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THE STUDY OF MAN

By PROFESSOR A. C. HADDON, M.A., D.Sc., M.R.I.A.



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BY ALFRED C. HADDON



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PREFACE

AN author is often justly criticised for the manner in which he has performed a self-imposed task—not unfrequently he is also criticised for what he has not done. I do not expect to be free from the former line of criticism; but at the outset I would remind the reader, as I have elsewhere mentioned, that this does not profess to be a treatise on Anthropology, or its methods, but merely a collection of samples of the way in which parts of the subject are studied. The book is not intended for scientific students, nor for experts, but for the amateur and for that delightfully vague person, the intelligent reader.

I must confess, too, that my wish is not merely to interest my readers, but to induce them to become workers. As the learned, wise, and pious John Ray wrote nearly two centuries ago, in *The Wisdom of God Manifested in the Works of the Creation*: "Let it not suffice us to be Book-learned, to read what others have written, and to take upon Trust more

Falsehood than Truth; but let us ourselves examine things as we have opportunity, and converse with Nature as well as Books. Let us endeavour to promote and encrease this Knowledge, and make new Discoveries, not so much distrusting our own Parts, or despairing of our own Abilities, as to think that our Industry can add nothing to the Invention of our Ancestors, or correct any of their Mistakes. Let us not think that the Bounds of Science are fixed like *Hercules's* Pillars, and inscrib'd with a *Ne plus ultra*. The Treasures of Nature are inexhaustible. Here is employment enough for the vastest Parts, the most indefatigable Industries, the happiest Opportunities, the most prolix and undisturb'd Vacancies. . . .

“Much might be done, would we but endeavour, and nothing is insuperable to Pains and Patience. I know that a new Study at first seems very vast, intricate, and difficult; but after a little resolution and progress, after a Man becomes a little acquainted, as I may so say, with it, his Understanding is wonderfully cleared up and enlarged, the Difficulties vanish, and the thing grows easie and familiar.”

These words of John Ray have many a time stimulated me; may they encourage others to study human-kind. Once more I must insist on the sad

fact that the old landmarks are being rapidly removed, and there is a pressing need for immediate investigations in Anthropology in this as well as in all the other parts of the world.

It is now my pleasing duty to take this opportunity of thanking those who have assisted me in their various ways.

To my colleagues in different departments of Anthropology I offer the thanks of a comrade. I have everywhere endeavoured to render unto every man his dues. The Proprietor and Committee of *Science Progress* have kindly permitted me to reprint as Chapter V. an article of mine that appeared in the January number of that valuable record of recent scientific advance.

The Editor of *The Daily Chronicle* has courteously given me permission to make use of a series of articles on "Toys and Games: their History and Literature," I wrote for the Saturday issue of that enterprising journal, and which were published in August and November, 1896, and in January and February, 1897.

Dr. Paul Topinard, the great French Anthropologist, generously lent me the blocks of the maps he compiled to illustrate the distribution of hair and

eye colours in France. Amongst other authors to whom I am indebted for permission to reproduce their illustrations, I would mention Dr. R. Collignon, Dr. J. Beddoe, Mr. C. H. Read, of the British Museum, Professor Telesforo de Aranzadi, Mr. G. Thurston, and others. Finally I would like to record my indebtedness to my friend, Mr. Edwin Wilson, of Cambridge, the artist who has prepared many of the illustrations for this book.

INISFAIL, CAMBRIDGE.

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INTRODUCTION

IT seems strange that man should study everything in heaven and earth and largely neglect the study of himself, yet this is what has virtually happened. Anthropology, the Study of Man, is the youngest of the sciences, but who will say that it is the least important?

We may, perhaps, find one reason for this neglect in the peculiar complexity of the subject and the difficulty there is in approaching it from a dispassionate point of view; there are so many preconceived opinions which have to be removed, and this is always a thankless task. Even now the scope and significance of Anthropology have scarcely been recognized.

Some well-meaning and enthusiastic students have been so impressed with the importance of the particular department with which they are more especially interested that they have neglected others. A disparagement even has sometimes been more implied than actually expressed. Others have been over-

whelmed with the details they have accumulated, and have not seen the wood on account of the trees. The whole subject is so vast that very few have had the requisite training, or have, or rather have made, the time to compare the results of one branch with those of another. We thus have the trained specialist on the one hand, and the more or less serious amateur on the other, too often not only working independently of each other, but even ignorant of the other's labours, and even of his existence. Fortunately this lack of co-operation and co-ordination is rapidly decreasing, and a living science of Anthropology is emerging which will be acknowledged by the sister sciences as its methods and objects become more definitive.

At the risk of being tedious I think it is desirable to define our terms at the outset.* On the Continent the term Anthropology is restricted to what we in England term Physical Anthropology or Somatology, to use a term which is now being widely employed by our American colleagues, that is, the study of man as an animal. This comprises not only the comparative study of the structural differences between members of different races of mankind, but also the

* In the final chapter will be found a classification and international nomenclature of the various departments of Anthropology which has been proposed by Prof. D. G. Brinton, of Philadelphia.

comparison of man with the higher apes. We prefer to retain the word Anthropology for the study of man in its widest aspect.

Ethnography is the description of a special people, whether it be a small tribe, the natives of a restricted area, or a large nation; it includes a comparative study of human groups, and has for its aim the elucidation of the inter-relationships of tribes, races, and other bodies of men; thus it deals with the classification of peoples, their origin, and their migrations.

Ethnology may also be divided into several branches, the four more important of which are: Sociology, Technology, Religion, and Linguistics.

Sociology is the study of human communities, both simple and complex, and an attempt is now being made to trace the rise of simple communities and their gradual and diverse evolution to the complex civilizations of ancient and modern times. History, in the ordinary acceptance of the term, deals more especially with the later phases of this metamorphosis, but an endeavour is being made to get behind history, as it were, and to attempt to account for the data upon which historians work. The physical conditions of a country, including the climate, the vegetation,

and the indigenous animals, affect the life of the human inhabitants of that country; in other words, the mode of life of a primitive people is conditioned by its environment. The method of living affects the family life, and so we find that certain types of family organization are related to definite habits of life. As civilization advances, the State acquires powers and regulates families as well as individuals, but the characteristics of different forms of government are themselves due to the type of family organization which obtains among those various peoples. According to this method of investigation, we start with physical geography and find ourselves drawn into statecraft and political economy.

Other fruitful lines of study are to be found in tracing the evolution of tools, weapons—in fact, of all manufactured objects. As an example of this line of inquiry, or technology, I shall take the common cart, and while tracing its evolution we shall at the same time see that such studies open up wider questions than are at first apparent.

The origin, evolution, and migration of designs and patterns is a fascinating subject, and one replete with human interest, as being associated with some of the deepest and most subtle ideas of mankind.

I have already published a small book* on this subject.

The anthropological study of religion is at the same time fascinating and extremely difficult. It is not my intention to tread far along this slippery path in the present volume. Those who would like to see the trend of recent inquiries should read the masterly works of Professor E. B. Tylor, the late Professor Robertson Smith, Dr. J. G. Frazer, and of E. Sydney Hartland. A good deal of what is included in that complex of beliefs, sayings, and practices, which is known as folk-lore, comes under the designation of religion as that term is understood by anthropologists.

Archæology tries to reconstruct the ancient history of man from the remains of the past which are brought to light in various ways. Just as a historian studies contemporaneous documents in order to revivify obscure historical periods, so the archæologist pores over flint implements, fragments of pottery, and other relics, in order to reconstruct the life of our remote ancestors. Earthen vessels are comparatively easy to make, and though they are brittle,

* A. C. HADDON, *Evolution in Art, as Illustrated by the Life-histories of Designs*. Contemporary Science Series, 1895.

their fragments, when properly baked, are well nigh indestructible. The history of man is unconsciously largely written on shards, and the elucidation of these unwritten records is as interesting and important as the deciphering of the cuneiform inscriptions on the clay tablets of Assyria. The book of pots has yet to be written.

It is interesting to know what our forefathers did, to gauge the rank of their culture, and to trace the improvements which gradually took place; but it would be still more interesting if we could recover what they thought and what they believed. It is well to know their tools and their weapons; it is better to know how they treated one another, and what were their ideas of the non-material aspect of their existence. For these, after all, are the most important departments of human life. Now for this we have two methods of inquiry.

In a general survey of mankind we find that there are peoples in all stages of culture, and we also notice that there is an intense conservatism in all matters of social or religious importance. When a people is isolated, it is believed that changes take place with extreme slowness; indeed, it is probable that a mingling of peoples, whether by commerce,

migration, or war, is almost a necessary condition for change and progress. If, then, we examine a people that has for a long time remained isolated from contact with other peoples, we shall find that in most instances it is a backward people, and often what we call a savage one. Although we cannot range all peoples into a sequence, and assert that one tribe is intermediate in culture between two others, or that a more civilized nation has passed through a rigorously defined order of evolution, yet we may hope to be able in general terms to place most of the peoples about whom we have adequate knowledge in certain stages of culture, and we may in this way attempt to gain some idea as to the phases through which our ancestors have passed. The comparative study of customs, modes of thought, and religion, has yielded results of immense importance and interest. As a method of inquiry it is invaluable; but even it has its dangers, and it must be used with circumspection.

The second psychical probe into the past is folklore. One is too apt to dismiss this study with a smile of derision as being concerned with ghosts, fairy-tales, and old wives' superstitions. What does the name imply? The "lore of the folk." But the

“folk” bear the same relation to educated people that savages do to civilized communities. They are the backward people among ourselves. The same value applies to the study of their actions and modes of thought as to the investigation of savages. But folk-lore is the investigation of psychical survivals within a more or less civilized society, and thus by its means we are largely enabled to study the practices and beliefs of our forefathers, for in an attenuated form many of these actually persist amongst us. By appealing to comparative custom and religion we can often form a pretty good idea as to what those actions really signified, and so we can recover our ancestral religions.

The materials for the study of anthropology are as numerous as the bodily, mental, and moral diversities among mankind. What Man is, what he thinks, what he aspires after, what he does—all this is the field of our inquiry. Our object is to record what occurs, and to discover its significance. These two aims should not be disassociated. A considerable amount of information that has been recorded in the past is comparatively barren because the significance of it was not understood at the time. Many travellers appear to be quite unaware

that customs and beliefs, the form of an object and its decoration, may have a meaning that is by no means obvious. Further, it is only on the spot and from the people themselves that this significance can be discovered; those who read my former book on *Evolution in Art* will clearly see the importance of acquiring local information.

Now is the time to record. An infinitude has been irrevocably lost, a very great deal is now rapidly disappearing; thanks to colonization, trade, and missionary enterprise, the change that has come over the uttermost parts of the world during the last fifty years is almost incredible. The same can also be said of Europe and of our own country. Emigration and migration, the railway, the newspaper, the Board School—all have contributed to destroy the ancient landmarks of backward culture. The most interesting materials for study are becoming lost to us, not only by their disappearance, but by the apathy of those who should delight in recording them before they have become lost to sight and memory.

Fruitful study results only from those facts of observation which have been fertilized by the mind that can see behind them. Nothing is easier than

to burrow among details, to be lost among a multiplicity of facts, and to be overwhelmed by a mass of material.

It is my object in this small book to present certain aspects only of the Science of Anthropology. I do not pretend to give an abstract of Anthropology, nor even a general idea of the subject as a whole. But we will make several excursions, as it were, into the subject, not with the object of attempting to learn something about Anthropology, but in order to see what Anthropology can teach us about ourselves. For, after all, we are of more interest to ourselves than any study can be. We will then use the methods of Anthropology not for the erection of an academic study, but for the simple purpose of explaining ourselves to ourselves.

Our immediate object, then, is to try and discover what the significance is of certain of our bodily peculiarities, and of a few of the innumerable objects and actions that we see around us.

The theory of evolution throws a bright and far-reaching light on the problems of Anthropology, and though we may not be able to explain the processes of, or the reasons for evolution, there can be no doubt as to the fact of its occurrence. There is no need to

explain what is usually understood by evolution, but I would like to hint at some of the aspects of the evolution of man.

Speaking in general terms, the structure of man is essentially similar to that of the higher apes. The differences may be superficially striking, but the resemblances are fundamental. The disparity is patent when we see what man can do with his mechanism as opposed to what an ape does with his, but we must not forget that it is these apparently slight differences of structure which make possible the vast differences of functions; the two are intimately bound up together, and so it is not wise to overlook the differences between man and apes.

The akinship then of man and living apes is not one of direct relationship, but of common descent. It is constantly reiterated in books that the lower races of man are more simian than the higher, and the anatomical differences between an Australian or a Negro and a European are often described as "low" or "high," as the case may be, the "low" character being regarded as arrested or atavistic. This generalization must be accepted with great caution; it is only partially true, and some of the characters on which reliance is placed may prove to have another signification.

The three great groups of mankind—the white, yellow, and black races—are probably all divergencies from the same unknown ancestral stock. They have severally specialized along different lines of evolution, and what is important to note is that different traits of their organization have become arrested, or have specialized in different degrees and in different directions. In some part of their organization each of these groups is less specialized or more specialized than the other two. While the white man may, for example, be nearer the ape in the character of his hair than the Mongol or the Negro, the usual short body and long legs of the latter also remove him farther from the ape, to whom, in this respect, the other groups are more allied. Of course there can be no doubt that on the whole the white race has progressed beyond the black race.

Stress is laid by evolutionists on the resemblances to one another of the young of different divisions of the same group, and this is an argument for the view that these different classes had a common ancestry.

The same holds good for man. The infants of white, yellow, brown, red, and black people wonder-

fully resemble one another—both as to form, feature colour—and not only so, but they very much more resemble the young of the higher apes than do their respective adults.

In fact it could be argued, with some show of plausibility, that the newly-born infant is not purely human, but that it rapidly passes through a pre-human stage.

An English baby is very unlike an English man; apart from evolution there is no reason why their bodily proportions should not be similar, or why their noses should be so dissimilar. It is a very significant fact that among the pigmy peoples, such as the Andamanese and Bushmen, we find many infantile characters persisting in the adults, and among the taller races, the yellow people retain several juvenile characteristics. Thus we find that a people may retain infantile characteristics in some respects and be specialized in others; in employing the term characteristics, I do not limit myself merely to physical features, but include mental and moral traits.

Anthropology also recognizes the vast importance of the study of children. Following the strictly scientific method we thus enter the sacred precincts of

the nursery, and inquire of the suckling the answer to one of the most momentous questions man can ask, "Whence are we?" We seek in the youngest man the story of the oldest man, and endeavour to trace in the evanescent characteristics of earliest infancy some of the steps through which man had climbed above the brute.

From the nursery we pass to the school and the playground, endeavouring to discover in the child some evidence as to the direction of man's upward progress. As the newly-born babe reveals to us the last traces of an arboreal ancestor and then speedily passes into human-kind, so the child repeats in its growth the savage stage from which civilized man has so recently emerged.

In subsequent chapters I shall refer to primitive survivals in child-life. There is not only a parallelism to some extent in physical features between children and certain savages, but there is in children a persistence of savage psychological habit, and in the singing games of children a persistence of savage and barbaric practice. The courting, marriage, and funeral ceremonies of our savage forefathers are repeated like a faint and degraded echo in village green or school playground.

We leave the child and return to the folk whom I have already defined as the backward people among ourselves, and from their unwritten sagas and stories, their customs and beliefs, we can pick up the threads that have been dropped by the child. In certain of their oral traditions, especially in those which are told to the children, we find an unmistakable record of the clash of opposing races, but of a time long antecedent to history. In some of our fairy-tales we can recall the momentous struggle of the men of the stone age with those of the age of metals, and in addition we can catch glimpses of the culture, habits and religion of neolithic man.

In the customs and beliefs of the folk may still be traced many survivals of the pagan observances and religion of our ancestors.

In the life of the cultured European from his earliest infancy do we find milestones that mark the rate and extent of his progress, and all along this weary road, which it has taken mankind tens of thousands of years to traverse, do we find the tired ones—the laggards in the race of life—who mutely indicate, if we have but discrimination enough to read it, a record of the painful but glorious ascent from the brute to the human.

Wherever man is, there can anthropology be studied. There is no need to travel to the uttermost parts of the earth; we can prosecute researches or find food for reflection in our own nurseries, in the playground, on the village green, even in our cities.

As Alphonse Karr said to his friend:—"Make you the tour of the world, I will make the tour of my garden.

"What are you going to see abroad? How proud you will be in your first letter to tell me you have seen women tattooed and painted in diverse colours, with rings in their noses.

"And I will answer you: 'Well, my good friend, what occasion was there for going so far? Why did you go further than two streets from your own house? There was nothing to prevent your looking at your sister-in-law, who, after the example of a hundred other women you are acquainted with, puts pearl white and rouge upon her brow and cheeks, black upon her eyelids, blue to increase the apparent fulness of her veins, and passes rings through her ears in the same manner that savage women pass them through their noses. Pray, why is it more strange to pierce one cartilage than another? Can

the difference be worth going so far to see?'” So writes Alphonse Karr, and this is the true spirit of the philosopher.*

* ALPHONSE KARR, *A Tour round my Garden*, Edited by Rev. J. G. Wood (1865), p. 9.

THE STUDY OF MAN

CHAPTER I.

MEASUREMENTS AND THEIR IMPORTANCE IN ANTHROPOLOGY.

NO science can progress or be definite without measurements of one sort or another. What, then, are those made in anthropological inquiries, and for what purposes are they made?

Speaking generally we may roughly class anthropological measuring into three groups :—

1. As a means of analysis and classification.
2. As a test of efficiency.
3. For identification of individuals.

(1) *The Identification of Criminals.*—Let us commence with the least important from a scientific point of view—that for the recognition of individuals. People whom it is necessary to recognize with such precision, are generally those who are wanted by the police.

Few of us, probably, have ever so much as given a thought to the subject of the identification of criminals, but a little reflection will lead to the conclusion that this is really an important problem. In this, as in so many other matters relating to criminology, the British are far behind some foreign nations.

The methods hitherto adopted by our Government have been inadequate, and, consequently, largely ineffectual, although a very successful system of criminal identification has been in operation in France for a dozen years. In 1895, however, a fresh departure was made, and Dr. Garson, the well-known anthropologist, was appointed by the Government to take charge of a new department in England for the identification of criminals.

It will be obvious that a precise method of identification not only expedites justice and saves expense, but at the same time it is a safeguard to the prisoner, preventing him from being punished for the crimes of others.

The identification by means of measurements was inaugurated in Paris towards the close of 1882, according to the methods advocated by M. Alphonse Bertillon in 1879. This system has been extended to the whole of France by M. Herbette, Director of the Penitentiary Department.*

* *Cf.* English translation of an address given by M. Louis Herbette at the International Penitentiary Congress at Rome, November, 1885,

The subject we are about to consider is a method by which habitual criminals may be recognized who give a false name, or who refuse to give one at all.

An old offender, once more in the hands of the law for some fresh offence that he has committed, has every reason for wishing to conceal his real name or the name under which he has been previously convicted. He sometimes takes the name of a person who has never been accused of any offence. He thus escapes the heavier punishment which usually follows a second conviction. A large number of these professional criminals are wanted for other offences than those for which they are actually in custody, or they have very sufficient reasons for thinking that they are wanted by the police for some previous offence of which they have been guilty. Criminals do not scruple to interchange names amongst themselves, though by preference they assume those of honest men; some even assume the names of those whom they have at a some previous time robbed. It so happens that in France criminals, as a rule, no longer give aliases, but are eager to give their own

Melun, Administrative Printing, 1887; also A. Bertillon, "Notice sur le Fonctionnement du Service d'Identification de la Préfecture de Police," *Ann. Stat. de la Ville de Paris*, 1887 (1889); and F. J. Mouat, "Notes on M. Bertillon's Discourse on the Anthropometric Measurement of Criminals," *Journ. Anth. Inst.*, xx., 1890, p. 182.

names, as they do not wish to appear to have anything to hide. Further, owing to the certainty of this method of identification, English pickpockets left Paris in large numbers, so that in about three years the convictions were reduced from sixty-five to nineteen. Criminals arrested in foreign countries have still greater facilities for deceiving.

The usual descriptions which generally accompany the international exchange of judicial records—"chin round, face oval, eyes grey, &c."—have never led to the recognition of criminals, save in the realms of romance.

Photographs are certainly preferable to descriptions of any kind, but photography solves only a part of our problem. The experiment tried in Paris has clearly demonstrated this. In the course of ten years the police made a collection of the photographs of 100,000 persons. Is it possible to search through these 100,000 photographs whenever an arrest is made? Clearly not. But, after all, the assistance rendered by photography is very small. A vast experience in human physiognomy is required to recognize in many of these photographs that they are the portrait of the same person taken at different times and under different conditions. As a matter of fact, photography is hardly of any use, and is now employed in Paris only as a subsidiary means of checking other methods of identification. The photo-

graphs, which are taken full face and profile, are the last methods employed.

The Bertillon method consists in measuring the length of various parts, always at the same spot, and taken in a regular order. These are in the order of their importance: (1) The length of the head; (2) the breadth of the head; (3) the length of the middle finger of the left hand; (4) the length of the left foot; (5) the left cubit, *i.e.*, the forearm and extended hand; (6) the length of the little finger of the left hand; (7) the length of the right ear; (8) the stature. It will be seen that most of the above are practically measurements of parts of the skeleton, and these remain constant when full growth has once been attained. The stature is the least reliable of these measurements. Lastly, the colour of the eyes is noted, and any individual peculiarities, such as moles, scars, tattoo marks, and the like. In England it has been decided upon to utilize finger-prints according to methods introduced by Francis Galton.

All the measurements are divided into three grades—long, medium, and short. The limits of these grades have been arbitrarily chosen, so that an approximately equal number of persons will be distributed among the three classes. For example, the length of the head is divided into those that measure less than 183 mm. (millimetres), those between 184 and 189 mm., and those over 193 mm.

A few years ago, when in Paris, I was introduced to M. Bertillon, who explained his system to me. Although the office was officially closed, he very kindly ordered up a thief who had just been captured, and this unfortunate was made the subject of a demonstration.

First of all the measurements were taken according to the prescribed method, the man submitting with a half smile of amusement. The length of his head was 189 mm., and, therefore, just within the middle grade, but being 148 mm. broad it belonged to the lowest breadth grade; his left middle finger measured 92 mm.; the left foot 259 mm.; the left cubit 452 mm.; and so on.

