 344
- SPEISER, FELIX, work reviewed, 177
- SPENCE, LOUIS, work reviewed, 579
- SPENCER, BALDWIN, work reviewed, 354
- SPIER, LESLIE, Blackfoot relationship terms, 603. Reviews by, 344, 346, 581
- SPINDEN, H. J. Notes on the archeology of Salvador, 446
- STAAR, FREDERICK, review by, 735, 737, 739
- STERN, FRED H., Stratification of cultures in eastern Nebraska, 121
- STEVENSON, M. C., death of, 629
- STOCK NAMES announced for California, 413
- STONE IMPLEMENTS, 681
- STRATIFICATION of cultures in eastern Nebraska, 121
- STUDY of Nebraska crania, 509
- STUHLMANN, F., work reviewed, 353
- SUN-CULT and megaliths in Oceania, 431
- SWANTON, J. R. A Reply to Dr. Lowie, 600. Linguistic position of the tribes of southern Texas and north-eastern Mexico, 17
- SYNAESTHESIA, certain further experiments in, 143
- "TEAR-GREETING," Erroneous interpretation of, 607
- TEN KATE, H., review by, 164
- TEXAS, southern. Linguistic position of tribes of, 17
- THOMAS, NORTHCOTE W., works reviewed, 737, 739
- TIMAGAMI band, 297
- TIMISKAMING band of Algonkin, 295
- TIFI, The Cheyenne, 685
- TOZZER, A. M. Report of Director International School of American Archeology, 391
- TRADITIONAL RECORDS, The heuristic value of, 763
- TRIBES of southern Texas and north-eastern Mexico. Linguistic position of, 17
- UNIVERSITY MUSEUM of Philadelphia Expeditions, 429
- lectures, 417, 218
- UTO-AZTEKAN, A study in, 98, 306
- VON LUSCHAN, Felix, review by, 573. Visits America, 419
- WABANAKI confederacy, The eastern Algonkian, 492
- WALLIS, W. D. Individual Initiative and social compulsion, 647. Notes about, 627, 629
- WATERMAN, T. T., review by, 160
- WEBSTER, HUTTON, review by, 175
- WEST INDIES, Pottery from certain caves in Santo Domingo, 69
- WILLOUGHBY, C. C. The "Red-Paint People" of Maine, 406
- WINCHELL, N. H., work reviewed, 187
- WREN, CHRISTOPHER, work reviewed, 185

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