The cards of the particulars of the men, women, and children are kept in separate presses. The attendant then went to the press for the male criminals, to see if this was an old offender. The press is divided horizontally into three sections for head-lengths, the uppermost being for the small grades and the lowest for the longest heads. Each of these is similarly divided vertically, according to the breadths of the head. Thus the man was to be found in the middle compartment of the left hand series. This, like the other compartments, is divided horizontally into three series for the length of the left middle finger, and each of these again for that of the foot. Lastly, these last are divided vertically,

for the three grades of the left cubit. By this simple system the first five measurements can be rapidly classified into 243 divisions, each of which is a drawer. When the drawer corresponding to the thief's measurements was opened, I saw that it was further subdivided according to other measurements, and in less time than it takes to describe it two or three cards were taken from one division. The actual figures of the thief's measurements were compared with those on these cards, and one was picked out on which they exactly corresponded. There was in no case a difference of more than a millimetre. The old card stated that there were certain scars and marks, the positions of each being fixed by measurement from named parts of the body. On examining the man these were found to correspond accurately. The photographs which were appended to the old card were kept carefully covered up. On looking at them the likeness was recognizable, and the man was told the name he had formerly given as his own, and the details of his previous convictions. The demonstration was perfect, and to do our criminal friend justice, he could not forbear from smiling at the celerity and neatness of the identification. The only source of uncertainty is when the figures lie just on a borderline, in which case the two series have to be examined.

It takes two minutes to completely measure one

individual; the record of the scars, particular marks, tattooing, &c., three minutes; the writing of the name, age, &c., according to the statement of the subject, two minutes—or a total of seven minutes for the whole operation. A minute or two suffices for actual identification of the criminal supposing he has been measured before.

The beauty of this system is its absolute certainty, for everybody has some particular marks, such as moles, scars, &c. Three or four of these, if actually recorded, would be quite enough to enable a man to be identified out of a million. The photograph is superfluous, and it is immaterial what name the man gives.

This system of identification is one of the practical applications of Anthropology and its methods to ordinary life, and its utility is beyond question.

2. *Anthropological Measurements as a test of Efficiency.*—It is often important that the physical fitness of people should be tested in order to see how they stand in relation to other people, and to discover certain physical imperfections. Apart from this occasional examination, it is most desirable to periodically “take stock” of our bodily efficiency, in order to see whether our powers are becoming impaired in any way, and, if so, to take precautions; especially important is this in the case of children and young people generally. This is one of the

reasons which induced Dr. Francis Galton to establish his well-known anthropometric laboratories.

"As an example of what can easily be done let us consider the measurement of eyesight. Measurement would give an indication of the eyesight becoming less good, long before the child would find it out for himself, or before its impairment could attract the observation of others. It is frightful," writes Dr. Francis Galton,* "to think of the frequent mischief to eyesight that has been caused by the neglect at schools of the most elementary requisites to protect it from unnecessary strain, such as an abundance of light coming from the proper direction, and desks and chairs so shaped as to discourage a lolling or sidelong attitude, by supporting the book and paper squarely before the reader. The stupid want of care in providing these essentials to eye-comfort has gone far towards converting the educated classes of Germany and the cultured girls of England into short-sighted sections of society. When measurement shows that the sight is beginning to be slightly impaired, there is probably time to hunt out and abolish the cause of the mischief before serious harm is done, and an occasional small fee would be little grudged by most persons to insure so timely a warning of danger."

* F. GALTON, "Why do we measure Mankind," *Lippincott's Magazine*, February, 1890.

The existence of colour-blindness is another possibility well worth being inquired into at an early age, as it materially limits the choice of occupation. "It is curious," writes Dr. Galton, "how late it may be in life before this remarkable defect is found out either by the person or his friends; and, as it affects about one male in twenty-five, the risk of being subject to it is considerable."

For the last ten years there has been an anthropometrical laboratory in Cambridge, during which time a very large number of students have been physically tested, and as the great bulk of the men belong to the same social grade we have a very valuable series of statistics concerning what may be called the professional and gentle classes, and who represent as good a type physically as any class of Englishmen, under existing social circumstances, can be expected to show. Some years ago Dr. Venn worked up the then available statistics on over 1000 men in an interesting paper on "Cambridge Anthropometry,"* in which he grouped the students into three classes:—

- (A) A first-class man in any tripos examination, or one who is a scholar of his college.

- (B) All the remaining "honour men."

- (C) Candidates for the ordinary degree, or "poll-men."

Owing to the system of examinations in Cambridge and the knowledge of the men by their tutors, these

* *Journ. Anth. Inst.*, xviii., 1889, p. 140.

three classes can be determined with great accuracy, even in the case of undergraduates.

What is the difference in the physical characteristics of our A, B and C classes? We need not trouble ourselves with the statistics themselves, but merely note the main results.

In respect of height, weight, breathing, and squeezing power, there is little or no difference between any of the classes.

In respect of eyesight there is a decided inferiority in the A's, as compared with the B's and C's taken together.

In respect of the "pull" a similar inferiority of A to B and B to C is manifest.

In respect of head measurement there is a decided superiority of A's over B's and B's over C's.

Dr. Galton,* who has gone with more detail into the head growth of these students, says:—

"We find that a 'high honour' man possesses at the age of nineteen a distinctly larger brain than a 'poll' man (that is, a student who takes an 'ordinary' degree) in the proportion of 241 to 230·5,[†] or one that is almost 5 per cent. larger. By the end of his

* F. GALTON, "On Head Growth in Students at the University of Cambridge," *Nature*, May 3rd, 1888; *Journ. Anth. Inst.*, xviii., 1889, p. 155.

[†] These figures are arrived at by multiplying together the maximum length and breadth of the head and its height, the latter being taken from the vertex to a plane at the level of the ear-holes.

college career the brain of the 'high honour' man has increased from 241 to 249, that is, by 3 per cent. of its size; while the brain of the 'poll' man has increased from 230'5 to 244'5, or 6 per cent.

"Four conclusions follow from all this:—

"(1) Although it is pretty well ascertained that in the masses of the population the brain ceases to

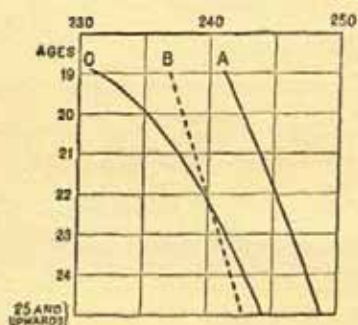


FIG. 1.

Curves of relative brain capacity of Cambridge University Men; after Galton.

A, High Honour Men; B, Remaining Honour Men; C, Poll Men. The numerals along the top of the diagram signify the product of the three head measures—length, breadth, and height—in inches.

grow after the age of nineteen, or even earlier, it is by no means so with University students.

"(2) That men who obtain high honours have had considerably larger brains than others at the age of nineteen.

"(3) That they have larger brains than others, but not to the same extent, at the age of twenty-five; in

fact their predominance is by that time diminished to the half of what it was.

"(4) Consequently 'high honour' men are presumably, as a class, both more precocious and more gifted throughout than any others. We must, therefore, look upon eminent University success as a fortunate combination of these two helpful conditions."

3. *Anthropological Measurements as a Means of Analysis and Classification.*—It is this last aspect of anthropological measurements that will now claim our attention. These, combined with observations on the colour of the skin, hair and eyes, the form of various organs, such as the nose and ears, and other comparisons of a similar nature, are invaluable in the study of the races of mankind. In this way we analyze the components of a mixed people, and endeavour, as it were, to dissect out its racial elements. At the same time it is always desirable to seek for peoples that have remained approximately pure, so as to fix their ethnic type which will serve as a standard when gauging mixtures. For example, in a certain area one may find a very uniform people, whom we know by history, or infer by other means, to have long remained isolated; an ethnographical study of this group reveals a certain combination of characters, which we will call A. Close by is another group which by analysis resolves itself into two components, and contiguous are others somewhat more

complex. We will assume that the double community is composed of B and C. Whether the more complex groups are composed of A B D, A C D, or any other combination of four types, it should be possible to determine their composition from the experience gained from the first two cases. The problem is naturally greatly complicated by the occurrence of all intermediate grades and intermixtures, for it is only exceptionally that individuals in a mixed community exhibit even approximately pure characters.

In the following three chapters I take respectively the colour of the hair and eyes, the form of the head, and the character of the nose, as examples of the methods employed; and lastly I present an abstract of the brilliant work done by Dr. Collignon in his studies of the Anthropology of France, whose researches constitute a highly instructive example of the modern methods of Anthropological investigation.

CHAPTER II.

HAIR AND EYE COLOUR

WHEN one looks at a crowd of Englishmen one is at once struck with the diversity that is apparent in their general appearance ; especially noticeable are the differences in the colour of their eyes and hair. To a less degree the same holds good for an assembly of Scotsmen or Irishmen. In some parts of the continent of Europe there is a similar variety of colour, but usually a more uniform colouration prevails.

Outside of Europe, and apart from European influence, there is a remarkable uniformity in the colour of eyes and hair ; and whether they be yellow, red, brown, or black men, the eyes are dark and the hair is almost invariably black.

Our venerable and venerated English anthropologist, Dr. John Beddoe, long ago appreciated the fact that by noting the colour of the eyes and hair of large numbers of people it might be possible to learn something about the origins of a people so mixed as the English, and even to trace the streams of

migration to their sources, assuming, of course, that originally the main peoples of Europe were characterized by a predominance of hair and eyes of a particular colour.

It is a vital question in Anthropology whether races or considerable groups of men, who may be regarded as being related to one another, do possess physical characters in common, and whether these characters are constant.

Apart from the monuments of Egypt and Assyria there are few pictorial representations of ancient peoples which are of sufficient exactitude to serve as conclusive evidence on these points.

In Egypt there is an immense mass of pictorial and sculptured material for ethnographical study covering a range of many centuries. Over three thousand years ago the artists who decorated the royal tombs distinguished between four races:— (1) the Egyptians, whom they painted red; (2) the Asiatics or Semites were coloured yellow; (3) the Southernns or Negroes were naturally painted black; and (4) the Westerns or Northerners white.

1. Like every other people under the sun the Egyptians regarded themselves as *the* race of men. They are distinguishable by their warm complexion, their small beard and moustache, and their abundant crisp black hair. All Egyptologists agree that this ancient type is still represented by the modern

Fellahin, sometimes with remarkable fidelity. Maspero* writes, "The profile copied from a Theban mummy taken at hazard from a necropolis of the XVIIIth Dynasty, and compared with the likeness of a modern Luxor peasant, would almost pass for a family portrait. Wandering Bisharis have inherited the type of face of a great noble, the contemporary of Kheops; and any peasant woman of the Delta may bear upon her shoulders the head of a XIIth Dynasty king. A citizen of Cairo, gazing with wonder at the statues of Khafra or of Seti I. in the Ghizeh Museum, is himself, at a distance of fifty centuries, the reproduction, feature for feature, of those ancient Pharaohs."

Dr. R. Stuart Poole† points out that two other nations come under the Egyptian type.

(A) The old Kushite (that is the East African Hamitic) inhabitants of South Arabia and of the opposite coast of Africa, who traded with the Egyptians, and whose features were less refined than those of the Egyptians. Representations of these people are shown in the reliefs which commemorate the expedition of Queen Hatshepu, about 1600 B.C. The voyagers travelled beyond the Red Sea as far as the Somali coast.

* G. MASPERO, *The Dawn of Civilization: Egypt and Chaldea*. Eng. Trans. (1894), p. 48.

† REGINALD STUART POOLE, "The Egyptian Classification of the Races of Man," *Journ. Anth. Inst.*, xvi., 1887, pp. 152, 370.

(B) The Phœnicians can only be distinguished from the Egyptians by details of costume.

2. Some of the Eastern types, which may generally be classed as Semitic, on the Egyptian monuments show a strong likeness to the Assyrians as sculptured by themselves. Jews, Amorites, Arabs, and other tribes, with characteristic features and costume, are also unmistakably portrayed.

3. The peoples of Africa to the west of Egypt were grouped by the Egyptians with those of the islands and maritime countries. These include, amongst others, the Tahennu, Hâ-neb-u, Lebu, Mashuash, Tsekuri, Shardana, Shakalsha, Tuirsha of the sea Dardani and Pulista.

A very characteristic representation of one of these groups is that of a Tahennu, or Tamehu, a Lybian people. This man has two ostrich feathers as a head-dress; he wears a short beard and moustache, and a curious curled lock of hair which depends in front of each ear. These fair-haired, blue-eyed strangers, with a light complexion, frequently came into contact with the Egyptians. Sometimes they were enslaved, as shown in the tomb of Rekhmara, in the time of Thothmes III.; or others of the same race actually conquered and temporarily occupied part of Egypt, as evidenced by Flinders Petrie's "New Race."

The Shardana or Shardina were the Sardinians;

the Shakalsha were the Sikeli or Sicilians; the Tuirsha have been identified as the Tyrsenoi or Etruscans; and the Pulista are generally regarded as the Philistines, though some regard them as Pelasgians of Crete, both of which belonged to the same race.

This northern group of white men coincides to a remarkable degree of accuracy with the latest anthropological investigations of Professor Sergi,* who recognizes a distinct group of the white race, which he appropriately terms the Mediterranean stock. Almost the only point of difference between the ethnological artists of ancient Egypt and the enthusiastic Italian anthropologist, is that the latter includes the ancient Egyptians themselves in that important group of mankind.

4. The Egyptians also depicted Negroes of various degrees of purity, and which evidently belonged to recognized nationalities.

Other races and peoples were noted by the Egyptians. Of these mention need only be made of the Hyksos or so-called Shepherd Kings.† The best representation of this type is in one of the sphinxes, discovered at Zoan or Tanis. They had strongly-marked features, with large brow-ridges, very high

* G. SERGI, *Origine e Diffusione della Stirpe Mediterranea*, 1895.

† It would be preferable to adopt Dr. F. Galton's suggestion, and use the word "herdsmen" instead of "shepherds" in connection with the Hyksos.—*Journ. Anth. Inst.*, xix. p. 194.

and broad cheek bones, and a flat mouth. Their face, so full of energy, firmness, and resolution, forms, as Poole remarks, the greatest contrast with the air of calm repose and placid dignity peculiar to the old Egyptian kings. These foreign over-lords conquered Egypt before 2000 B.C., and were expelled 400 years later. Sir William Flower* has noted Mongolian characters in their features, and suggests that the invasion and occupation of Egypt by the so-called "Shepherds" was one of the numerous instances in which some of the nomadic Tatar hordes of Central and Northern Asia have poured forth from their native lands, and overrun and occupied for a longer or shorter period the countries lying to the west and south of them. If this view can be maintained, the Hyksos invasion and occupation of Egypt would have been only one of the series, of which the conquests of Attila, Tchinghis Khan, Timur, and the more permanent settlements of the Finns, the Magyar, and the Turks in Europe are well-known examples.

As Dr. Poole points out in considering the representations from the monuments, we must remember three leading characteristics of Egyptian art:—

1. That in reliefs and frescoes the eye was represented full face, and therefore we have to make allowance for this peculiarity in our attempt to define

* *Journ. Anth. Inst.*, xvi. p. 377.

types. This done, and the comparison made with sculptures in the round, of which we had examples of some leading types, we found—

2. Remarkable naturalness and force of character, reminding us of early Italian sculpture, leading to—

3. Love of caricature in its portrayal of hostile nations, for which again allowance must be made.

But even making full allowance for all these, we need not be afraid of trusting the Egyptian artist.

The sculptures from Assyria and Babylon can also be brought into evidence to support the general conclusions drawn from those of Egypt. According to Bertin,* they are more realistic in many ways than the Egyptian pictures, though they are also more conventional in some points. As in Egypt, so here, the faces are represented in profile with eyes in full face. This has given the false notion of oblique eyes in the Babylonian race, but the error of this notion is easily shown by the faces of the man-headed bulls and the few Assyrian statues. The artists appear to have given great care to the representations of the facial types.

In Assyria, Bertin finds two types: (1) The aristocratic and military caste, with a long head, straight forehead, slightly curved nose hanging a little over the upper lip, and often thin lips; the hair was wavy.

* G. BERTIN, "The Races of the Babylonian Empire," *Journ. Anth. Inst.*, xviii., 1888, p. 104.

(2) The lower classes, with a small round head, low retreating forehead, high cheek bones, projecting jaws, but with a receding chin; the nose is often very large and prominent, generally frizzly hair and beard, and of short stature.

The higher Babylonian class was not very dissimilar from the Assyrian, but the nose was straight, never aquiline, and the general expression of the face was quiet and smiling, well in agreement with the general moral character of the Babylonians; it has nothing of the stern expression of the Ninevites.

The Assyrians correctly represented the Arabs with a long oval head, high forehead, and a straight nose of moderate size.

The reliefs of the two ambassadors who visited Assurbanipal, in Elam, offer all the characteristics noticed in the modern Armenians—long curved nose, fleshy lips, short stature. The general appearance is decidedly Jewish, as in the modern Armenians. This fixity of the pre-Aryan Armenian type is fully acknowledged by anthropologists.

Two types of Jews have been distinguished: (1) the high type—with the characteristic "Jewish" nose, which is sometimes called the Semitic type, but erroneously, as the purest Semites, the Arabians of the desert, do not exhibit it. The face of this type has an intelligent and dignified appearance; (2) the low type, as illustrated, according to Bertin,

by the Jews captured at Lachish by Sennacherib, 701 B.C., and by the Phœnician sailors on a bas-relief in the British Museum. The head is round, the forehead low and retreating, but the nose is rarely much developed; in many cases the lips are thick, the hair frizzly, and the stature of the medium. This type, which may be due to a mixture with the same race as that which formed the low type of Mesopotamia, still sometimes recurs among the Ashkenazim (German-Polish) division of the Jewish race.

The persistency of the Jewish type is admitted on all hands, as Goethe stated this well-recognized fact in the following words: "Es ist das beharrlichste Volk der Erde. Es ist, es war, es wird sein." Joseph Jacobs, who has made an elaborate study of Jewish anthropology, states* that the persistency of the Jewish type for the last 2600 years is conclusively proved by the Assyrian bas-relief of the captive Jews of Lachish.

Without going into further detail or multiplying references, it may be accepted that where a people, like the Jews, has kept itself fairly pure, and not intermarried to any considerable extent with peoples of alien blood, the ethnical characters may persist for some 3000 years. It is true that Renan,

* JOSEPH JACOBS, "On the Racial Characteristics of Modern Jews," *Journ. Anth. Inst.*, xv., 1885, p. 39.

Neubauer,* and others have argued against the purity of the present-day Jews, but Jacobs traverses their arguments and arrives at opposite conclusions. He draws attention to the comparative infertility of mixed marriages, that is, between Jews and Gentiles, and to the superior potency of Jewish blood. Taking these facts into consideration along with the very small number of mixed marriages in the past, especially with non-Semitic peoples, Jacobs sees "no reason from history for denying that the Jews of the present day were the direct descendants of the Jews of the Bible."[†]

There are undoubted wide divergencies from the Jewish type of skull, nose, eyes, hair, &c.; but the Rev. Dr. Hermann Adler, the Chief Rabbi, believes[‡] that the dark and blond type are original, dating from Bible times, and described respectively: "His locks are curling, and black as a raven" (Canticles v. 11), and "He was ruddy, and withal fair of eyes and goodly to look upon" (1 Samuel xvi. 12). That the existence of the blond type was not due to intermarriage since Biblical times, might be proved by the fact that it was to be found among the Jews of North Africa, Syria, Arabia, and Persia, where, owing to the prevalence of fanaticism, mixed marriages had rarely, if ever, taken place.

* A. NEUBAUER, "Notes on the Race-Types of the Jews," *Journ. Anth. Inst.*, xv., 1885, p. 17

† *Loc. cit.*, p. 62.

‡ *Journ. Anth. Inst.*, xv. p. 56.

Dr. Felix von Luschan,* who has paid considerable attention to the problem of the origin of the Jews, states that the modern Bedouins must be considered as pure descendants of the old Semitic race. They have long, narrow heads, dark complexion, and a short, narrow and straight nose, which is in every respect the direct opposite of what we are accustomed to call a "typical Jewish nose." The earliest Phœnician skulls seem identical with old and modern Bedouin skulls. Of our modern Jews nearly 50 per cent. are broad-headed (brachycephalic), 11 per cent. have fair complexion, and not more than 5 per cent. correspond to what we now learn to be the real old Semitic type. In northern Syria, the land of the old Aramæans, nearly all the heads are brachycephalic, with indices near to 90, and these same brachycephalic elements we find everywhere in western Asia. The Armenians are most remarkable for the nearly complete uniformity of their types, for their dark complexion, their extreme brachycephalism, and for their large and hooked "Jewish" nose.

These and other investigations lead us to the conviction that Syria and Asia Minor were in early times inhabited by a homogeneous and extremely brachycephalic race, of which the modern Armenians are the nearly pure descendants, and which we find

* FELIX VON LUSCHAN, "Jews and Hittites," *Science*, xxiii., 1894, p. 21.

more or less mixed with strange elements in many of the other races that now inhabit western Asia. This old brachycephalic race, which from its beginning was utterly distinct from any Semitic tribe, and was in its physical aspect the very opposite of the Semites, can be identified, according to von Luschan, only with the Hittites (the same Hittites mentioned as a Syrian tribe in the Bible), which had been a strong and formidable enemy to Ramses II., and were finally conquered by Assyrian kings in long wars and fights, beginning earlier than the times of Assurnassirpal and ending probably only in those of Esarhaddon, as we read in the Assyrian annals from the ninth century to the seventh century B.C. Excavations made a few years ago in Sendjirli, the old Sammâl, known in Assyrian texts as a Hittite residence in northern Syria, have brought to light a large series of old Hittite sculptures; the Armenian character of the men represented on the walls and in the royal palaces of this old town is most striking, and we cannot err if we regard the inhabitants of Sammâl as the direct ancestors of the modern Armenians, who still inhabit the neighbourhood of the place, ill-treated in our times by Turks and Kurds, and without any knowledge of their glorious history in ancient and mediæval times.

The old Hittite inscriptions were in very curious, heavy, and bulky-looking kind of hieroglyphics, but

about 1000 B.C. the Semitic writing and language was introduced, which soon replaced the Hittite language and writing. For example, two inscriptions have been found, written by native kings, the one in the ninth, the other in the eighth century B.C., both in good old Semitic alphabetical characters. Thus in the ninth century B.C. Semitic influence was great in northern Syria, and we can easily understand how Semitic writing and language soon became dominant among people of western Asia that were originally without a drop of Semitic blood ; and then we understand also why most of our modern Jews have the Armenian type and not the Semitic.

The fair element among the modern Jews is best explained by an old, as opposed to a post-biblical racial mixture. This we may find in the intercourse of the old native Syrians with the Amorites and other Canaanites (Deut. ix. 2), "a people great and tall," who were fair and had blue eyes, as the old Egyptian painted monuments show us. These are the eastern representatives of the great Mediterranean race.

Von Luschan thus sums up his conclusions :—"So we see in our modern Jews the descendants of three different races, the Hittites, the Amorites, and the Semitic nomads, who immigrated into Syria only about in the times of Abraham."

Much has been written upon the prevalence of

red hair among the Jews. Jacobs* finds that it occurs among Sephardim (Spanish Jews) to a greater extent than among Ashkenazim (German-Polish Jews), and it has never been contended that the Sephardim have mixed much with any race markedly rufous, though a certain amount of erythrism (or red-hairiness) was introduced into Spain by the Goths. Where it does occur among Ashkenazim of north Europe it is found more among Jews than in the indigenous population. Jacobs points out that red hair seems to be only a natural complement to black, and its presence among Jews is not due to intermixture, but probably to defective nutrition.

The existence of blue eyes among Jews in relatively large proportions need not be regarded as overwhelming proofs of intermixture. As is well known, all eyes are blue at birth, and if no brown pigment is deposited in the front of the iris the eyes remain bluish to the end of life.

Thus blue eyes, as well as red hair, are a kind of minor albinism, and may result from defective nutrition, or other physiological causes. Jacobs finds† confirmation in the view that this is the real cause of its occurrence among Jews from the fact that we find blue eyes among Asiatic as well as European Jews. On the other hand, this would be equally well accounted for by an infusion of Amoritic blood.

* *Loc. cit.*, p. 46.

† *Loc. cit.*, p. 47.

We may then accept the conclusion that the Jews have remained a persistent type for thousands of years, and that though they do now present variations in their features, these are due not so much to subsequent miscegenation as to a primitive complexity of origin, as is partly evidenced by the Assyrian reliefs.

As the result of long experience Beddoe* has come to estimate very highly the permanence of the colours of hair and eyes. "It is," as he justly states, "of course impossible for an evolutionist to regard them as *absolutely* permanent. But one may readily conceive, as I do, that whenever a distinct and tolerably homogeneous breed has been established, its colour may remain very much the same so long as the conditions of natural selection remain nearly identical." The material to be worked upon, as he points out, lies ready to hand in our streets and market places, not hidden in museums and charnel houses.

An obvious objection to such observations is the different way in which people see colours or are impressed by them. To take an example adduced by Beddoe; almost all French anthropologists say that the majority of persons in the north of France are blond, whereas almost all Englishmen would say they were dark; each group of observers setting up as a standard what they are accustomed to see

* JOHN BEDDOE, *The Races of Britain*, 1885, p. 2.

around them when at home. What is darkish brown to most Englishmen would be chestnut in the nomenclature of most Parisians, and perhaps even blond in that of Auvergne or Provence. Then, again, most people exaggerate the relative prevalence of some striking feature such as red hair.

It has been attempted to obviate the discrepancies due to national idiosyncrasy or to personal equation as to the discrimination of colours by printing tints for comparison. These colour-scales are very useful for determining the hues of the skin, and also, though to a less extent, for the colours of the iris; but they are of comparatively little use for recording the tints of the hair, as the scales are printed in flat tints, so different from the gloss and translucency of hair.

French anthropologists have, however, worked very largely with such colour-scales, and a limited number are printed in that valuable little book, *Notes and Queries on Anthropology*, published by the Anthropological Institute (3, Hanover Square, London, W.).

With that practicality which characterizes his methods Dr. Beddoe has devised a very simple method of recording the colours of the hair and eyes of people. The advantages of his system are that it is as accurate as need be, easy and rapid to operate, and it can be employed without attracting any attention.

Dr. Beddoe* acknowledges three classes of eyes, distinguished as much by shade as by colour—light, intermediate, and dark.

1. To the first class are assigned all blue, bluish-grey, and light grey eyes.

2. To the second or medium class belong dark grey, brownish grey, very light hazel or yellow, hazel-grey, formed by streaks of orange radiating into a bluish-grey field, and most shades of green, together with all the eyes whose colour is uncertain after an ordinarily close inspection.

3. To the third class are allocated the so-called black eyes, and those usually called brown and dark hazel.

The hair colours are classed according to the same observer into groups, which he distinguishes by the following initials, R. F. B. D. N.

Class R. (red) includes all shades which approach more nearly to red than to brown, yellow, or flaxen.

Class F. (fair) includes flaxen, yellow, golden, some of the lightest shades of our brown and some pale auburns, in which the red hue is not very conspicuous.

Class B. (brown) includes numerous shades of brown.

Class D. (dark) includes the deeper shades of brown up to black.

Class N. (niger) includes not only the jet black,

* *Ibid.*, p. 3.

which has retained the same colour from childhood, and is generally very coarse and hard, but also that very intense brown which occurs to people who in childhood have had dark brown (or in some cases deep red) hair, but which in the adult cannot be distinguished from coal black, except in a good light.

The card adopted by Beddow will be found to be very practical. It may be made of any size, but it is convenient to have it about $3\frac{1}{2}$ inches long by $1\frac{1}{2}$ inches broad, so that it may be held in the palm of the hand and carried in the waistcoat pocket.

R	F	B	D	N	R	F	B	D	N	R	F	B	D	N	

The card is ruled into three main divisions corresponding to the groups of eye-colours, light, medium, dark. Each of these is again subdivided into columns for the five classes of hair: red, fair, brown, dark, and black. Lastly, the card is divided horizontally into two equal halves, the upper being reserved for statistics of men, and the lower for those of women.

A second card should be similarly used for children. Those about the age of eighteen and over may be classed as adults.

The locality, date, name of observer, and other details such as the particular occasion, may be written on the back, but it is convenient to leave a blank space on the face for the insertion of the name of the locality. Further suggestions for the employment of these cards will be found at the end of the book in the chapter devoted to practical observations in the field.

A ready means for comparing the colours of different peoples is obtained by the Index of Nigrescence,* which Beddoe has introduced. "The gross index is gotten by subtracting the number of red- and fair-haired persons from that of the dark-haired, together with twice the black-haired. The black is doubled, in order to give its proper value to the greater tendency to melanosity shown thereby; while brown (chestnut) hair is regarded as neutral, though in truth most of the persons placed in B are fair-skinned, and approach more nearly in aspect to the xanthous [light] than to the melanous [dark] variety." The formula is:—

$$D + 2N - R - F = \text{Index.}$$

From the gross index the net, or percentage index, is of course readily obtained.

* *Races of Britain*, p. 5.

It is evident that the light colours range below and the dark above zero, and that the fairer the population the greater will be the minus quantity.

The index for the eyes is obtained by subtracting the light from the dark and neglecting the neutral shades, thus :—

$$\text{Dark} - \text{Light} = \text{Index.}$$

Dr. Collignon adopts another plan, he reduces all his figures to percentages ; then for any given district he adds the light hair and the light eyes together, and does the same with the dark hair and eyes, dividing each total by two. Lastly, he constructs maps to show the relative excess of one total over the other.

In that mine of information *The Races of Britain*,* Beddoe has published a series of maps, which he has constructed from statistics based upon about 13,800 entries in the *Hue and Cry*, relating to deserters from the army, and to a much smaller extent, deserters from the navy and absentees from militia drill. Through the kindness of my friend I am able to reproduce three of these maps, which set forth the broad features of the distribution of the hair and eye-colours of the male population of England. Dr. Beddoe has made, in addition, a vast number of observations of this class, and he finds that his data coincide very fairly well with the

* p. 143 et seq.

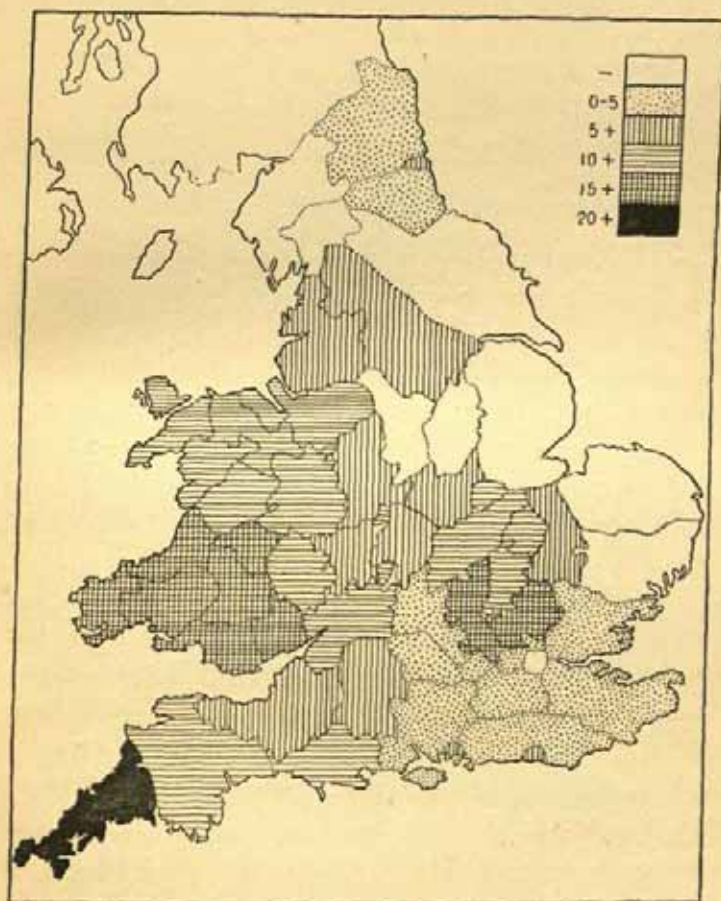


FIG. 2.

Map showing the distribution of the Index of Nigrescence in England, based upon Military Schedules; after Beddoe.

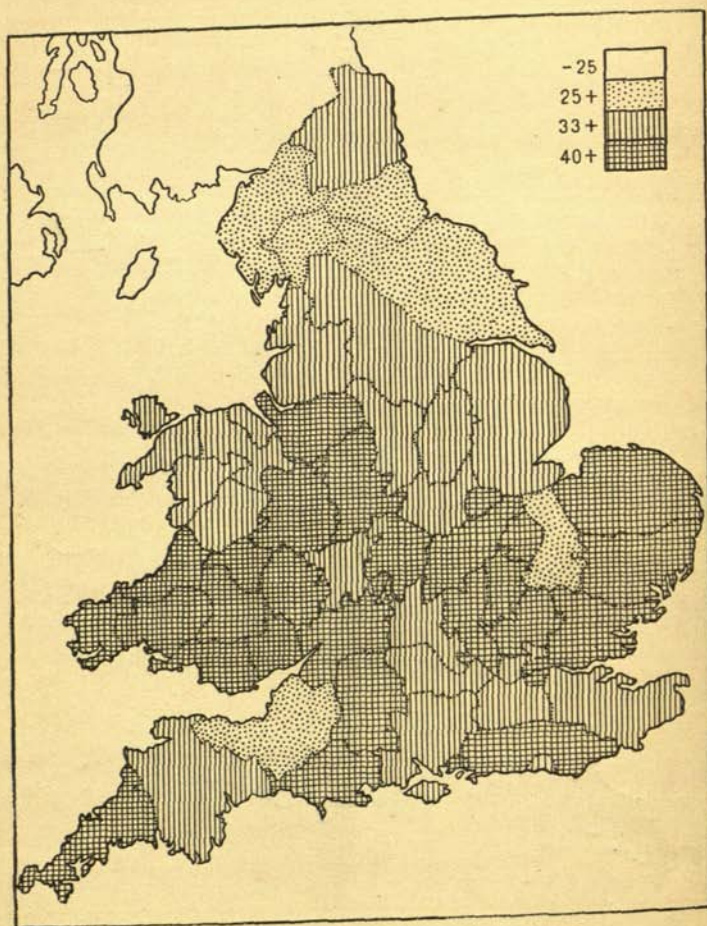


FIG. 3.

Map showing the distribution of Dark (Brown or Hazel) Eyes in England, based upon Military Schedules ; after Beddoe.

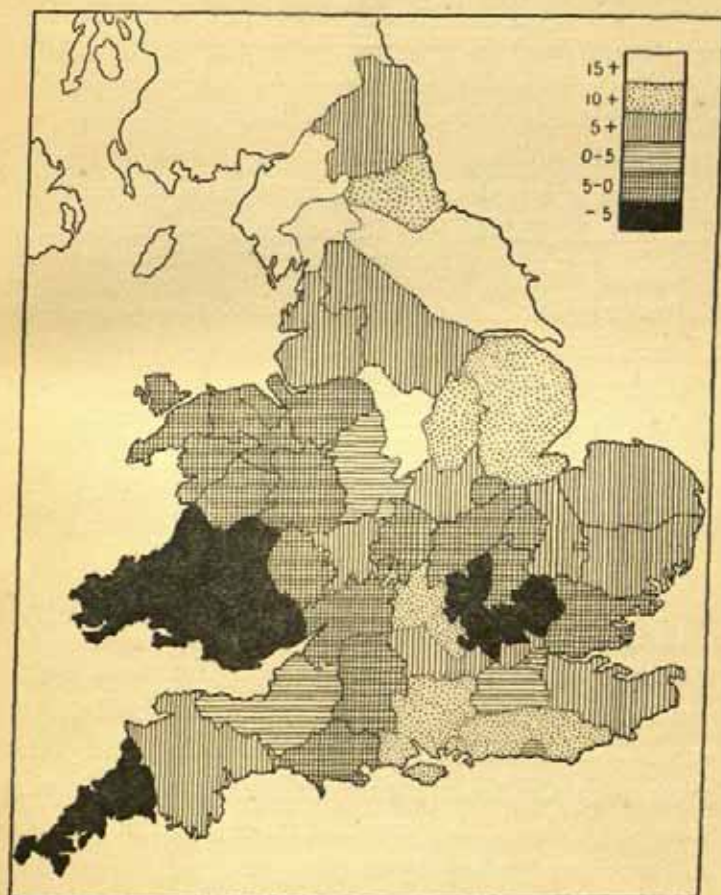


FIG. 4.

Map showing the distribution of the excess of pure Blond over pure dark type in England, based upon Military Schedules; after Beddoe.

military statistics. The personal investigations of Beddoe afford a more accurate and minute means of analysis, and they bring out a number of very suggestive facts that are lost in the synthetic maps based on the military schedules.

The maps based on the military schedules accord with ethnological history in exhibiting a large proportion of light-coloured hair in the regions most subject to invasion and colonization, and of dark-coloured hair in the far west.

Taking the four kingdoms, their order from light to dark is as follows:—

EYES.	Per cent.	HAIR.	Index of Nigrescence.
Scotland . .	72.2	Scotland . .	3.1
Ireland . .	70.2	England . .	5.6
England . .	61.6	Wales . .	16.8
Wales . .	56.6	Ireland . .	18.8

Connaught (with 70.6 per cent.) ranks second to Ulster (with 73.4 per cent.) as to lightness of eyes, and has more dark hair than any province of Ireland or of Great Britain except Argyle. This is in agreement with the feature that strikes travellers in the west of Ireland, the preponderance of dark brown hair combined with grey or blue-grey eyes.*

In England most of the "mixed brown type," as it is called—that is, brown, hazel, or "black" eyes, with

* Cf. a paper recently published by DR. BEDDOE "On Complexional Differences between the Irish with Indigenous and Exotic Surnames," *Journ. Anth. Inst.*, xxvii., 1897, p. 164.

brown (chestnut), dark brown, or black hair—occurs in Dorset, Wilts, Cornwall, Gloucestershire, the Welsh Marches, South Wales, Bucks, and Herts.

For the sake of clearness I will take a few counties of England only, and give the conclusions to which Dr. Beddoe has arrived from his studies of their ethnography.

"Lincolnshire, for example, is supposed to be a particularly Teutonic county. Whether Lindum Colonia was destroyed by the Angles we do not know; perhaps, as it kept its name and situation, it fared better than most Romano-British towns, and retained more of its ancient population; but certainly Lincolnshire received a large colony of Angles, who divided it into a great number of hundreds, and who were subsequently overlaid by a heavy stratum of Danes, as the place-names testify. The inhabitants have the tall and bulky frame which is generally believed to be Anglo-Danish, though the nature of the soil and other conditions may have to do with it. Lincolnshire stands third in all England on the blond scale as tested by the index of nigrescence."*

Dr. Beddoe's personal observations in the county indicate a moderate proportion of dark eyes and a great deal of light, or lightish brown hair, with a low index of nigrescence; these observations are confirmed respectively by the maps. (Figs. 2 and 3.) The modern population of Lincoln are a fair and handsome people, with regular features; blue-eyed, says Professor Phillips—but Dr. Beddoe calls them blue or light

* *Races of Britain*, p. 145.

MILITARY STATISTICS.—From the *Hue and Cry* (after BEDDOE), p. 190.

COUNTIES.	Index of Nigrescence.	Pure Blond Type with Red.	Mixed Blond Type.	Mixed Brown Type.	Pure Brown Type.	Number of Observations.	EYES. BLUE, GREY, OR LIGHT.				Per Cent.	EYES. HAZEL, BROWN, OR DARK.				Total.	Per Cent.			
							HAIR.					HAIR.								
							Red.	Fair, or Light Brown.	Brown.	Dark, or Dark Brown.		Black.	Red.	Fair, or Light Brown.	Brown.			Dark, or Dark Brown.	Black.	
Lincolnshire . .	-4.7	28	56	30.5	13.9	150	6	36	42	13	2	99	66	1	4	25	19	2	51	34
Nottinghamshire .	-1	25	53.5	29	14.5	200	2	48	57	21	1	129	64.5	3	10	29	20	9	71	35.5
Leicestershire . .	8.6	16.2	43.7	32.4	10	80	3	10	22	11	2	48	60	4	2	18	5	3	32	40
Rutland . .	}																			
Northamptonshire																				
Bedfordshire . .		10.6	19.3	45.3	35.3	21.3	150	2	27	39	18	—	86	57.3	—	11	21	26	6	64	42.6
Huntingdonshire																				
Cambridgeshire . .	7.5	22.5	62.5	27.5	15	40	1	8	16	4	—	29	72.5	—	—	5	4	2	11	27.5
Norfolk . .	}																			
Suffolk . .		-1.6	24.4	43.4	37.2	17.2	250	6	55	48	29	—	138	55.2	2	17	50	39	4	112	44.8
Essex (extra metro- politan) . .	4.5	19.5	46	37.5	19.5	200	5	34	53	19	—	111	55.5	2	12	36	35	4	89	44.5
Devonshire . .	10.8	23.6	46.8	33.6	18.4	250	6	53	58	32	4	153	61.2	2	11	38	33	13	97	38.8
Cornwall . .	20.6	18.6	42	44.6	24.6	150	1	27	35	15	2	80	53.3	—	3	30	29	8	70	46.6

hazel; the latter hue is very common at Boston. The civic population there, though not quite so strikingly fair as in the surrounding peasantry, are much more so than in most parts of the islands; they have all the characteristics of pure Saxo-Frisians, and are hardly distinguishable from the frequenters of Antwerp market.* Their index of nigrescence is the lowest Dr. Beddoe has met with in any considerable town in Britain.

From Lincoln to Nottingham, along the Vale of the Trent, the same breed of men prevails. Mr. D. Mackintosh, who has carefully studied the features, makes the leading points of his Danish type a long face, high cheek-bones, with a sudden sinking in above on each side of the forehead, high and long nose, head elevated behind, reddish hair. There is a traditional attribution of red hair to the old Danish invaders in some parts of the country, but Dr. Beddoe does not believe "the colour is common in Lincolnshire nowadays. The high, finely-formed nose and prominence of the superciliary ridges, yet with fairly arched brows, not the straight penthouse of the Scotch and Irish, are frequently seen in Denmark; and where they are very prevalent among the Anglians a Danish cross may be suspected."† Mr. Park Harrison lays great stress upon this feature as Danish. It is common to the Borreby race and to the

* *loc. cit.*, p. 252.

† *loc. cit.*, p. 253.

British bronze men, to the Sion type of Switzerland and to many Savoyards.

Leicestershire was largely colonized by the Danes; Rutland was not so. The former differs from the other North-Midland counties, apparently, by having retained a good proportion of the dark pre-Anglian stock.

In the Triads, and elsewhere in old Welsh literature the Coranied are referred to; these have been "identified with the Coritavi, or Coritani, of the Romans, from the similarity of the first syllable in each word, from a statement that the Coranied settled about the Humber, and from the name of Ratis Corion having been applied to Leicester, seemingly the chief town of the Coritavi. The only grounds for making the Coranied and Coritavi (allowing them to be the same) Germans are, their siding with the Saxons, and having a Latin name ending in *AVI*, like the undoubtedly Germanic tribes of the Batavi and Chamavi."* Dr. Beddoe entirely disagrees with this view for the following reasons:—

"They are supposed to have occupied the counties of Lincoln, Nottingham, Derby, Leicester, Rutland, and part of Northamptonshire; in these counties I can find no Roman station whose name appears to be Teutonic, while the important town of Margidunum, near Southwell in Nottinghamshire, bears a name almost certainly Celtic, and Ratis Corion does the same; and Nottingham would seem to have

* *loc. cit.*, p. 23.

remained Celtic long enough for its Welsh name not to have been altogether forgotten even in the time of Alfred; for Asser says it was called in Welsh *Tigguocobauc*. Again, if the Coritavi were Germans, and were overlaid by successive strata of Angles and Danes, one may reasonably expect to find the Teutonic physical type prevalent over their whole area to a degree not found elsewhere in Britain. Now, in the northern part of the Coritanian area it is really very prevalent, but in the southern (Leicestershire and Northamptonshire) there is, if I may judge by the colours of the hair and eyes, a strong non-Teutonic element. The following table (page 44) shows a great difference between Lincoln and Leicester, Nottingham and Northampton, in these respects, there being a much larger proportion of dark hair in the two more southern towns.*

"Professor Phillips, than whom no ethnologist was a keener observer, once visited Leicester with the expectation of finding a strongly marked Scandinavian type predominant there; but he was surprised to find a dark-haired type, which he supposed to be Celtic, equally prevalent."

The northern part of Cambridgeshire is also supposed to retain a large proportion of British blood; the fens formed the impenetrable retreat, and we all know how the Isle of Ely held out against the Normans. In his memoir on "Stature and Bulk of Man in the British Isles," Dr. Beddoe† quotes Dr. L. Clapham and Dr. H. Stuckey, as finding rather more hazel and brown than blue or grey eyes; out of fifty observations twenty-seven eyes were dark and twenty-three light. I remember well, on returning to

* *loc. cit.*, p. 24.

† *Mem. Anthropol. Soc.*, iii., 1869, pp. 458, 459.

THE STUDY OF MAN

Towns.	Number of Observations.	Colour of Hair.	LIGHT EYES.				NEUTRAL EYES.				DARK EYES.				Index of Nigrescence.			
			Red.	Fair.	Brown.	Dark.	Niger.	Red.	Fair.	Brown.	Dark.	Niger.	Red.	Fair.		Brown.	Dark.	Niger.
Lincoln .	500	—	2	15	35.2	8.5	.2	.4	1.2	5.2	4.4	.2	.9	1.3	8.1	15.8	1.7	12.3
Leicester .	540	—	3	13.9	26.6	7.1	.1	.8	1.6	6.6	6.8	.2	.4	1.3	7.8	19.9	3.7	20.8
Nottingham .	700	—	3.7	15.3	24.6	9.9	.3	1	1.8	6.1	5.1	.1	1.1	1.4	9	18.2	2.2	14.1
Northampton .	300	—	3	9.8	35.6	13.3	.8	.3	7	3.5	4.5	—	.3	.5	5.3	18.7	3.8	31.1

Cambridge after a long residence in Ireland, expecting to find a tall, fair-haired, blue-eyed population preponderating in Cambridgeshire, but, on the contrary, I was struck with the proportionately large number of short, dark-haired, dark-eyed persons. According to Dr. Beddoe the southern part of the county is more like Norfolk and Suffolk, anthropologically.*

"These two counties," continues Dr. Beddoe, "are more Anglian than either Danish or British. Mr. Grant Allen, whose summary of the Brito-Saxon controversy, in his excellent little book on Anglo-Saxon Britain, is about the fairest we have, dwells, perhaps, a little too much on the British element in East Anglia. It is, perhaps, stronger in Suffolk than in Norfolk. In Essex I think that there was a considerable survival of the Romano-Britons, and that though the invading Saxons preponderate near the coast, it is not so in the interior forest country. At Braintree a Huguenot colony have left their surnames and complexions."†

Mr. Park Harrison has noted that the people of Brandon are comparatively dark. This is a particularly interesting place, as in Neolithic times pits were sunk in the chalk, and flint was quarried for the manufacture of implements; there is reason to believe that since that date this industry has never ceased, and at the present time the flint knappers of Brandon manufacture gun-flints for the African market. Quite recently Dr. C. S. Myers has published a valuable paper‡ on the

* *Races of Britain*, p. 254.

† *loc. cit.*, p. 254.

‡ C. S. MYERS, "An Account of some Skulls discovered at Brandon, Suffolk," *Journ. Anth. Inst.*, xxvi., 1896, p. 113.

large collection of skulls from this locality that are in the Cambridge Anatomical Museum. In the vicinity are two Roman camps, and near by runs the Icknield Way, the great war and trade route of the Iceni in pre-Roman times. A few skulls resemble the Neolithic or Long Barrow type. The skulls of the brachycephalic series do not belong to the Round Barrow type, which is quite unrepresented, but are to be allocated to a fairly widely-spread Romano-British type. Among the elongated skulls Mr. Myers has proved the occurrence of the old Row Grave type of Germany; it is a significant fact that about 372 A.D., the Alemannic Bucinobantes came from Mainz, on the right bank of the Rhine, and appear to have settled within twenty miles of Brandon, at Buckenham, in Norfolk. Allied to these skulls is the long, low-crowned Batavian type, which also occurs at Brandon. Only one definitely Saxon skull was noted. The evidence points to the fact that the burial ground, whence these skulls were obtained, was that of a people of mixed ethnic character, belonging to a time antecedent to the Saxon invasion; but it is probable that even then Saxon settlers were arriving in small numbers. Mr. R. J. Horton-Smith* also alludes to East Anglian Craniology in his paper on the crani-

* R. J. HORTON-SMITH, "The Cranial Characteristics of the South Saxons compared with those of the other races of South Britain," *Journ. Anth. Inst.*, xxvi., 1896, p. 82.

ology of the South Saxons. His main points are that the South Saxons were not an absolutely pure race, they had a little British blood in them, though the amount was probably very small. The Wessex Saxons were less pure than the South Saxons, owing to their more frequent intermarriage with the British population. The East Anglians have a form of skull slightly different to that of the South Saxons. It is rather broader, less tapeinocephalic (*i.e.* less low in the crown), and mesoseme instead of microseme (*i.e.*, the orbits are higher and less oblong), the face is also relatively longer, and the cranial capacity larger.

We will now pass to the opposite end of England, and again I quote from Dr. Beddoe:—

"The people of Devon are for the most part dark-haired, and the Gaelic combination of blue or grey eyes, with dark brown or blackish hair, is very frequent among them. When the eyes are hazel, on the other hand, the hair is not seldom lightish. In the district about Dartmouth, where the Celtic language lingered for centuries, the index of nigrescence is at its maximum, exceeding fifty. But around the estuaries of the Taw, the Torridge, the Tamar, and perhaps the Exe, Frisian or Danish settlements seem to have been effected. In these localities there is a large proportion of blonds, which in the case of Plymouth affects the neighbouring part of Cornwall to some extent. The Devonians are usually rather short and strongly made, with heads of good size and considerable occipital projection.

"Cornwall nourishes a stalwart race superior to the

Devonians in stature and length of limb; the miners, again, seem to surpass the agricultural population, though of this I have not statistical proof. In each case there may have been a process of selection, for Cornwall probably gave the last refuge to the free British warriors, who were gradually forced back by the West Saxons into the peninsula, while their serfs, accustomed to the yoke, may have bowed their necks for the most part to that of the strangers. The stature, as deduced by Roberts and Rawson from 305 observations, is 5 ft. 7.9 in. or 1726 mm., and I do not think this is over the mark. The Cornish are generally dark in hair, and often in eye; they are decidedly the darkest people in England proper; they resemble the Scottish Highlanders in their warmth of colouring. The point which comes out most distinctly is the prominence of the glabella, and (probably also) of the brow ridges. To these may be added, more doubtfully, a receding forehead, a head much arched longitudinally, and broad about the parietal eminences. All these points, it will be observed, are common to the Bronze Race. All the British types, however, occur in Cornwall, and the most characteristic is, I think, Iberian, with a dash of the Semitic. Barnard Davis was struck with the heaviness of the mouth and lower part of the nose; this is a common feature among the earlier races of Britain, but is certainly not universal in Cornwall.*

The map of the nigrescence index shows that the majority of dark-haired people occur in our western districts. Cornwall, for example, has the highest index (20.6), but even there there are 18.6 per cent. of the men of the pure blond type (including red hair), and but 24.6 per cent. of the pure brown type, the

* *loc. cit.*, pp. 258, 259.

great bulk of the population belonging to the mixed blond type or the mixed brown type.

The following conclusions may be drawn from this short sketch of the distribution of hair and eye colours in the Eastern Counties, and in the extreme South-west of England.

Spread all over England was a dark-haired, brown-eyed people, who, from other evidence, appear to have been slight of build, and distinctly dolichocephalic. These are usually spoken of as Iberians, or more correctly as the Iberian branch of the Mediterranean race. They are the men of the polished stone (Neolithic) age, and they often buried their dead in long barrows. We may recognize in them the true autochthones of Britain, for we have little precise information about Palæolithic man, nor can we yet tell how far he persisted into later periods. Mr. Gomme* brings evidence to bear in support of his view that these non-Aryan people were agriculturalists.

We know that agriculture tends of itself to fix men to the soil, and when agriculturalists are conquered by peoples of other social organization, as practically always occurs, they become still more rooted, and for good reason. The conquerors are usually turbulent, warlike, mobile communities,

* G. L. GOMME, *The Village Community*, 1890, ch. iv.; *Ethnology in Folk lore*, 1892, p. 70.

usually either actual nomads or societies which have but recently emerged from a pastoral mode of life, or they may be a sea-faring folk. In any case, while they prey upon the settled population and overlord them, they take care not to exterminate them, for the descendants of herdsmen despise agriculture, and it is only after a long time and due to a powerful constraint that they yield to the force of circumstances and till the soil.

The horse-breeding, chariot-driving, Celtic-speaking peoples who invaded the British Islands were probably no exception to this general rule. It is certain that they tilled the soil, for there are many allusions in Roman authors to this practice among allied tribes on the mainland of Europe; but the same authors are careful to point out how lightly these half-nomad tribes were attached to the soil, and how they were continually on the move. We may, therefore, take it for granted that these men of the Bronze Age overlorded, but did not by any means exterminate the indigenous population of Britain; the latter by becoming the serfs of the conquerors were still more firmly settled on the land.

Later came the tall, fair-haired, blue-eyed dolichocephals. At first pioneers opened up the country and showed the way to the Teutonic hordes, who arrived in various swarms of Frisians, Angles, Saxons, Jutes, Danes, and the kindred Norsemen. The story

of the incoming of the Bronze Age was repeated, but with this difference. While the fair dolichocephals slipped over, as it were, the dark dolichocephalic serfs, they largely exterminated or pushed before them the Celtic, more or less brachycephalic peoples, so that these are at the present day mainly to be found in the western portions of the country. The mixed race probably shared the fate of the more aboriginal population.

In a recently-published book* on the Formation of the French nation, de Mortillet points out that various classical authors practically all agree in describing the Celts or Gauls and the Germans in the same terms. Tall, fair people, with blue eyes, white skin, very warlike, and readily undertaking great invasions and vast migrations, constructing neither temples nor towns, fighting naked, but very proud of their hair. Below this military aristocracy there were the common people, ignored by the writers, who constituted the patient and laborious democracy fixed to the soil, the true natives of the country, whom anthropology and palethnology have revealed. The Gallo-Germanic race is spread over nearly the whole of Europe, and extends into Africa and Asia, each band transporting its particular name to the different countries that it occupied. It is this turbulent, noisy, mobile aristocracy which alone has filled the pages of history.

* G. DE MORTILLET, *Formation de la Nation Française*, Paris, 1897.

In France the short, dark, brachycephal of Southern Central Europe has fused with, or lived alongside of, the dark dolichocephal, and it is this mixture which has formed the mass of the French people, that sedentary population which may be described as the nucleus of the French democracy.

Although not identically the same, the early history of France and that of the British Islands have much in common, and it is interesting to find that these primitive ethnic movements are still painted, as it were, on the hair and in the eyes of the existing population.

On turning to France we find that analogous results have there been tabulated. Topinard, the distinguished anthropologist, instituted a very extensive inquiry relative to the statistical distribution of the colours of the hair and eyes of the adult population of France.

In order to obtain unity of method, and to reduce the personal equation to a minimum, Topinard issued precise instructions with colour scales, which were scattered broadcast, but mainly to trained observers, preferably to medical men. More than 200,000 observations were returned; these were abstracted one by one, and classified by departments according to place of birth. The first operation was to reduce the totals of each kind of hair and eyes to the percentage of the whole number of the cases

observed for each department. The second operation was to arrange the most blond to the darkest departments for both hair and eyes, in a long list from one to eighty-eight. The third operation was to combine these lists in various ways, so as to determine the relative places occupied by each department with regard to the eyes and hair separately. The fourth operation was to again combine these results, so as to arrive at the main synthetic conclusions. These only remained to establish equal groupings, and to plot out the maps according to these lists. Topinard informs us* that he employed various methods till he finally drew up twenty-one maps presenting all the main facts, from the simplest, giving the distribution of blue eyes, for example, to the most synthetic which combined all the observations. Five of these maps were originally published in his report to the meeting of the French Association for the Advancement of Science, which was held in Paris in 1889.† My learned colleague has kindly permitted me to borrow the three that he has also published in his *L'Homme dans la Nature*.

The eighty-eight departments, including Alsace-Lorraine and Corsica, are divided into four groups

* P. TOPINARD, *L'Homme dans la Nature*, 1891, p. 83.

† P. TOPINARD, "Statistique de la Couleur des Yeux et des Cheveux en France," *Assoc. Française pour l'Avance. des Sci.*, Paris, 1889 (1890), 2^{me} Parte, p. 615.

of twenty-two departments each. The groups indicate the fair, intermediate fair, intermediate dark, and dark, whether of eyes, of hair, or of both combined.

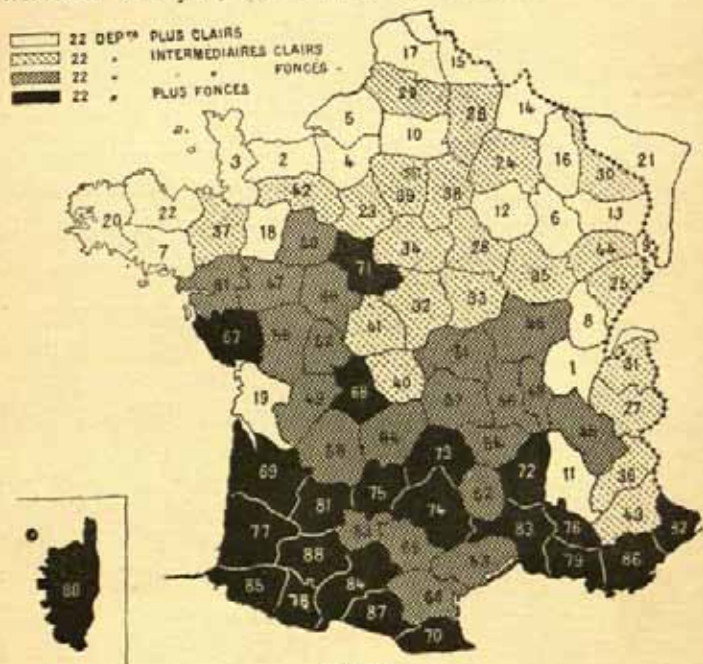


FIG. 5.

Distribution of the colour of the eyes in France; from Topinard.
The eighty-eight Departments (Alsace-Lorraine added and counted as one) are divided into four equal groups.

The line of separation between the departments where the blonds predominate, and those which have a preponderance of darks, extends irregularly from the Alps to the Breton peninsula. This line also corresponds with a fair degree of accuracy to that

which separates the people of high stature from those of low stature, the former being to the north-east, the latter to the south-west.

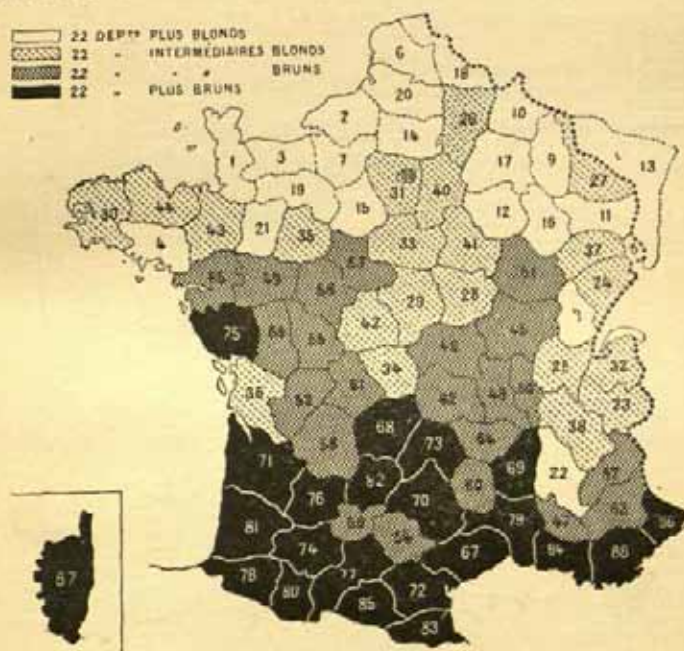


FIG. 6.

Distribution of the colour of the hair in France; from Topinard.
The eighty-eight Departments are divided into four equal groups.

The maximum of frequency of blonds is met with partly along the shores of the English Channel and partly along the north-east frontier. This fact coincides with history. One knows that the blonds came by sea and by land, but always from the north. It

is also in agreement with the colour-maps constructed from statistics of the hair and eye colours of over ten million school children in Germany, Austria, Belgium, and Switzerland. The fairest children occur in the

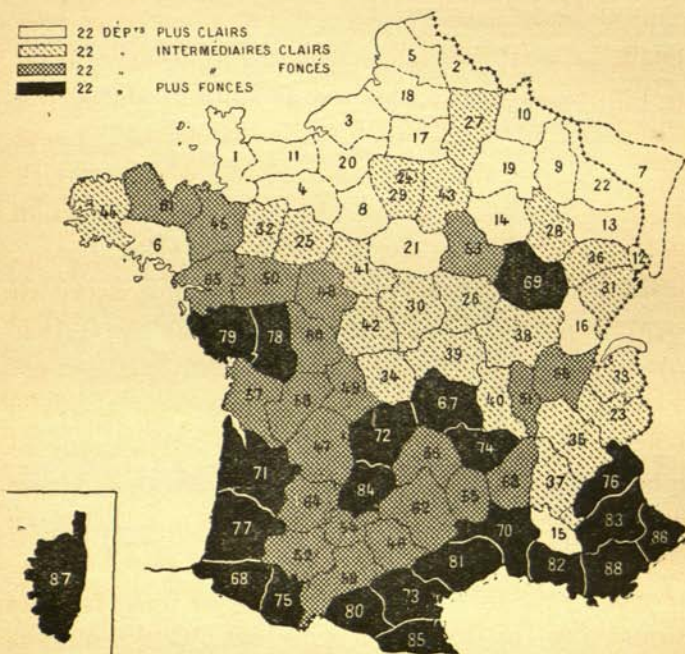


FIG. 7.

Resultant of the two preceding Maps ; from Topinard.

north, and, speaking in general terms, they darken as one proceeds south and west ; thus the darkest children are to be found on the confines of Italy and France. There are, however, several dark "islands" in Central Germany, especially in Bohemia,

and numerous light "islands" in the extreme south of this large area.

The maximum of frequency of the darks is seen along the Mediterranean coast, in Corsica, along the Pyrenees, and also in Auvergne. This conforms perfectly to what is known of the primitive location of a dark population in the basin and islands of the Mediterranean before the Aryan invasion. From other sources we know that there was a mixed dark population in France before the fair barbarians came from the north-east to overlord the earlier inhabitants of France; but colour maps alone do not serve to distinguish between these earlier peoples. A further analysis will be made when dealing with head-form.

The map of combined hair and eye colours marks the descent of the fair invaders down the valley of the Rhone, in the direction of Upper Italy. Other irregularities of distribution and the various "islands," such as the departments of Vendée (75) and Charente-Inférieure (36) in the west, Tarn (54) and Tarn et Garonne (59) in the south, and Jura (8) and Drôme (22) in the east, can be explained by local historical events. Topinard asks whether the fair "island" of Charente-Inférieure is due to the English, to the Protestants around La Rochelle (the majority of whom should be fair), or to the immigration of the Alans? The Alans, or Alani, were Scythian people, with red hair and grey eyes, who joined themselves

with the Vandals. They occupied the middle course of the Loire in 451 A.D.* Collignon, however, does not find Charente-Inférieure particularly fair, and he cannot satisfy himself that any trace exists of the Alans, about whom we know really very little.

Topinard fully recognizes that the departments are purely administrative divisions which have no ethnological significance, but it is very convenient to take the departments as statistical units, as they are of a sufficient size to give the broad features of the distribution of hair and eye colouration. The significance of the distribution has, of course, no relation whatever to the departments themselves. Here also, as in Britain, a more detailed survey in selected districts will give most interesting and suggestive results, the interpretation of which can best be worked out by a careful study of the local history, both prehistoric and documental. For France such detailed anthropological investigations have been carried out by Dr. R. Collignon in a very thorough and suggestive manner. His methods are so valuable that a chapter will be devoted to an abstract of his studies in the Dordogne district.

* G. DE MORTILLET, *Formation de la Nation Française*, 1897, p. 122.

CHAPTER III.

THE VALUE OF HEAD-FORM IN ANTHROPOLOGY

SO much attention has been paid by anthropologists to the shape of the head, and particularly to that of the skull, that the greater part of the literature of physical anthropology is taken up with minutely descriptive and statistical accounts of the contours and measurements of skulls.

It is obvious enough why the skull has been so minutely studied. Although most parts of the human skeleton exhibit distinctive traits by which they can be readily distinguished from the bones of other animals, the more characteristic human tendencies are, however, so to speak, focussed in the skull. For example, the bones of the legs and the pelvis have become modified owing to the assumption of the erect attitude; but the position of the large hole (the foramen magnum) in the base of the skull through which the spinal cord passes into the brain and the balancing of the head on the vertebral column attest to the same fact.

The acquisition of the erect attitude liberated the

hand from progression, and this gave it the chance to become the delicate and mobile mechanism that we now possess, and which is especially marked in the case of musicians, artists, and skilled workmen. The "handiness" of the hand relieved the jaws from much of the work that they were wont to do, and as a consequence the human jaw has a marked tendency to be reduced in size.

Thus two very characteristic human traits, the erect posture and the hand, have influenced the skull.

The other essentially human characteristics are mainly to be found in the head itself; of these the most important is the brain. The absolute and relative large size of the brain at once separates the brain of man from that of the higher apes. This character can be determined from an examination of the skull without any special anatomical knowledge.

It is convenient in considering the skull to distinguish between the cranium, or brain case, and the face—the latter is composed of the organs of sight and hearing, with their protective casings, and the jaws.

The cranium and the face can, to a certain extent, be studied independently of each other, though there is always a distinct relation between them, and the one acts upon the other in various ways.

Among the lower races of men we find that the

jaws are usually of large size, and they often project far beyond the level of the forehead. A skull in this condition is called "prognathous," "a term which has been rendered," as Huxley points out, "with more force than elegance, by the Saxon equivalent—'snouty.'"^{*} An example of this prognathism is seen in the Negro's skull. (Fig. 8, No. 4.)

These great jaws are associated with large teeth and powerful muscles. The jaw or masseter muscles arise from the side walls of the skull, and are inserted in the lower jaw. The more powerful the muscles the higher they creep up the sides of the skull, their upward limit being marked by a curved line (the temporal crest), and the more they are likely to compress the skull, especially immediately behind the orbits. This lateral compression of the temporal region of the skull would naturally be most effective in quite young persons when the skull was still pliable. The feeding on coarse food and the absence or imperfection of cooking the food would give more work for the jaws, and consequently the muscles would become more powerful. One effect of civilization is to improve the commissariat and cuisine, and as a result the jaws become smaller, they project less and less beyond the level of the forehead, that is, they become "orthognathous."

^{*} T. H. HUXLEY, "Man's Place in Nature: III. On some Fossil Remains of Man," *Collected Essays*, vol. vii., p. 191.

The teeth are reduced in size and number, and the masseter muscles having less work to do become smaller and less powerful, and consequently they exert less pressure on the side walls of the cranium, and so the skulls are not so narrow, especially in front.

That the jaw muscles do affect the skull has been shown by Nehring,* who, from his studies on skulls of both sexes and of various ages of anthropoid apes and of dogs of different breeds, is of the opinion that the occurrence of a constriction between the orbital and cerebral portions of the skull has direct relation to the strength of the facial musculature, and more especially of the jaw muscles. If the skull of a muscular Eskimo dog be compared with that of a pug or a Bolognese lap-dog, it will be found that this constriction is very marked in the Eskimo dog, the zygomatic arches of which are widely outstanding, and all the muscular attachments strongly developed; but the constriction is scarcely noticeable in the pug, and is entirely wanting in the Bolognese lap-dog; the two latter exhibit feminine rounded forms of the corresponding parts of the skull, with a fully-developed musculature. In domesticated dogs, as in civilized man, the jaw is relatively fully developed,

* A. NEHRING, "Menschenreste aus einem Sambaqui von Santos in Brasilien, unter Vergleichung der Fossilreste des *Pithecanthropus erectus*, Dubois," *Verhandl. Berliner anth. Gesellsch.*, 1895-6.

and there is a tendency to reduction of the last molar tooth.

It must not be overlooked that the decrease of the action of the jaw muscles is concomitant with rise in culture, that is to increased mental activity, which is usually associated with increase in the volume of the brain. We have already seen that the statistics collected in the anthropometric laboratory in the University of Cambridge, as worked out by Venn and by Galton, show that the period of the growth of the brain is prolonged in students as opposed to those of corresponding ages who cease to study.

It may be accepted as true in the main that the increase in the size of the brain, which is due to culture, is exhibited proportionately more in the breadth and height than in the length.

Thus culture may act in two ways on the skull, directly by enlarging the volume of the brain, and therefore increasing the size of the skull; and indirectly by causing a reduction of the jaw, which reacts again upon the skull. One is not surprised, then, to find that the higher races have, as a rule, a greater breadth in the anterior temporal region of the skull than the lower races.

The decrease in the size of the jaws and of the strength of their muscles induces a corresponding modification in the rest of the face. The action of

the lower jaw upon the upper may be likened to the beating of a hammer on an anvil. When the jaw muscles are powerful the lower jaw is brought with a considerable force against the upper jaw, and consequently the arches which connect the upper jaw with the cranium must be proportionately well developed. Conversely the weakening of the jaw muscles permits, for example, the outer rim of the orbit and the zygomatic arch to be of a more delicate construction.

The increase of the brain causes the forehead to be at the same time broader and higher. This fact was noted by the sculptors of ancient Greece, and they increased the vertical height of the forehead of some of their gods, so that, as in the case of Zeus, this human character was carried by them beyond human limits, when they wished to emphasize the benevolence and mental superiority of the Father of gods and men.

When at an indoor gathering we see a number of men with their hats off we notice that their heads vary in form. Some are small, others large; some have long heads, others have short ones; the head may be high or low, and the contours vary in diverse ways. These differences render the study of craniology peculiarly difficult, as it is almost impossible to describe most of them at the same time succinctly and intelligibly, and also because innumerable com-

binations of variable elements may occur in a collection of skulls from a single district.

Dr. D. G. Brinton, the well-known American anthropologist, has been so impressed with the latter fact, that he despairs of the study of craniology throwing any certain light on the racial problems of Anthropology. Undoubtedly an immense amount of tedious labour has been expended by enthusiastic students on the study and description of skulls, but often, one must confess, with very meagre results. There certainly is a wonderful fascination in skulls; and craniology, which to the outside observer appears to be about as uninteresting a subject as could well be conceived, has lured its votaries to more and more persistent and painstaking effort. The present writer, who once sat in the seat of the scornful, has also yielded to the charming of craniology.

A very strong argument in favour of craniology is the assistance that it should render to prehistoric archaeology and to the history of peoples. We have documentary and legendary records of the shifting of populations, and our archaeological museums are full of interesting records of the past. It would be a matter of great importance if the skulls that are exhumed could also be brought in as evidence.

We are again face to face with the question that confronted us when considering the colour of the

eyes and hair. Can one particular head-form, or a restricted number of head-forms, be regarded as characteristic of a race or consanguineous group?

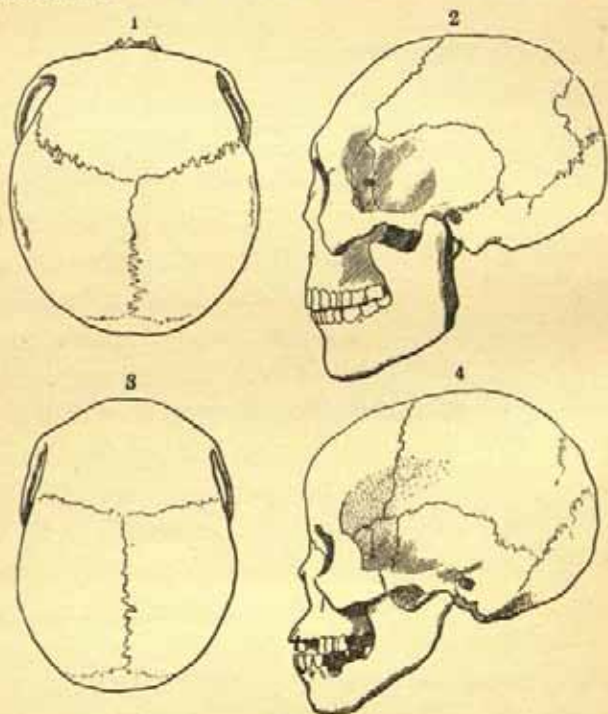


FIG. 8.

Upper and side views of a Kalmuk's and of a Negro's skull; after Ranke.

And are these characters sufficiently constant to be of scientific value?

Before we can attempt to answer these two questions, it will be necessary to give a brief

account of the methods and nomenclature of craniometry. Fortunately, a very short description will serve the present purpose, as we are concerned with only one or two aspects of the subject, and not with craniology as a whole.

On looking at a number of skulls from above, it is seen that they are all longer than broad, though some are less so than others, and that the contour is very varied. Some may have somewhat flat sides, others have gently rounded sides, or the skull may appear narrow in front and swollen behind; indeed, there may be great variation in this respect even in skulls which have the same relation of breadth to length. Skulls must also be looked at from the front, side, back, and underneath, and their peculiarities noted.

The character which is most frequently recorded is the ratio of the breadth of the skull to its length. One speaks loosely of a long or a narrow, or of a short or round skull, but such vague descriptions are of no scientific value. Anthropologists now adopt the plan of calculating indices which accurately express this numerical relation. The extreme length and breadth of a skull are measured, the breadth is multiplied by one hundred, and the total is divided by the length, the result is the cranial index.

$$\frac{\text{Breadth} \times 100}{\text{Length}} = \text{Index.}$$

In other words the length is reduced to one hundred, and the ratio of the breadth to that is the index.

The altitudinal index is the ratio of the height either to the length or to the breadth.

$$\frac{\text{Height} \times 100}{\text{Length}} = \text{Index.}$$

$$\frac{\text{Height} \times 100}{\text{Breadth}} = \text{Index.}$$

Directions for taking these measurements will be found in the chapter dealing with practical instructions.

There are numerous facial measurements from which various indices are obtained, but these do not concern us at present.

The cranial index is usually grouped into three series; a skull is said to be dolichocephalic when its index does not exceed 75, to be mesaticephalic between 75 and 80, and to be brachycephalic when over 80. Some investigators who aim at great exactness increase the range in the following manner:—

Ultra-dolichocephalic	.	.	.	60-64·9
Hyper-dolichocephalic	.	.	.	65-69·9
Dolichocephalic	.	.	.	70-74·9
Mesaticephalic	.	.	.	75-79·9
Brachycephalic	.	.	.	80-84·9
Hyper-brachycephalic	.	.	.	85-89·9
Ultra-brachycephalic	.	.	.	90-94·9

There is a tendency in some quarters to extend dolichocephaly up to 77·9, so as to reduce mesaticephaly to the narrow range of 78 to 80.

If we take a general survey of the races of mankind, we find that they can be arranged in a manner by taking the mean cranial index of each of the following groups. In all cases the numbers vary about this mean; but where a people is known or presumed to be fairly pure the range of variation is much less than where mixture is known to have occurred.

	DOLICHOCEPHALS.	MESATICEPHALS.	BRACHYCEPHALS.
Europe.	Sardinians } 73-74 Sicilians } Scandinavians 74 S. Italians . 75	Scandinavians 76 British . 76-77 Span. Basques 76 Parisians . . 79 Prussians . . 79	Finns . . 80 French Basques 80 S. Germans . 83 Auvergnats . 84 Lapps . . 85
Asia.	Veddahs . 72 Ainus . 72-76 Dravidians . 74	Chinese } 77-78 Japanese } Parsees . . 78	Koreans . 81 Negritoes 80-82 Mongols } 85 86 Kirgis } Kalmuks } Burmese . 86
Africa.	Soudanese . 71 Negroes . 73 Kafirs } . 73 Berbers } Arabs . 74 Bushmen 75	Negrilloes 74-77 Copts . . 76 Hausas . 77 Bedjas } . 78 Boulous } Adoumas . 80	

	DOLICHOCEPHALS.	MESATICEPHALS.	BRACHYCEPHALS.
Oceania.	Fijians, interior 66 Australians . 70 Admiralty Is. 70-73 N. W. Papuans 72	Polynesians 75-80 Tasmanians . 76 Dyaks . . 77	Javanese 80-82 Polynesians 82-87 Tongans . . 84
America.	Eskimo . 70-72 Fuegians . 72-76 Patagonians . 74 Botocudos . 74	Hurons . 75 Californians . 77 Caribs . 75-80	Navajos } 82-86 Apaches } Alaskans . 83 Araucanians 83-85 Aleouts . 86

At the first glance it appears as if the cranial indices were too generally distributed over the world to prove of much ethnographical or historical value. This is perfectly true if these indices are considered by themselves. It is only when taken into consideration with other physical characters that the cranial index is of any value whatever.

The inhabitants of large areas of Asia are distinctly brachycephalic, but among the mixed peoples of China and Japan mesaticephalism is prevalent. In the northern parts of the latter country one finds the remarkable Ainus, or Ainos, who differ in so many respects from their Japanese neighbours and conquerors. These very interesting people were formerly much more numerous than they are at present; they probably occupied the whole or the greater part of

the Japanese Archipelago, and also considerable tracts of the mainland opposite. They are short—the men range from about 1545 mm. (5 ft. 0 $\frac{3}{4}$ in.), to 1600 mm. (5 ft. 3 in.); the women are some 75 mm. (3 inches) shorter. The colour of their skin, though of various shades of brown, has a reddish tinge, and more resembles that of a Southern European than an Asiatic; the coarse black hair is long and wavy, and is so profusely developed that the Ainus are the hairiest of mankind. From a careful consideration of all the facts, de Quatrefages* comes to the conclusion that "the Ainus are fundamentally a white and dolichocephalic † race, more or less altered by other ethnic elements, of which one, at least, is essentially Mongolic."

In India there are two main groups of people—the tall, comparatively fair, dolichocephalic Aryan invaders, and the short, dark, also dolichocephalic aboriginal population. The latter are usually spoken of under the general name of Dravidians. (Plate 2, fig. 1.) These dark-skinned people, with abundant black wavy hair, are probably distantly allied to the Melanochroi or dark group of the Southern European (or Mediterranean) stock on the one hand, and to the Australians on the other.

* *Histoire Générale des Races Humaines*, 1889, p. 467.

† The mean cephalic index of ninety-five Ainu men was 77·3, and that of seventy-one women was 78·4.

The cousins Sarasin have brought forward evidence to prove that the Veddahs of Ceylon are the least modified descendants of that "Proto-Dravidian" race from which the diverse people just mentioned have diverged.

The typical Asiatic race, the yellow-skinned brachycephals, are scarcely represented in India, and there only at the northern and eastern frontiers of Bengal. In fact, one would scarcely be wrong in saying that, ethnologically speaking, India is more "European" and less "Asiatic" than Lapland.

Amongst the brachycephalic Asiatics are to be found the Negritoes. So far as their cranial index is concerned it is practically identical with that of the average Japanese, who may be regarded as very characteristic Mongoloids; but when one compares their other physical traits it is at once apparent that we are dealing with two entirely different races. The Negritoes comprise the Mincopies, or natives of the Andaman Islands, in the Bay of Bengal, certain hill tribes of the Malay Peninsula, such as the Sēmangs, Sakais,* and Senois, and the Aetas of the Philippines. We will take the Andamanese, as they have been most fully studied, and compare them with an average Japanese type.†

* The Sakais were probably of Negrito origin, but they have since become greatly modified.

† A. DE QUATREFAGES et E. T. HAMY, *Crania Ethnica: Les Crânes des Races Humaines*, 1882, p. 430.

ANDAMANESE.		JAPANESE.
Av. stature, males .	1431 mm., 4 ft. 8.3 in.	1650 mm., 5 ft. 5 in.
Colour of skin .	Sooty black.	Yellowish.
Hair . . .	Black, short, frizzly.	Black, long, straight.
Cranial capacity .	1281 cc. (male).	1605.
Cranial index .	81.1.	80.4.

The stature, colour of the skin, nature of the hair, and the cranial capacity are all anthropological characters of the first rank, and therefore it is needless to enter more fully into the details of the other external or cranial characters. It is sufficient to state that the Andamanese has an infantile cast of countenance, and though he is related to the African Negro on the one hand, and to the Melanesian on the other, yet the common features of these people are, as it were, blurred and softened in "our little Andamanese fellow-subjects," who, in the words of Sir William Flower,* are "probably the least modified descendants of the primitive members of the great branch of the human species characterized by their black skins and frizzly hair." He, however, is careful to point out that "some characters, as the brachycephaly, seem special to the race."

The Kalmuk, with his broad face, high cheek bones, prominent brow ridges, narrow eye openings,

* W. H. FLOWER, "The Pygmy Races of Men," *Proceedings Royal Inst. Gt. Brit.*, 1888; and *Journ. Anth. Inst.*, xviii., 1888, p. 73. Cf. also W. H. Flower, "On the Osteology and Affinities of the Natives of the Andaman Islands," *Journ. Anth. Inst.*, ix., 1879, p. 108; and xiv., 1884, p. 115.

and well-marked falciform fold in the inner angle of the eye, flat sunken nose with circular nostrils, and somewhat prominent jaws, combines the distinctive characters of a typical Mongolian.

Without going into details which would be out of place here, we find that the representatives of the three main groups of mankind are to be found in Asia. These three groups, whose characters have been so admirably defined by Sir William Flower in his Presidential Address to the Anthropological Institute in 1885,* are :—

1. The Ethiopian, Negroid, or Melanesian, or "black," type.
2. The Mongolian, or Xanthous, or "yellow," type.
3. The Caucasian, or "white" type.

The American, or "red," type is regarded by some as a distinct group equivalent to the other three.

If one classifies mankind by the character of the hair, it is found that the Negroid peoples all have frizzly hair, that which is often called "woolly." The Caucasians† have curly or wavy hair; and the Mongolians and Americans have straight hair.

* W. H. FLOWER, "The Classification of the Varieties of the Human Species," *Journ. Anth. Inst.*, xiv., 1885, p. 378.

† J. S. STUART-GLENNIE proposes the name of Hypenetian ("the bearded men") for the Caucasian: the latter term is open to several objections, while the new name gives expression to the fact that these people are characterized by possessing full beards, a feature that is well marked in the Ainu, Australian, and Dravidian. It is certainly a misnomer to call the black Australians and Dravidians members of the "white" race.—LUCY M. J. GARNETT and J. S. STUART-GLENNIE, *Greek Folk Poetry*, i., 1896, p. 14a.

According to this grouping the main races of man would be classified as follows:—

ULOTRICH:—Frizzly black hair, usually a "black" skin, essentially dolichocephalic.

The Negroes, Bantus, Bushmen, and Negrilloes of Africa.* The Negritoes of Asia and the Melanesians of the West Pacific.

CYMOTRICH:—Wavy hair of all shades, skin colour white to black, dolicho-, mesati-, and brachycephalic.

The Xanthochroi (or fair "whites") of North Europe, and the Melanochroi (or dark "whites") of South Europe, with the Semites, Hamites, Dravidians, Australians, Ainus, and possibly the Polynesians.

LEIOTRICH:—Straight black hair, skin colour yellowish to brown, essentially brachycephalic.

Most of the inhabitants of Asia (excluding India, Persia, etc.) and the American Indians.

Asia thus possesses several very primitive stocks. The Andamanese, stated by Flower to be the scarcely modified descendants of an extremely ancient race, the ancestors of all the negroid tribes. The Veddahs are claimed by the Sarasins to be one of the primitive types of humanity; during its evolution this primitive type was transformed in one direction in India into the Dravidian type without the assistance of mixture, whilst in the other direction it gave rise to the Australian type. The Mongolian type, which arose and specialized in the heart of the continent, is universally regarded as the characteristic Asiatic

* The Bushmen and Negrilloes are yellowish and not black.

race. As Mongolic tribes have, at various periods, made inroads into Europe, so fair and dark European peoples have, from time to time, invaded and colonized Asia.

A few remarks must be made on the important question of racial uniformity. Sir William Flower has expressed the opinion that there are few people whose physical characters offer a more interesting subject of investigation to the anthropologist than the native inhabitants of the Andaman Islands. Purity of type, due to freedom from mixture with all other races for an extremely long period owing to their isolated position and their inveterate hostility to all intruders on their shores, and exemplified in their uniformity of physical characteristics, is to be found among them, perhaps in a more complete degree than in any other group of mankind. That a certain admixture from other races, occasioned by intentional visits, or accidental wrecking of vessels on their coasts, and absorption of some portion of foreign element thus derived into the native population may have taken place from time to time, cannot be denied, but it is questionable whether this has been sufficient to affect materially the physical characters of the majority. The most recent and carefully-made observations, especially when supported by osteological and photographic evidence, tend to confirm the view that a striking uniformity

of type is prevalent among the Andamanese. Some travellers and even residents have, however, remarked on differences of type. Flower speaks of the "wonderful similarity" of a large series of crania that were before him, "the skeleton of the face of the Andamanese is even more characteristic and uniform in appearance than that of the cranium."

The same fact has been noticed in other places, and for various peoples where isolation has occurred. We may, therefore, take it for granted that there is a considerable permanence of type under certain conditions. On the other hand all biologists admit that evolution has and does occur wherever there is life, but the process is extremely variable in its rate, nor can its direction be predicated. There are numerous examples in palæontology and zoology of a persistence of type that is simply astounding.

What applies to lower forms of life must hold good for man, but the problem is complicated by the presence of other factors. An isolated group of organisms in a uniform environment is much less liable to modification, that is to evolution, than one which is subjected to varying conditions of existence.

The purer, that is the more uniform, the group the less will be the tendency to vary.

A combination of a pure group, or of a homogeneous mixture, and of an isolated area with uniform conditions is certainly conducive to fixity of type.

The converse is conducive to variability of type and therefore to evolution. The Mincopies and the Andaman Islands may be taken as a good example of the former condition, and the British and the British Isles of the latter.

The cranial indices of a few European peoples have been arranged in the following table:—

TABLE OF AVERAGE CRANIAL INDICES OF EUROPEANS
(COMPILED FROM SEVERAL SOURCES).

Neolithic man of S. France	73	} Dolichocephals.
Sardinians and Sicilians	73-74	
Scandinavians	74-76	
South Italians	75	
Spanish Basques	76	} Mesaticephals.
Guanches	75-77	
Slavs of the Danube	76	
English and Scots	76-77	
Roumanians	78	} Brachycephals.
Prussians	79	
Modern Parisians	79	
French Basques	80	
Finns	80	
North Italians	81	
Bretons	81	
Russians	82	
South Germans	83	
Savoyards and Auvergnats	84	
Bavarians	85	
Lapps	85	

Even a slight scrutiny will show that the distribution of the cranial indices in modern Europe is not so casual as it appears at first sight.

1. In the extreme north the Lapps and the Finns are brachycephalic.

2. North Europe, including the British Islands, Holland, North Germany, and Scandinavia, is mesaticephalic, but inclining to dolichocephaly.

3. Central Europe, stretching from Central France through Switzerland and North Italy, Southern Germany, and into the Balkan Peninsula, is brachycephalic.

4. Southern Europe, including the Iberian Peninsula, Southern Italy, the Western Mediterranean Islands, and the northern shores of Africa, is dolichocephalic, with a tendency to mesaticephaly.

We can thus broadly distinguish four zones of cranial indices which may also be correlated with other physical characters.

1. The Northern Brachycephals are short and dark.

2. The Northern Dolichocephals and Mesaticephals are tall and fair.

3. The Central Brachycephals are short and dark.

4. The Southern Dolichocephals are short and dark.

We may now take a very brief survey of the main conclusions, which Dr. Beddoe has arrived at after many years of careful study of European craniology, concerning the history of the cranial index in the British Islands.

What palæolithic man was like, who roamed in the ancient river valleys along with the mammoth and other extinct animals, we have no positive information, but a gradually-increasing amount of evidence tends to the conclusion that he belonged to the race of which the well-known crania of Neanderthal, Spy, Galley Hill, &c., are examples. There is no reason to believe that he became extinct. Beddoe believes that the posterity of these makers of rudely chipped flint implements still survive in these islands.

After considerable changes in the physical geography of our islands, and the disappearance of the mammoth, woolly rhinoceros, cave bear, and other ancient forms, a new race of men appeared in Britain who made finely-chipped implements, many of which were beautifully polished; they, too, knew how to make pottery and had domestic animals. The men of the Neolithic Age had long skulls, and they buried their dead in long barrows. This race resembled that which is now known under the name of *Baumes-Chaudes* or *l'Homme-Mort*, from the sepulchral caverns in the department of Lozère. The average cranial index of this race is 72; the average of the *Long Barrow* race is also about 72. Traces of these people have been found from the north of Scotland to the south of England, but we are not authorized to state that this race was spread throughout the whole of Great Britain. There are, as a matter of fact,

whole counties, such as Northumberland, where there are, so far as Beddoe* is aware, no traces of this race.

The skulls from the caves of Perth-y-chwaren in North Wales, which were disinterred by Boyd-Dawkins and figured by him, differ considerably from the common British Neolithic type, not merely in breadth, but in physiognomy. The cranial index of this type is 76.5, and it may be related to the French Mesaticephalic race of Furfooz.

Britain was next invaded by a race which introduced bronze implements. It was robust and tall, not less than five feet nine inches (1752 mm.) in stature, bony, large-brained, harsh-featured, high-nosed, with prominent brows, and a breadth index of over eighty. The majority probably had light hair. They resembled the Borreby race of Denmark, and the Swiss or Helvetian race of ancient Switzerland, though with somewhat larger breadth. The modern Walloons of Southern Belgium have some affinities to this type. Dr. Beddoe further states that this race may have come from Denmark, or from the north of France, or from Belgium; and it may have brought with it the Celtic language.

The immigrants who introduced bronze into Britain usually buried their dead chieftains in round barrows, hence they are often termed the *Round-Barrow* race.

* J. BEDDOE, "Sur l'Histoire de l'Indice céphalique dans les Iles Britanniques," *l'Anthropologie*, v., 1894, pp. 513, 658.

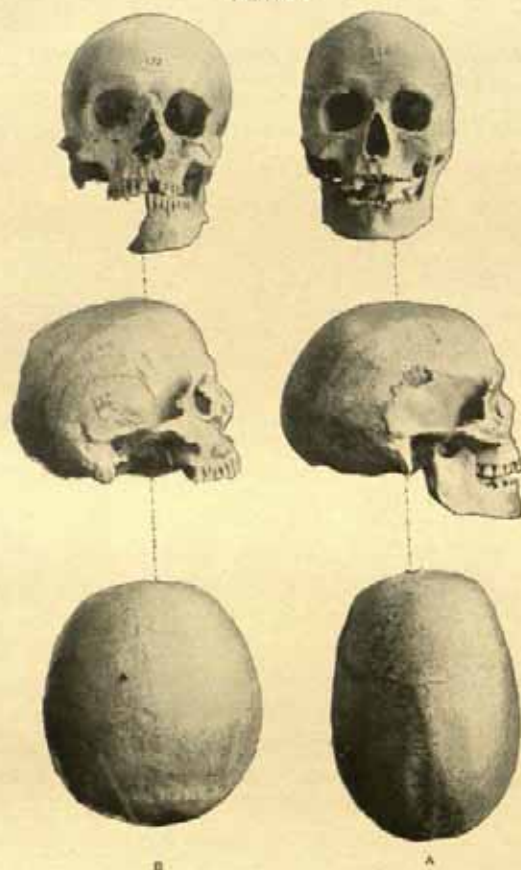
In Plate I., Figs. 4-6, we have a good example of a skull of this race. It is interesting, however, to note that this specimen was actually obtained from a long barrow. It did not occur like the skull of the other race (Figs. 1-3) on the ground in the centre of a barrow, but was excavated from a depth of two feet from the surface; that is, it is what is called a "secondary interment," thus proving that the newcomers occasionally made use of the barrows of their predecessors.

Dr. Beddoe does not appear to recognize the possibility of the presence in the British Islands of the Neolithic brachycephals of France. I have recently* expressed myself as follows:—

"I am inclined to think that the Neolithic brachycephals of Central Europe did come over to the British Islands, and that traces of them are still to be seen, perhaps more frequently in Ireland than in Great Britain. If this be so, it is probable they came as a mixed people, that mixture of brachycephals and southern dolichocephals which Broca called "Celts," for it must be remembered that he regarded the *Celtæ* of Cæsar as a mixed people, but mainly brachycephals. The Neolithic brachycephalic immigrants into Western Europe almost certainly came from Eastern Europe, and possibly originally from Asia; it is also probable that they were primitively of the same stock as the Lapps and Finns, or rather one constituent of the latter

* A. C. HADDON, "Studies in Irish Craniology III.: A Neolithic Cist Burial at Oldbridge, County Meath," *Proc. Roy. Irish Acad.* (3), iv., 1898, p. 570.

PLATE I



Upper, front, and side views of skulls of the Long and Round Barrow Races; photographed by the Author from specimens in the Cambridge Anatomical Museum.

A Long Barrow, Dinnington, Rotherham. Length, 204; breadth, 143; cran. index, 70.1; ht.-length index, 70.1; ht.-br. index, 100; orb. index, 87.2; nas. index, 49; capacity, 1755; male.

B Skull of a man of the Round Barrow Race, from a secondary interment, two feet below the surface, in a *long barrow*, Winterbourne Stoke. Length, 177; breadth, 156; cran. index, 88.1; orb. index, 87.5; nas. index, 49.1.

[To face page 82.

people. It may be that the short, dark, brachycephalic element in the British Islands was largely due to the northern brachycephals who came direct from Scandinavia in the Neolithic period, or both northern and southern brachycephals may have contributed their respective shares."

The period of the Roman domination is considered by Beddoe to have somewhat diminished the numerical proportion of the former dominant caste which was brachycephalic, or at least mesaticephalic; it introduced a certain amount of foreign blood (Italian and other), and it favoured amalgamation among the different elements of the population.

"The racial elements imported must have been extremely mixed, and probably left scarcely any permanent traces, though there may be some in a few ancient towns such as Gloucester or Leicester. Among relics from the Romano-British villages, our knowledge of which has been so much increased by General Pitt-Rivers, there are one or two skulls which, in the opinion of Dr. Garson as well as of myself [Beddoe], show Roman or Italian characteristics."*

The Anglo-Saxon invasions were of different tribes which were local varieties of the Germanic type of the row graves or *Hohberg* type. This type is best represented on the Continent by the ancient skulls of Bremen so well described by Gildemeister. In the earliest days of that city the Batavian or Frisian variety also occurred; this variety is flatter in the crown and somewhat broader than the more

* J. BEDDOE, *The Anthropological History of Europe: Being the Rhind Lectures for 1891* (A. Gardner, London), 1893, p. 91.

typical form, and it has been recognized in Saxon England by Beddoe and quite recently by Myers.*

"John Bull," says Beddoe,† "is of the Batavian type; the Grave-row, that of the barbarian warrior, is perhaps rather more aristocratic; but the outlines of the former may be connected, as Virchow thinks possible, with the obstinacy and love of freedom and individuality of both Frisian and Englishman. 'These men,' said an old chronicler of the Frisians, 'been high of body, stern of virtue, strong and fierce of heart: they be free, and not subject to lordship of any man; and they put their lives in peril by cause of freedom, and would liever die than embrace the yoke of thralldom.'"

The following table is adapted from one in Dr. Beddoe's *Histoire de l'Index Céphalique*:—

Indices.	Neolithic Long Barrows, etc. (86).	Bronze Age (103).	Round Barrows, without bronze (19).	Late Celtic (9).	Romano-Britons, (109).	Saxons (100).	Middle Ages (per cent.).
63-64	2	...	...	...	...	...	.7
65-66	5	...	...	...	...	1	...
67-68	15	...	1	...	3	1	.7
69-70	16	1	1	...	6	8	1.5
71-72	22	2	1	...	18	14	5.9
73-74	16	11	1	3	22	33	11.8
75-76	7	12	2	...	26	21	17.6
77-78	3	12	6	3	16	14	16.2
79-80	1	19	2	1	13	6	18.4
81-82	...	17	1	...	4	2	11.8
83-84	...	17	1	1	...	...	7.4
85-86	...	8	1	1	...	...	5.2
87-88	...	3	2	...	...	...	1.5
89-90	...	...	...	...	...	...	.7
Mean Index	72	80	77.5	...	75.4	74.8	78.5

* *Journ. Anth. Inst.*, xxvi., p. 113.

† *Loc. cit.*, p. 91.

The most ancient race is apparently homogeneous ; it is extremely dolichocephalic, with a mean index of 70 or 71, according to the ordinary data, but Dr. Beddoe is inclined to make it 72. He also points out that it is by no means certain that only one race occupied Britain at this period.

The second column, that of the round barrows, or, better, the Bronze Age, shows us a brachycephalic population, far from being homogeneous, owing probably to a greater or less mixture with their predecessors in the country. The mean index of the skull appears to be about 80, but we must admit that the cranial index of the pure race, or to speak with more exactitude, of the people using bronze, on its arrival in England and before its fusion with the indigenous population, would be a little over 80 or 81. There are indications which permit the conclusion to be drawn that with the progress of mixture and the arrival of immigrants from Belgic Gaul, the mean fell below 80.

The Romano-British give a mean of about 75·5. Later came the Saxons. Before their mixture with the conquered British, they possessed the type of skull which is called "Grave-row," from the manner of sepulture of an important ancient Teutonic tribe ; or occasionally the Batavian type of skull ; and their cranial index is about 75.

Nothing positive has been determined concerning

the skull type of the subsequent Danish or Scandinavian invaders.

In the Middle Ages we find mesaticephals in predominance, and a fresh frequency of brachycephaly, the mean of the indices being about 78, according to Dr. Beddow's skull measurements.

The mean cephalic index of modern Englishmen appears to be about 78·5, which, deducting the usual two units, would give 76·5 for the cranial index.

CHAPTER IV.

THE NOSE.

AMONG peoples in whom the more prominent types of nose are of usual occurrence—as among ourselves for example—the snub nose is always regarded as an inferior type, and, although it may give a certain vivacity to a woman's face, it is usually regarded by her as a trial. Conversely a long, high, narrow, Roman nose is considered an "aristocratic" nose. It is certain that the shape of the nose is generally regarded not only from an æsthetic point of view, but that to many minds it conveys an idea of weakness or strength of character, and also of social status. Certain types of nose are "better bred" than others, and, other things being equal, a man with a "good nose" is more likely to gain immediate respect than one with a "vulgar nose." Martial, in one of those epigrams which used to amuse and instruct the emperors of the Flavian family, said: "It is not everyone to whom it has been given to have a nose." Popular impressions may be illogical, and the prejudices of the folk

may be unreasoning, but they are all materials for anthropological and psychological study, and they may open up lines of thought that are suggestive and fruitful.

A well-formed nose is a distinctively human feature. If you look at pictures of monkeys, from the low marmosets to the great tailless apes, you will at once notice how flat their nose is at the bridge. The proboscis-monkey (*Nasalis larvatus*) is the only member of the group that has a well-projecting nose.

The nose is a very variable feature in mankind. We all recognize how a nose will make or mar a face, how it gives a countenance distinction or renders it insignificant. Much has been written on noses by physiognomists, and the appearance of the nose is greatly relied on by those who profess to be able to read a person's character by a scrutiny of the face.

Not less is a study of the nose of interest to the anthropologist, and it is this point of view solely which concerns us at present.

First of all it is necessary to distinguish between the external nose as seen on the living face, and the nasal skeleton as it is found on the skull—and we must also fix upon a definite terminology.

In the living nose we recognize the *bridge*, the *tip*, the *alæ nasi*, or *wings* of the nose, which arise

from the cheeks in a rounded curve, and the *nasal septum* which separates the nostrils.

The *height* of the nose is the line from the central point of the root to the corresponding point at the angle which the septum makes with the upper lip; this spot is termed the *sub-nasal point*.

The *breadth* of the nose is the greatest breadth of the wings.

The *depth* of the living nose is the line from the sub-nasal point to the tip; this line is termed the *base of the nose*.

The *length* is the line from the root to the tip.

On examining the profile of a nose, two factors must be distinguished: (1) the general outline of the back or ridge of the nose; and (2) the inclination of the base of the nose with regard to the upper lip.

I. The general contour of the back of the nose is expressed by the following five terms: concave, straight, convex, high-bridged and sinuous. These form five main classes which can be variously subdivided.

1. *The concave nose.* The various kinds of concave or depressed nose agree in having a low bridge; this, as we have already seen, is a simian or ape-like character; it is also an embryonic feature, and it commonly occurs among young children. This type of nose is very frequently met with among the yellow races, and is not infrequent among women of the higher races.

This type may be defined in general terms as being short, depressed, broad, with a turned-up point.

2. *The straight nose.* The ridge of the nose is quite straight in the most characteristic forms, but it is often slightly sinuous. The nose may be short, low, and broad; but in the most developed type it is long, prominent, and narrow.

3. *The convex nose.* The ridge or back of the nose describes a nearly uniform convex curve from the root to the point. As in the last instance this type varies from short, low, and broad, to long, prominent, and narrow. The Jewish nose is the best known variety, and the Papuan nose belongs to the broad variety of this group.

4. *The high-bridged nose.* The upper portion of the bony part presents a strong and short convexity, below which the remainder of this bony part becomes nearly straight, and is continuous with the ridge of the gristly portion. The typical example of this type is the Roman nose (Fig. 10). It may be considered as a variety of the convex nose.

5. *The sinuous nose.* The upper part is convex, but the profile of the gristly portion, instead of continuing this curve as in the convex nose, or of taking a rectilinear direction as in the aquiline nose, is incurved. It thus results that the direction of the line is convex above, concave below the bony portion, and

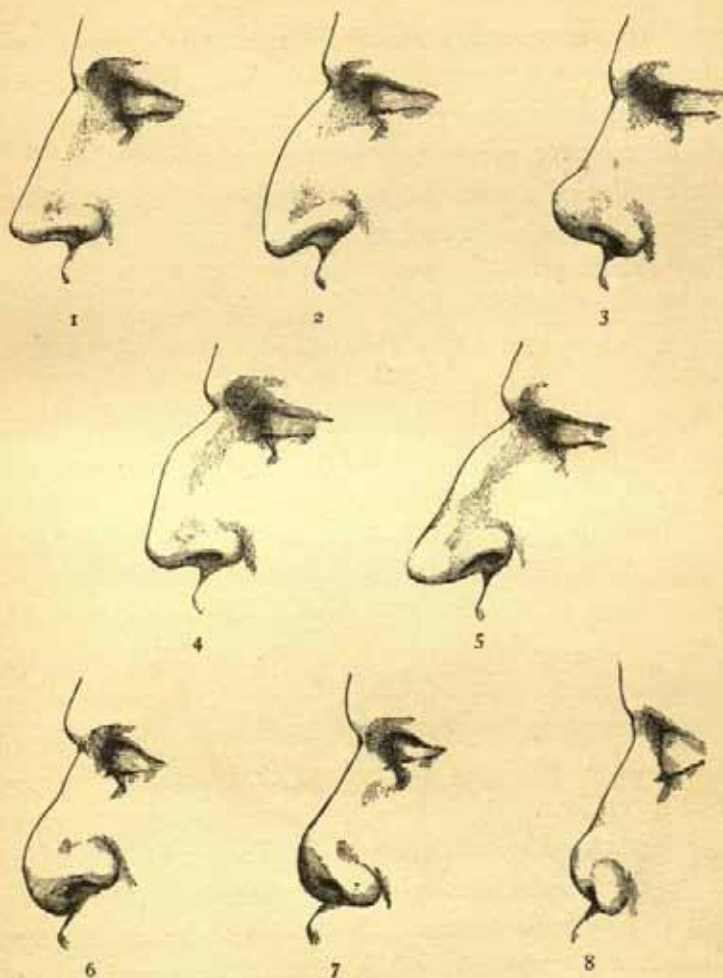


FIG. 9.

Types of Noses in profile; from Topinard's *Éléments d'Anthropologie Générale*.

- 1, Straight, with a horizontal base; 2, convex or aquiline, with a depressed base; 3, concave or retrousse, with a reflected base; 4, high-bridged or lusquid; 5, sinuous; 6, straight, flat type of the Yellow Races; 7, short, broad, nearly straight type of the African Negroes; 8, Melanesian type, broad, with the lower part forming a flattened and depressed hook.

again convex towards the tip. It is thus sinuous or undulating.

The sinuous nose may be considered as a variety of the concave, straight or convex nose, according as the totality of the line of the ridge presents a hollow, a general rectilinear direction or a protruding curve.



FIG. 10.

Head of Agrippa, Museo di Napoli: from Hovorka.

It is advisable that the description should always be so qualified.

Without going into further detail we may now pass on to the second factor:—

II. The inclination of the base of the nose may form a right angle with the line of the upper lip or a greater or a less angle with it; thus we have—

1. A reflected base, 2. A horizontal base, 3. A depressed base,

Any of these three conditions may occur with any variety of contour, but certain combinations are of more frequent recurrence than others. For example, the concave nose is usually reflected to form the snub nose, and the convex nose is either horizontal or depressed, the latter being the more typical of the



FIG. 11.

A, Head of Zeus Otricoli; *B*, the same, with all the hair removed, and with a corrected profile: from Hovorka, after Langer.

Jewish nose. A concave, depressed nose is exceptional. A rectilinear nose with a horizontal base, and one in which the root is slightly marked so that the line of the forehead passes gently into that of the nose, constitutes the classical nose of Greek statues. As a matter of fact this feature was seized upon and exaggerated by certain Greek sculptors, the contours of

the nose and forehead being alike falsified so as to give increased nobility to the expression. The majesty of the brow of Zeus, the wielder of the destinies of men, was due to an overstepping of human contours, as these in their turn, in the dim ages of the past, had passed beyond the low outlines of the brute.

A reflected base to a straight nose gives it a piquancy that was happily expressed by Tennyson when he wrote *—

"A damsel of high lineage, and a brow
May-blossom, and a cheek of apple-blossom,
Hawk eyes; and lightly was her slender nose
Tip-tilted like the petal of a flower."

Bertillon† has collected numerous statistics on the contours of noses, and he finds there is a marked transformation of the nose due to the influence of age which results in a kind of effacement and depression of the tip, as is seen in the following table, in which the numbers of subjects examined are reduced to 1000 :—

AGE.	BASE OF NOSE.		
	Reflected.	Horizontal.	Depressed.
19-25	418	538	44
25-35	254	667	79
35-45	146	713	141

* *Gareth and Lynette.*

† A. BERTILLON, "De la Morphologie du Nez," *Rev. d'Anthrop.* (3), li., 1887, p. 158.

It is seen that the reflected noses sink from 418 in young people to 146 in people in middle-life, while the depressed noses correspondingly rise from 44 to 141. In both instances the proportion is about one to three.

In order to obtain results which can be accurately compared with one another, measurements are made of the nose and an index is selected. The *nasal index of the living* is obtained by multiplying the breadth of the nose by one hundred and dividing the product by the height of the nose. The index, as is usually done in such cases, is divided into three classes, narrow, medium, and broad. In scientific terminology these are called—

Leptorhine	.	.	below 70
Mesorhine	.	.	70 to 85
Platyrrhine	.	.	above 85

Speaking in general terms there are, according to Topinard,* two extreme types of human nose—the low, broad, and flat, and the deep, narrow, and prominent—but between these every intermediate grade is found. As a rule, the more prominent a nose is the narrower it is; the flatter it is the broader it becomes. The depth increases with the prominence and narrows and diminishes with the flattening and broadening. The only exceptions occur among the

* P. TOPINARD, "Documents sur l'indice nasal du vivant," *l'Anthropologie*, ii., 1891, p. 273.

American Indians and the Eskimo. The nose among the former is deep and prominent, but broad; among the latter it is flat and broad, but at the same time deep.

Collignon* has proposed the following quinary classification of the nasal index of the living:—

Ultra leptorhine	.	.	40 and under
Hyper leptorhine	.	.	40 to 44.9
			45 " 49.9
			50 " 54.9
Leptorhine	.	.	55 " 59.9
			60 " 64.9
			65 " 69.9
Mesorhine	.	.	70 " 74.9
			75 " 79.9
			80 " 84.9
Platyrrhine	.	.	85 " 89.9
			90 " 94.9
			95 " 99.9
Hyper platyrrhine	.	.	100 " 104.9
			105 " 109.9
			110 " 114.9
Ultra platyrrhine	.	.	115 and over

The subdivisions, ranging in fives, may serve, on account of the great extent of each group, to express certain differences. It is important, for example, to be able to distinguish narrow, medium, or broad mesorhines; thus we may say the Eskimo are narrow or low† mesorhines, and the Annamites are medium meso-

* R. COLLIGNON, *Rev. d'Anthrop.* (3), iii., 1887, p. 8.

† The term "low" refers to the index, and not to the height-measurement of the nose.

rhines; or to avoid mistakes one may add the figure and say the Eskimo are mesorhine at seventy, and the Annamites are mesorhine at seventy-six.

We have at present an insufficient number of measurements to draw up a scheme for nasal indices, which would have a decisive value in the classification of races. Collignon has, however, collected the following figures, which must serve as a basis for future researches* :—

NASAL INDEX OF THE LIVING.

(FROM COLLIGNON.†)

<i>Leptorhines</i>		(-70)
100 French (very pure blond dolichocephalic type)	62.98	
30 French (pure Mediterranean race Pyrénées Orientales)	65.06	
184 Kabyles	66.5	
19 Finns	66.5	
200 French (Auvergne and centre)	66.66	
168 Finns (Mordwines)	66.9	
1000 French	67.33	
100 French (Savoy and Rhône)	68.05	
Tatars of the Crimea	68.15	
68 Parisians	69.4	
120 Tunisians (Berber race II.)	69.76	
<i>Mesorhines</i>		(70-84)
1334 Tunisians	70.23	
10 Eskimo	70.3	
5 North American Indians	70.6	
40 Tunisians (Berber race IV., of Ellez.)	72.04	
50 Tunisians (brachycephalic Berber race I.)	72.5	
8 Fuegians	74.8	
26 Kalmuks	74.82	

* See also the Table on p. 108. † *Rev. d'Anth.* (3), iii., 1887, p. 16.

40	Kara-Kirghis of Semiret-chensk	74'9
6	Tziganes ("Gypsies")	75'4
9	Red-skins	75'6
7	Sinhalese	75'7
113	Tunisians (Berber race III. of Djerid)	76'62
52	Annamites	76'8
5	Chinese	77
4	Araucans	80'6
3	Northern Mongols	81'1
5	South Americans	81'4
	<i>Platyrrhines</i>	(85 +)
7	Senegal Negroes	87'9
4	Solomon Islanders	89'1
13	Polynesians	89'8
24	African Negroes (casts)	92'2
11	New Caledonians and New Hebrideans	93'8
44	Tunisian Negroes	96'28
5	Hottentots and Bushmen	97'2
4	Fijians	97'7
4	Bushmen	101'7
52	Zambesi Negroes	101'5
4	Australians	101'7
11	Australians	107'6
7	Tasmanians	108'9

A consideration of this table shows that as a whole the means of the white races range from 62 to 76, the yellow races (including the American races) from 69 to 81, the African negroes from 87 to 101, and the Melanesians (or Oceanic negroes) from 93 to 109. In other words the white races are mainly leptorhine, the yellow races mainly and American races entirely mesorhine, and the black races of Africa, the Western Pacific, and of Australasia solely platyrrhine.

In a previous chapter I have already drawn attention to the fact that among certain peoples one can distinguish what may be termed a coarse type and a fine type.

Maspero, in his interesting *Dawn of Civilization*,* thus graphically describes these two types among the ancient Egyptians:—

"The highest type of Egyptian was tall and slender, with something that was proud and imperious in the carriage of his head and in his whole bearing. He had wide and full shoulders, muscular arms, a long, fine hand, slightly-developed hips, and sinewy legs. The head is rather short, the face oval, the forehead somewhat retreating. The eyes are wide and fully opened, the cheek-bones not too marked, the nose fairly prominent, and either straight or aquiline. The mouth is long and the lips full. The hair was inclined to be wavy.

"The common type was squat, dumpy, and heavy. The chest and shoulders seem to be enlarged at the expense of the pelvis and hips, to such an extent as to make the want of proportion between the upper and lower parts of the body startling and ungraceful. The skull is long, somewhat retreating, and slightly flattened on the top; the features are coarse, and as though carved in flesh by great strokes of the roughing-out chisel. Small frænated eyes, a short nose, flanked by widely-distended nostrils, round cheeks, a square chin, thick but not curling lips—this unattractive and ludicrous physiognomy, sometimes animated by an expression of cunning which recalls the shrewd face of an old French peasant, is often lighted up by gleams of gentleness and of melancholy good nature.

* J. MASPERO, *The Dawn of Civilization: Egypt and Chaldea*, Eng. Trans., 1894, p. 47.

"The external characteristics of these two principal types, whose endless modifications are to be found on the ancient monuments, may still be seen among the living."

An analogous difference may be noticed among the Japanese. Not only has this appealed to the scientific mind of Dr. Bälz, but it has attracted the attention of native artists; and one may see, as in a picture by Torii Kiyonaga, a mother of the fine type,



FIG. 12.

Heads of Japanese men of the fine and coarse type; from Hovorka, after Bälz.

watching a coarse-featured servant feeding the baby, who is also depicted with a nose of the type of its mother's. The celebrated school of the Torii, who flourished in the eighteenth century, invented colour-printing. In a picture by Outmaro, a Japanese nobleman is paying a ceremonial visit, and on the verandah is seen his low-visaged bearer, whose degraded countenance and squat nose with its broad nostrils offers a marked contrast to the oval face and

PLATE II.

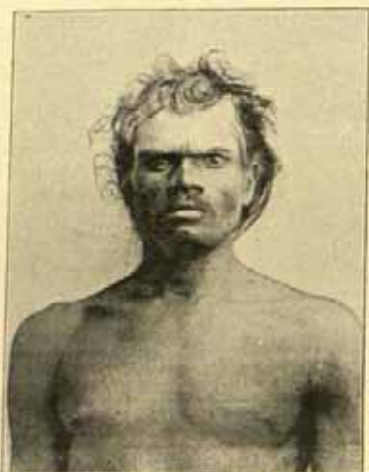


FIG. 1. Photograph of a Tamil Pariah; after Thurston.



FIG. 2. Japanese women of the fine and coarse type;
after a picture by Torii Kiyonaga.

[To face page 100.]

delicate nose of his master. Peeping from behind a screen are the faces of three girls, two of the fine type belong to daughters of the house, and between them is their rounder-faced maid.

Nowhere has the distinction between the fine and coarse type of nose been more fully studied than in India, and the results of these investigations are so interesting and important that I shall deal with them in considerable detail.

In 1891 and 1892 Mr. H. H. Risley published four volumes on *The Tribes and Castes of Bengal*, which embodied an immense mass of anthropometric data and ethnographic researches. Mr. Risley finds that in India the nasal index "ranks higher as a distinctive character than the stature or even than the cephalic index itself."

"If we take a series of castes," writes Mr. Risley, "in Bengal, Behar, or the North-Western Provinces, and arrange them in the order of the average nasal index, so that the caste with the finest nose shall be at the top, and that with the coarsest at the bottom of the list, it will be found that this order substantially corresponds with the accepted order of social precedence. The casteless tribes—Kols, Korwas, Mundas, and the like—who have not yet entered the Brahmanical system, occupy the lowest place. Then come the vermin-eating Musahars and the leather-dressing Chamárs. The fisher castes of Bauri, Bind and Kewat are a trifle higher in the scale; the pastoral Goala, the cultivating Kurmi, and a group of cognate castes from whose hands a Brahman may take water, follow in due order, and from

them we pass to the trading Khatris, the landholding Bábhans, and the upper crust of Hindu society. Thus, it is scarcely a paradox to lay down as a law for the caste organization in Eastern India, that a man's social status varies in inverse ratio to the width of his nose.

"Nor is this the only point in which the two sets of observations—the social and the physical—bear out and illustrate each other. The character of the curious matrimonial groupings for which the late Mr. J. F. McLennan devised the happy term *exogamous*, also varies in a definite relation to the gradations of physical type. Within a certain range of nasal proportions, these subdivisions are based almost exclusively on the totem. Along with a somewhat finer form of nose, groups called after villages and larger territorial areas, or bearing the name of certain tribal or communal officials, begin to appear, and above these again we reach the eponymous saints and heroes, who in India, as in Greece and Rome, are associated with a certain stage of Aryan progress."*

It is now generally admitted that some four thousand years ago the Valley of the Indus was invaded *viâ* Kabul and Kashmir by a fair Aryan race that had already wandered afar, and which now came in contact with an aboriginal black race.

"The sense of differences of colour, which, for all our talk of common humanity, still plays a great and, politically, often an inconvenient part in the history of the world, finds forcible expression in the Vedic descriptions of the people whom the Aryans found in possession of the plains of India. In a well-known passage the god Indra is praised for having

* H. H. RISLEY, *The Tribes and Castes of Bengal: Ethnographic Glossary*, I, 1892, p. xxxiii.

protected the Aryan colour, and the word meaning colour (*varna*) is used down to the present day as the equivalent of caste, more especially with reference to the castes believed to be of Aryan descent."*

The word caste is of Portuguese origin. In the 179th hymn of the first Mandala of the Rig-Veda, as Dr. Gerson da Cunha points out,† the word *varna* is used in the dual number, *ubhau varnau*, "two colours," white of the Aryans, and black of the Dasyus, that is of the Dravidian aborigines, who are elsewhere called "black-skinned," "unholy," "excommunicated"; other texts dwell on their low stature, coarse features, and their voracious appetite; but what is of more immediate interest, the Rig-Veda employs the word *anâsa*, "noseless," to the Dasyus and Daityas, which designations mean "thieves" or "demons." It is hardly an exaggeration to say that from these sources there might be compiled a fairly accurate anthropological definition of the Dravidian tribes of to-day.

The Aryan type, as we find it in India at the present day, is marked by a relatively long (dolichocephalic) head; a straight, finely cut (leptorhine) nose; a long, symmetrically narrow face; a well-developed forehead, regular features, and a high facial angle. The stature is fairly high, ranging from 1716 mm.

* *Loc. cit.*, p. xxxviii.

† "Presidential Address: The Nasal Index in Biological Anthropology," *Journ. Anth. Soc. of Bombay*, 1892, p. 542.

(5 ft. $7\frac{1}{2}$ in.) in the Sikhs of the Panjab, to 1656 mm. (5 ft. $5\frac{1}{4}$ in.) in the Brahmans of Bengal; and the general build of the figure is well proportioned and slender rather than massive. In the castes which exhibit these characteristics the complexion is a very light transparent brown—"wheat-coloured" is the common vernacular description—noticeably fairer than that of the mass of the population. Colour, however, is a character which eludes all attempts to record or define its gradations, and even the extreme varieties can only be described in very general terms.

Their exogamous groups are eponymous, bearing the names of their Vedic *rishis*, saints or heroes.

In the Dravidian type the form of the head usually inclines to be dolichocephalic, but all other characters present a marked contrast to the Aryan. The nose is thick and broad, and the formula expressing its proportionate dimensions is higher than in any known race, except the Negro. The facial angle is comparatively low; the lips are thick; the face wide and fleshy; the features coarse and irregular. The average stature ranges in a long series of tribes from 1562 mm. (5 ft. $1\frac{1}{2}$ in.) to 1621 (5 ft. $3\frac{3}{4}$ in.); the figure is squat and the limbs sturdy. The colour of the skin varies from very dark brown to a shade closely approaching black.

Their totemistic groups bear the names of

animals, plants, and artificial objects, to all of which diverse forms of taboo are applied.

Notwithstanding the repugnance of the noble Aryan to mix with the savage Dasyu, as is evidenced by the poetical legends of the contests between the gods of the Hindu mythology with the demons, or spirits of mountain and forest, the indigenous elements by their numerical superiority preponderated over the foreign ones.

To avert this menaced absorption, and to sustain the ethnic necessity of the caste system, a religious communion was introduced, to which there was less antipathy. Sir A. Lyall has proved that the primitive jungle tribe moved imperceptibly into the Hindu system by the gradual blending of the old with the new faith, which preceded their admission into the castal hierarchy and the breaking up of their tribal organization. "They pass," he says, "into Brahmanists by a natural upward transition, which leads them to adopt the religion of the castes immediately above them in the social scale of the composite population among which they settle down; and we may reasonably guess that this process has been working for centuries." This religious sanction is expounded in Manu's code, which, although said to have been written as late as 500 A.D., relates to changes effected as early as 1200 B.C.

Although absolutely hostile to the strain of aboriginal

blood, the code divided and subdivided the people, leaving out of the system the pariah, which originally simply meant a "mountaineer." These pariahs are, probably, the descendants of the "monkey" tribes of Râvana, who crossed from India into Ceylon across Adam's Bridge, as narrated in the great Indian Epic, the *Râmâyana*, in which the events of invasion, war, and migration can be dimly discerned through the mass of tradition and legendary lore with which they are overlaid.

In the Madras Census Report of 1891, the Census Commissioner, Mr. H. A. Stuart, states that "it has often been asserted, and is now the general belief, that the Brahmans of the south are not pure Aryans, but are a mixed Aryan and Dravidian race. In the earliest times the caste division was much less rigid than now, and a person of another caste could become a Brahman by attaining the Brahmanical standard of knowledge, and assuming the Brahmanical functions. And when we see the Nambudiri Brahmans, even at the present day, contracting alliances, informal though they be, with the women of the country, it is not difficult to believe that, on their first arrival, such unions were even more common, and that the children born of them would be recognized as Brahmans, though, perhaps, regarded as an inferior caste. However, these Brahmans, in whose veins mixed blood is supposed to run, are even

to this day regarded as lower in the social scale, and are not allowed to mix freely with the pure Brahman community."

According to Mr. Risley*—"The remarkable correspondence between the gradations of type as brought out by certain indices, and the gradations of social precedence, enables us to conclude that *community of race*, and not, as has frequently been argued, *community of function*, is the real determining principle of the caste system. Everywhere we find high social position associated with a certain physical type, and conversely low social position with a markedly different type."

The latest investigations in Indian anthropology are those of Mr. Edgar Thurston, the energetic Superintendent of the Madras Government Museum.† Mr. Thurston has studied the natives of Southern India more, especially the tribes of the Nilgiri Hills. The accompanying table is an abridgement of his Table xi., vol. ii., p. 63.

* *Journ. Anth. Inst.*, xx., 1891, p. 259.

† "Anthropology of the Todas and Kotas of the Nilgiri Hills, and of the Brahmans, Pallis, Kammalans, and Pariahs of Madras City," *Madras Government Museum Bulletin*, vol. i., No. 4, 1896. "Anthropology of the Badagas and Irulas of the Nilgiris; Paniyans of Malabar; Chinese-Tamil cross; a Cheruman skull; Kuruba or Kurumba; Summary of results" (*Id.*, vol. ii., No. 1, 1897).

TABLE OF NASAL INDICES OF CASTES AND TRIBES
OF SOUTHERN INDIA;

AFTER THURSTON.

LEPTORHINE—70.	Average.	Minimum.	Maximum.	Range.
Lambadis . . .	69'1 ...	59'2 ...	83'7 ...	24'5
Sheik Muhammadans	70 ...	60 ...	85'1 ...	25'1
MESORHINE 70—85.				
Kurubas . . .	73'2 ...	62'3 ...	85'9 ...	23'6
Todas . . .	74'9 ...	61'2 ...	89'1 ...	17'9
Kotas . . .	75'5 ...	64 ...	92'9 ...	18'9
Badagas . . .	75'6 ...	62'7 ...	88'4 ...	15'7
Kanarese Pariahs .	75'9 ...	61'5 ...	88'1 ...	26'6
Pattar Brahmans .	76'5 ...	64'7 ...	95'3 ...	30'1
Brahmans (Madras City)	76'7 ...	60 ...	95'1 ...	35'1
Cherumans . . .	78'1 ...	69'6 ...	88'9 ...	29'3
Tamil Pariahs . .	80 ...	66 ...	105 ...	39
Muppas . . .	81'5 ...	70'5 ...	92'3 ...	21'8
Irulas . . .	84'9 ...	72'3 ...	100 ...	27'7
PLATYRHINE 85+				
Pal Kurumbas .	87 ...	...	...	...
Urali Kurumbas .	93'4 ...	...	...	...
Sholigas . . .	94'4 ...	...	...	...
Paniyans . . .	95'1 ...	83'7 ...	108'6 ...	24'9

Of the twenty-four cases in the original table only two are leptorhine and four are platyrhine, the great majority being mesorhine.

In the next table we have a comparison of nasal indices of 20-25 members of various classes, arranged in groups of ten units. This very clearly brings out the value of the nasal index in the discrimination of races.

	50-60	60-70	70-80	80-90	90-100	100-110
Lambadis . . .	2 ...	13 ...	6 ...	4 ...	...	...
Sheik Muhammadans	13 ...	11 ...	1 ...	...	...
Kurubas	8 ...	14 ...	3 ...	...	...
Kanarese Pariahs	6 ...	10 ...	9 ...	...	...
Todas	4 ...	13 ...	8 ...	...	...
Kotas	4 ...	11 ...	8 ...	1 ...	...
Brahmans (Madras City)	4 ...	12 ...	8 ...	1 ...	...
Pattar Brahmans	4 ...	15 ...	4 ...	2 ...	...
Badagas	3 ...	14 ...	8 ...	...	...
Tamil Pariahs	1 ...	9 ...	14 ...	1 ...	...
Cherumans	1 ...	16 ...	8 ...	...	...
Muppas	11 ...	11 ...	2 ...	...
Irulas	7 ...	11 ...	6 ...	1
Paniyans	5 ...	9 ...	10

It will be seen that the average nasal index of the people investigated ranges from 69·1 in the tall, light-skinned, and long, narrow-nosed Lambadis, who speak an Aryan language, to 95·1 in the short, dark-skinned, and short, broad-nosed Paniyans; and that the indices recorded range between a minimum of 59·2 in a Lambadi, and a maximum of 108·6 in a Paniyan. Mr. Thurston has, however, measured a Paniyan woman who possessed a nose 31 mm. in height and 37 mm. in breadth, the nasal index being 119·4. The Sheik Muhammadans of Madras claim to be descendants of emigrants from the north, and to be distinct from the converted Dravidians. Their claim is no doubt justified; but well-marked signs of admixture of Dravidian blood are conspicuous in some members of their communities, whose dark skin

and high nasal index betray their non-Aryan descent. This miscegenation is clearly brought out by Thurston in the accompanying figure, in which we have a series of triangles representing in two-thirds natural size the minima, average, and maxima nasal indices of individuals belonging to the poorer classes of Brahmans of Madras city, of Tamil Pariahs, and of Paniyans. There is obviously far less connection between the Brahman minimum and the Paniyan maximum than between the Brahman and Pariah maxima and the Paniyan average. The frequent occurrence of high nasal indices, resulting from short, broad noses, in Brahmans has already been accounted for in the quotations I have made from Sir A. Lyall and Mr. H. A. Stuart.

One is accustomed to regard the problem of Indian ethnography as of only moderate complexity, as is seen in the following abstract of a paper by Mr. Risley.*

There are three main types in the population of India at the present day :—

1. A leptorhine, pro-opic,* dolichocephalic type, of tall stature, light build, long and narrow face, comparatively fair complexion, and high facial angle.

This type is most marked in the Panjab.

Their exogamous groups are eponymous, names of Vedic saints or heroes.

* H. H. RISLEY, "The study of Ethnology in India," *Journ. Anth. Inst.*, xx., 1891, p. 235.

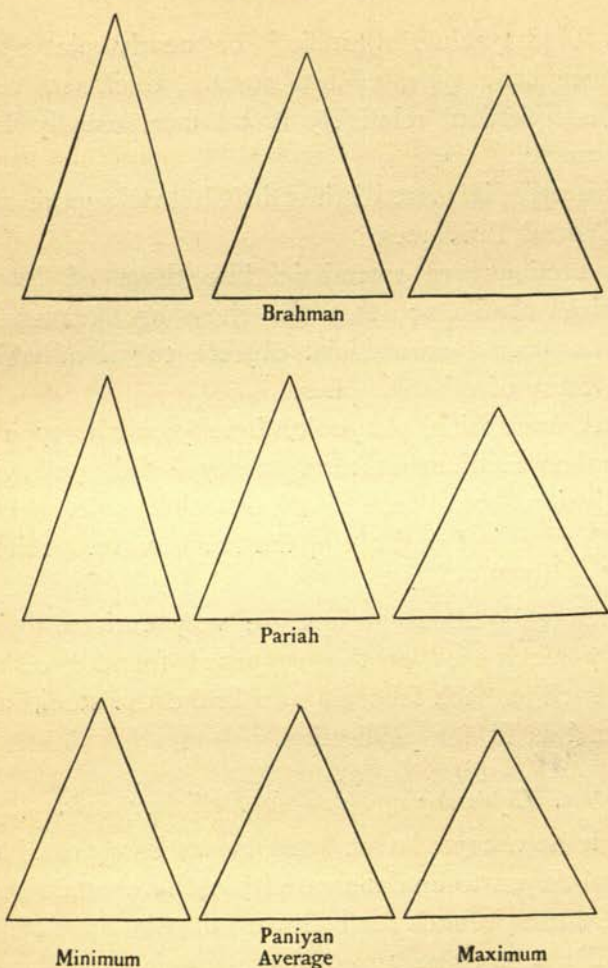


FIG. 13.

Diagrams of the variations in the height and breadth of the Noses of the poorer classes of Brahmins of Madras City, of Tamil Pariahs, and of Paniyans, two-thirds natural size; after Thurston.

2. A platyrrhine, mesopic,* or nearly platyopic, dolichocephalic type, of low stature, thick-set, very dark complexion, relatively broad face, usually low facial angle.

This type is most distinct in Chota Nagpore and the Central Provinces.

Its sections are totemistic, like those of North American Indians; that is, they are names of animals, plants, or artificial objects, to all of which some form of taboo applies.

3. A mesorrhine, platyopic,* brachycephalic type of a low or medium stature, sturdy build, yellowish complexion, broad face and low facial angle.

This type is found along the northern and eastern frontiers of Bengal.

Their exogamous groups are very curious, being mostly nicknames of the supposed founder of the sept, such as "the fat man who broke the stool," and others less fit for publication.

1. *Leptorrhine, Pro-opic Dolichocephals.*

If it be accepted that Karl Penka has proved the typical Aryan to be dolichocephalic, there would seem to be some grounds for believing that in the dolichocephalic leptorrhine type of the Panjab and north-western frontier at the present day, we may recognize

* The terms pro-opic, mesopic, and platyopic have reference to the height or prominence of the bridge of the nose; for further details see the chapter on measurements.

the descendants of the invading Aryans of 3000 years ago, changed, no doubt, in hair, eyes, and complexion, but retaining the more enduring characteristics of their race in the shape of their head, their stature, and the finely-cut proportions of their nose. Survivals of fair, or rather reddish hair, grey eyes, and reddish blond complexion are, moreover, still to be found, as Penka has pointed out, and as Risley himself has seen, among the Kafirs from beyond the Panjab frontier.

Anyway, the striking preponderance of dolichocephaly in the Panjab and the N. W. Provinces, and its gradual increase as we travel up the Ganges valley towards the traditional Aryan tract, tend both to strengthen Penka's hypothesis and to enhance the credibility of early Indian legends. These facts go also to show that Penka is mistaken in supposing that the Indian branch of the Aryans became brachycephalic on their way to India. Had this been so, the dolichocephaly which now distinguishes them could only have been derived from crosses with the black race, and the Aryans could hardly have become dolichocephalic in this way without also becoming platyrrhine.

2. *Platyrrhine, Mesopic Dolichocephals.*

The measurements show the current distinction between the Dravidians and Kolarians, on which stress has been laid by Dalton and others, to be a purely

linguistic character, not corresponding to any appreciable difference of physical type.

The hypothesis of the north-eastern origin of the so-called Kolarians urged by Colonel Dalton, and recently advanced by Mr. J. F. Hewitt, must also be abandoned as inconsistent with the dolichocephalic skull of the typical representatives of the group.

Whatever the Kolhs may be, they certainly are not a Mongoloid race.

3. *Mesorhine, Platyopic Brachycephals.*

All of the groups which come within this category are demonstrably of more or less pronounced Mongolian descent; and we may conveniently call them *Mongoloid*.

The type is essentially a frontier type, and its influence can in no case be traced far into the interior of India.

The Kochh or Rajbansi, a large tribe of Bengal, who now pose as an outlying branch of the Rajputs, are, indeed, commonly supposed to have some strain of Mongolian blood among them, but Risley doubts if this opinion is well founded. A slight degree of platyopy is, it is true, met with among them, but this may equally well be accounted for on the supposition of their affinity to the platyrhine type.

The nasal index of the dolichocephalic tribes that

are of non-Aryan descent requires a further analysis, and it appears to me that Mr. Thurston's researches suggest that the problem is more complex than is generally admitted.

On looking at the table on page 108, we are struck with the fact that three tribes, the Badagas, Todas, and Kotas, have the least variation of any in the range of their nasal indices. They have lived an isolated existence on the plateau of the Nilgiri Hills until the settlement of the English in recent times, and we may with safety regard them as a fairly primitive non-Aryan people. The owners of the greatest variation (exceeding a range of 30 units) constitute a group of Tamil classes made up of Brahmans, Pattar Brahmans descended from east-coast Tamil Brahmans, and other classes that I have not copied out; the greatest range is found among the Pariahs of Madras city. Mr. Thurston measured one very dark-skinned Tamil Pariah cooly, who was 5ft. 3 $\frac{1}{4}$ in. (1608 mm.) in height, and whose nose was 40 mm. in height, 42 mm. in breadth, with an index of 105. (Plate II. Fig. 1.)

The least variable, that is the least mixed, of these groups have low mesorhine indices (average 75.5), the most variable have higher indices. The Paniyans with the highest indices of all have a moderate amount of range.

In order to compare among themselves the

Badagas, Todas, Kotas, and Paniyans, it will be necessary to take other data into consideration, so I have selected a few from Mr. Thurston's tables:—

	No. of Men Measured.	Av. Ceph. Index.	Length of Head.	Av. Nasal Index.	Facial Angle.	Stature.	Span	Ratio of Span to Stat. = 100
Badagas .	40 ...	71·7 ...	189 ...	75·6 ...	71° ...	1641 5'4½	1717 ...	104·6
Todas .	25 ...	73·3 ...	194 ...	74·9 ...	68° ...	1696 5'6¾	1750 ...	103·2
Kotas .	25 ...	74·1 ...	192 ...	75·5 ...	70° ...	1629 5'4½	1683 ...	103·3
Paniyans	25 ...	74 ...	184 ...	95·1 ...	67° ...	1574 5'2	1652 ...	105

The Todas possess exactly the same average stature as the 89,000 Germans, whose measurements are given by Gould, and just miss being included with the English among the very tall races of the world. Between the Todas and the next tallest class measured by Thurston, the Sheik Muhammadans (1645 mm.), there is a well-defined gap of 51 mm. (2 inches). The tallest men he came across were a Toda (1850 mm. = 6ft. $\frac{3}{4}$ in.), and a Badaga (1832 mm. = 6ft. $\frac{1}{4}$ in.). The Paniyans have the shortest average, and also have the relatively longest arms.

Measurements which are useful in some other places have no diagnostic value in Southern India, such for example as the cephalic index and the facial angle. It is, however, worthy of note that the Todas, Kotas, and Badagas have the longest heads recorded by Thurston, and are in this respect separated from the Paniyans. The facial angle, though of great

importance in separating prognathous from orthognathous races, is of little use as an aid to comparison and classification of the different communities of Southern India, in whom the average of the angle of Cuvier (with its vertex at the edge of the incisor teeth) ranges in the people examined by Thurston between 67° and 71° . Here, again, only the Badagas reach 71° , only one other group besides the Kotas reach 70° , and only the Sheik Muhammadans and the Paniyans fall as low as 67° .

Existing materials do not enable us to prosecute the analysis much further, but among the non-Aryan tribes of Southern India it appears as if we could trace two groups: (1) a taller, with moderately long arms, with long heads, and distinctly dolichocephalic, a moderate facial angle, and a mesorhine nose; (2) a very short, long-armed group, dolichocephalic, more prognathous, and a very platyrrhine nose. The Nilgiri Hill tribes are typical examples of the former group, and the dark-skinned, curly-haired Paniyans of the latter group.

It is a common belief among the European planting community that the Paniyans are of African origin, and descended from ancestors who were wrecked on the Malabar coast. This theory, which is based solely on their general appearance, breaks down on investigation. Of their origin nothing definite is known. An interesting account of these people is

given by Thurston, and it is evident that we are dealing with a very primitive group of mankind, who have left traces of their former greater extension in the broad noses which occur among the lower Hindu castes.

In his earlier work Dr. Collignon, like other French anthropologists, was inclined to place great value on the nasal index of the living as a distinguishing character of the races of Western Europe. Taking the three main constituents of the French nation, he found* the nasal indices came out in the following order :—

Kymri	.	.	.	.	63.39
Mediterraneans	.	.	.	.	65.48
Celts†	.	.	.	.	67.20

and he naturally thought this was an excellent means of further distinguishing between the tall, dolichocephalic, fair race that came from the north, the fairly short, dolichocephalic, dark race of the south, and the short, brachycephalic, dark race of the centre.

In the same paper (p. 508) Collignon formulates the law that "in a given race leptorhiny is in direct relation to stature; the more it is raised, the longer the nose, the lower it is, the more the nose tends to mesorhiny."

As a result of his later researches Collignon finds

* R. COLLIGNON, "Étude anthropométrique élémentaire des principales Races de France," *Bull. Soc. d'Anthrop. de Paris*, 1883, p. 502.

This term is used in Broca's sense. See | 152.

that the nasal index in the living is of little practical value in French anthropology. He says :—*

“Like the stature, the nasal index has received a serious blow (from being in the front rank for the classification of European races). It is true that this character maintains its incomparable value for the separation of the main trunks of mankind, but, so far as concerns the European races, properly so-called, it is incontestable that its value is diminished. The ethnic scale, which is naturally of a narrow range between races so allied to one another, may be neutralised by local variations in height. It thus happens that the importance of the index is only relative, and that it loses the character of precision which we formerly credited it with.”

We must now pass to a consideration of the nose from a craniological point of view. In the skull we find that the prominent part of the nose is formed of two elements, the *nasal bones*, and the upper jaw or *maxillary bones*; the former constitute the bridge of the nose, the latter bound the lateral and inferior margin of the nasal aperture, and they also flank the nasal bones so as to separate them from the orbits. The nasal bones are bounded above by the frontal or bone of the forehead. The mid point of the *fronto-nasal suture* is termed by anthropologists the *nasion*, the corresponding spot in the living nose is the *root*. The nasal aperture is technically called

* R. COLLIGNON “Anthropologie de la France; Dordogne,” etc., *Mém. Soc. d'Anth. de Paris* (3), I., 1894, p. 43.

the *apertura pyriformis*, the lower border of which has certain characteristics to which reference will be made. In the middle line of this lower border there is usually a bony projection, the *nasal spine*, which is continuous with the gristly and partly ossified *nasal septum*. There is no need to refer to the gristly portions of the external nose, as these are macerated away in dried skulls, and, though a description of them is here omitted, it must be remembered that they support and give the form to the nose as seen in the living subject.

The *height* of the nose is the line joining the nasion to the corresponding point at the base of the nasal spine.

The *breadth* is the greatest diameter of the nasal aperture.

The *cranial nasal index* is the ratio of the nasal breadth to its height; this is obtained by multiplying the former by one hundred and dividing the product by the latter. The indices are grouped by Broca in a three-fold classification into broad, medium, and narrow noses, the figures being:—

French and English.

— 48

48-53

53+

Leptorhine

Mesorhine

Platyrrhine

“Frankfurt agreement.”

— 47

47-51

51+

The nasal indices to the left are those that were first suggested by Broca, and which have been

subsequently adopted by French and English anthropologists; to the right are those in general use in Germany, as accepted at the "Frankfurter Verständigung."

In the following table I have collected from Broca, Topinard, Flower, and other sources a selection of nasal indices. It is evident that we have here the same story that is told by the nasal index of the living. The black races are platyrrhine, whether they come from Africa or Oceania. The yellow races, including the Indo-Polynesians and Americans, are mesorrhine, and the European races are leptorrhine.

TABLE OF CRANIAL NASAL INDICES.

PLATYRRHINE RACES.

AFRICAN.

Bushmen	. . 60.2	Kordofan	. . 55.4
Lower Guinea	. . 58.8	Upper Guinea	. . 55.2
Kaffirs	. . 57.8	Senegal	. . 55.1
Hottentots	. . 57.3	Nubians	. . 55.1

OCEANIC.

Tasmanians	. . 57.4	New Caledonians	. . 52.9
Fijians	. . 57.1	Papuans, S.E.	. . 52.0
Australians	. . 56.9		

MESORRHINE RACES.

Javanese	. . 51.4	Chinese	. . 49.0
Malays (various)	. . 50.3	Polynesians	. . 48.0
Lapps	. . 50.2	Japanese	. . 48
Annamites	. . 50.1	Americans	. . 47.2

LEPTORHINE RACES.

Berbers of Biskra	. 48.9	English	. . 46.0
Italians of Lombardy	48.3	Syrians	. . 45.8
Egyptians	. . 47.1	Arabs	. . 45.5
Russians	. . 46.8	Berbers (Kabyles)	. 44.2
Parisians	. . 46.7	Eskimo	. . 43.0
Auvergnats	. . 46.2		

On or two points call for comment. It will be seen that at the limits of each group there are indices which should numerically be placed in the next group. For example, the New Caledonians and the Papuans of the archipelago at the extreme south-east of British New Guinea have mesorhine instead of platyrrhine indices; this is due directly or indirectly to a crossing with Polynesians. Of this we have direct evidence for the New Caledonians, and I have adduced evidence* for a migration from the Melanesian Archipelago into the south-east of New Guinea; but these Melanesians had already been subjected to Polynesian influence. The nasal index of the Polynesians is at the extreme lower end of mesorhiny. The Berbers of Biskra have doubtless had their nose broadened by Nigritic mixture, for the pure Berbers are among the most leptorrhine of men. The Lombardians have an exceptionally high index for Europeans. By their exceptionally low index the Eskimo are sharply separated from

A. C. HADDON, "The Decorative Art of British New Guinea." *Cunningham Memoir X. Roy. Irish Acad.*, 1894.

the Mongolic and American races; this fact is in harmony with their very dolichocephalic cranium (index about 72) and long face. The exact relationships of these interesting people is not yet definitely established.

The nasal index of the primitive Andaman Islanders (50.9) and that of the nearly equally primitive Vedda's (52.5) are smaller than one might expect, as these races are very unspecialized groups of mankind. The new-born French infant, according to Broca, has an index of 59.2, and is, consequently, about as platyrrhine as the Bushmen of South Africa.

One word of warning is necessary; although the nasal indices in the living and in the skull agree very well as a whole, it must be distinctly understood that there is no necessary relation between them. It is impossible to even approximately calculate the one index from the other.

The learned Broca* has made a comparative study of the nasal index in the skull of Egypt and France, and in both cases he has proved that the nasal index, despite numerous crossings, was perpetuated for centuries without important changes.

We need not enter into a discussion concerning the ethnical relationships of the earliest population of

* P. BROCA, "Recherches sur l'indice nasal," *Rev. d'Anthropologie*, i., 1872, p. 1.

Egypt; it is generally admitted that they were fundamentally a branch of the great Mediterranean race, but there is no doubt that several ethnic elements entered into their composition. The two types to which I have already referred, and which Pruner-Bey* first described as the fine and coarse type, are found in the subterranean galleries of Sakkara, which belong to the IVth Dynasty (about 4000 B.C.), and equally occur in the collections of skulls of the ancient empire. Whatever may be the origin of the fine type, it is only the coarse type that participates in the characters of the Nigritic peoples of Nubia. This prehistoric mixture must have been already ancient at the beginning of the Pharaonic period, for the characters of the Egyptian race have since been maintained with a remarkable stability; whence we may conclude that the effects of this crossing had at that early period already arrived at this condition of stability, and this could only be realized at the end of a great number of generations.

The nasal index of the skulls of the IVth Dynasty had a mean of 47.93, and in this figure one may recognize the influence of the platyrrhine races of Nubia. Let us now see what happened to the nasal index in later times.

It is known that in the Pharaonic times the valley

* PRUNER-BEY, "Recherches sur l'origine de l'ancienne race égyptienne," *Mem. Soc. d'Anth.*, i, 1861.

of the Nile was invaded in turns from the south, the east, and the west, and thus received influences from the Nubian or Ethiopian race, from the Syro-Arab or Semitic race, and from the Lybian or Berber race.

The Persian, Macedonian, and Roman conquests further introduced new Asiatic or European elements, and the Semitic element was restored more fully and persistently by the Arab conquest. In spite of all these mixtures, the nasal index of the existing Kopts does not differ perceptibly from that of the ancient graves.

About the IVth Dynasty* (3998–3721 B.C.), before all these invasions, the mean nasal index was, as we have seen, 47·93; among the Kopts of the nineteenth century it is 47·15. Is this because all the people who were successively established in Egypt had the same nasal index? By no means; for the index of the victorious Ethiopians was greater, whilst that of the Syro-Arab peoples and of the Berber tribes was, on the contrary, very small. MM. Hamy and Broca obtained twenty-two skulls from an ancient interment in the Island of Elephantine, opposite to Assouan, at the foot of the First Cataract, near the border of Upper Egypt and Nubia; the nasal index was 55·17.

* The dates of the dynasties are those given by Flinders Petrie in his *History of Egypt*. Second Ed., i., 1895, p. 252.

It is known that the VIth* Dynasty 3503-3322 B.C.) had its origin in Elephantine. So much for the Ethiopians. As to the Syro-Arabs, there is no doubt they had a very small nasal index, since that of recent Arabs is only 45.57, and that of Syrians 45.87. There remain the Lybian and Berber peoples, who established themselves in the Delta during the XIXth Dynasty, and who later, under Psammetik, gave a dynasty to Egypt. It is admitted that these peoples have a remarkably low nasal index. Broca measured ten Kabyle (Berber) skulls that had an index of 44.28, and some Guanches who belonged to the same race, had an index of 44.25.

At the XIth Dynasty (2821-2778 B.C.), after the Dynasty of Elephantine, which was the VIth, and which lasted for over 200 years, the index rose to 48.43. Under the XVIIIth Dynasty (1587-1327 B.C.), which followed close the long domination of Syro-Arab pastoral kings, it was maintained at 48.77; under the dynasties that followed, until the Macedonian period, it descended to 47.28. These are insignificant oscillations, and quite as insignificant is the change which has followed the Arab conquest of the Seventh Century, as the existing Kopts have an

* BROCA says "VIth Dynasty," but according to FLINDERS PETRIE (*History of Egypt*, i., p. 69), the Vth Dynasty (3721-3503 B.C.) was of Elephantine origin.

index of 47·15. One sees then, if the mixtures of races have been able to exercise a slight influence on the nasal index of the Egyptians, this influence has only been temporary.

MEAN NASAL INDEX OF EGYPTIANS AT
VARIOUS PERIODS.

(FROM BROCA.)			Nasal Index.	Cranial Index.
Fourth Dynasty	.	.	47·93 ...	76·40
Eleventh „	.	.	48·43 ...	75·40
Eighteenth „	.	.	48·77 ...	76·02
Later „ (up to the Ptolemeys)	.	.	47·28 ...	73·38
Average of Ancient Egypt	.	.	47·88 ...	75·58
Modern Egypt (Kopts)	.	.	47·15 ...	76·39

The persistence of the nasal index has not been less remarkable among the peoples who, from the most remote periods, have occupied the soil of France.

For the Mammoth Period, Broca had only two skulls from Eyzies, whose indices were 48·98 and 45·09. The mean index of these would be 47, but as Broca points out, the true average index is the *index of the means* and not the *mean of the indices*; as the nasal height in these cases were 24 and 22 (mean 23), and the breadth 51 and 49 (mean 50), the index of the means is 46.

The neolithic series is not homogeneous, but we may conclude that the peoples of the polished-stone age, so far as is known, were leptorhine.

MEAN NASAL INDEX OF ANCIENT AND MODERN
POPULATIONS OF FRANCE.

(FROM BROCA.)

	Nasal Index.	Cranial Index.
Mammoth Period (Eyzies) . . .	46	74'25
Neolithic Period . . .	46'93	75'01
Bronze Age (Oronony) . . .	46'89	79'26
Gauls of the Iron Age . . .	45'68	76'93
Gallo-Romans (Third and Fourth Century)	46'74	78'55
Merovingians (Seventh Century)	48'87	76'36
Parisians (Twelfth Century) . . .	48'25	79'18
„ (Sixteenth Century) . . .	47'97	79'56
„ (Nineteenth Century) . . .	46'81	79'44

The low index remains constant through the Bronze Age. The fifteen Gaulish skulls of the Iron Age measured by Broca belonged to at least a century before the conquest by Cæsar. The Roman invasion did not modify the index.

Most of the Merovingian skulls came from a cemetery at Chelles. The interment belonged to somewhat different dates, but it is probable that most of the skulls belong to the second half of the seventh century. Eleven more ancient skulls, that were found in a lower layer, have a mean index of 51'52, the more recent series of 44 skulls average 48'83; the total mean of the Chellian skulls being 49'36. The nasal index of some Merovingian skulls found at Champlieu descend to 47'58.

Amid all these variations one fact shines clear, that in all the Merovingian graves the nasal index

is markedly above that of the earlier populations of France. The Franks then brought to the country, which received its name from them, a new nasal type. In any case it is certain that the Franks had a nasal index of over 48, consequently they were not leptorhine like the people of Western Europe, but mesorhine like the Mongolic peoples. They belonged to the white-skinned, fair-haired, Teutonic race, but must be regarded as a distinct variety of it. There is no reason to believe that we have here traces of those remnants of the mesorhine hordes of Attila who fled towards Pannonia.

Wherever they came from, or however they acquired their nose, the arrival of the Franks augmented in a marked manner the mean nasal index of the population of Southern Gaul.

We will now follow the modifications of the nasal index in later periods. Under the three Frankish kings Paris became the capital of Neustria; the aristocratic class congregated there, and were so numerous as to escape better than elsewhere the effects of mixture. In the Twelfth Century the mean nasal index of the Parisians was still mesorhine, but it had already descended from 48·87, the mean number of the Merovingians, to 48·25—an index that is nearly leptorhine. In the succeeding centuries it continued to diminish, and at present it has returned to the figure (46·81) that it had before

the Frankish period, and the influence of the foreign race has now disappeared from the mean nasal index.

Concerning the nasal bones it may be noted that among the white races they are usually arched and prominent; among the yellow races, the Malays and the Negroes, they are flat. They are often, in addition, short and very broad among the Negroes, and fre-

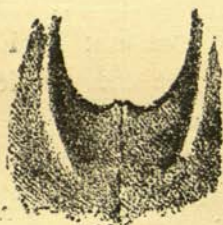


FIG. 14.

The lower border of the Apertura pyriformis of Orang-utan; from Hovorka.

quently long and narrow among the Chinese. The bridge of the nose is almost always flat in infants, and as we have just seen it usually remains so in the lower races, and it frequently also persists in this condition in women of higher races.

Lastly, I must draw attention to the variations that occur in the lower margin of the apertura pyriformis.

In the apes the floor of the nasal cavity passes insensibly on to the surface of the upper jaw, and there is consequently no definite inferior border to the nasal aperture. This condition may obtain

among human skulls, and it is known by the name of *simian groove*.

Of more frequent occurrence than the last is the condition which is characteristic of the human infant, in which the floor of the nasal chamber passes by a variable but distinct angle on to the surface of the maxilla. This is termed the *forma infantilis*.

The characteristic human condition is that in which the lower border of the pyriform aperture is formed



FIG. 15.

The four types of the lower border of the Apertura pyriformis in man ;
from Hovorka.

- a. *Forma anthropina* (Lower Austrian, 30 years old); b. *Fossæ prenasales* (Bavarian, 49 years old); c. *Forma infantilis* (child, 3½ years old);
d. *Simian groove* (Javanese, 28 years old).

by a distinct thin ridge which sharply cuts off the floor of the nasal cavity from the alveolar portion of the maxilla. This is the *forma anthropina*.

In some skulls there is a pair of depressions immediately external to the lower border of the apertura pyriformis. These are known as the *fossæ prenasales*.

It frequently happens that a skull with a *forma infantilis* may be transitional between the simian groove on the one hand or between a *forma prenasalis* or a *forma anthropina* on the other. No well-defined limits separate these various conditions.

Hovorka* gives the following statistics concerning the distribution of these varieties among various peoples:

No. examined.		Anthrop.	Prenasal.	Infant.	Simian.
191	Germans . .	131 ...	10 ...	44 ...	6
187	Cechs . .	117 ...	21 ...	40 ...	9
57	Austrians . .	49 ...	2 ...	4 ...	2
82	Russians . .	46 ...	14 ...	18 ...	4
34	Magyars . .	16 ...	5 ...	9 ...	4
16	Gypsies . .	11 ...	1 ...	2 ...	2
133	Greeks . .	83 ...	4 ...	42 ...	4
71	Italians . .	54 ...	2 ...	15 ...	—
16	Mummies . .	9 ...	— ...	6 ...	1
15	Chinese . .	5 ...	3 ...	6 ...	1
22	Malays . .	7 ...	2 ...	8 ...	5
10	Peruvians . .	5 ...	1 ...	4 ...	—
93	Negroes . .	24 ...	9 ...	25 ...	35
927		557	74	223	73

Speaking in general terms one may say that the simian groove is most frequent in the negroes, Australians, and the black races generally. The infantile condition is common among negroes, the yellow races, and Southern Europeans. The fossæ prenasales are also frequent among the yellow races, while the forma anthropina is characteristic of the Northern Europeans.†

* O. HOVORKA (EDL. VON ZDERAS) *Die Äussere Nase, eine anatomisch-anthropologische Studie*, Vienna, 1893. (This paper contains an extensive bibliography.)

† Since the above was in type, Professor A. Macalister has written a paper on "The Apertura pyriformis" (*Journ. Anat. and Phys.*, xxxii., January, 1898, p. 223), in which he describes these four conditions, to which he gives the following names: Orygmocraspedote (simian groove), Amblycraspedote (forma infantilis), Bothrocraspedote (fossæ prenasales), Oxycraspedote (forma anthropina).

CHAPTER V.

THE ETHNOGRAPHY OF THE DORDOGNE DISTRICT.

I HAVE previously alluded to the brilliant ethnographical work done by Dr. Collignon,* and I have made an abstract of his researches in the Dordogne District of West Central France in order to demonstrate the lines upon which such inquiries should be conducted, and to illustrate the results that follow from a blending of anthropological investigations with the records of history. We have here a very happy example of an anthropological analysis which supplies the data for a subsequent historical synthesis.

The region under consideration consists partly of the calcareous beds, and partly of primitive rocks of the Central Plateau of France; the limiting line between them is shown on map (Fig. 19); to the east it passes into the mountainous mass of Auvergne. The five Departments which constitute this region are traversed from east to west by the gradually decreas-

* R. COLLIGNON, "Anthropologie de la France : Dordogne, Charente, Corrèze, Creuse, Haute-Vienne," *Mém. Soc. d'Anth. de Paris* (3), i., 1894.

ing elevations of the Limousin Mountains, which serve as barriers between the three basins of the Dordogne, or rather of its right affluents the Dronne, Isle, Vézère, and Corrèze; of the Charente and of



FIG. 16.

Sketch Map of the Dordogne District.

the left affluents of the Loire, the Vienne, Gartempe, Creuse, and Cher. A line running roughly north and south, starting at the junction of Charente and Haute-Vienne and passing not far to the east of Périgueux, would separate the fertile district to the west from the

poor lands to the east. At certain points in the latter, as in the Limousin, the valleys are rich, but the uplands are infertile, and produce only chestnuts and scanty cereals.

The physical features of the population studied by Dr. Collignon are mainly those of the conscripts for the *xii^e* Corps d'armée who are recruited from these five Departments.

The characters are given in the order of importance that Dr. Collignon allocates to each.

CEPHALIC INDEX.

This index is the ratio of the breadth of the head to its greatest length, the latter being taken as 100. In dealing with skulls, anthropologists usually arrange the indices in three groups: (1) Dolichocephals, with an index of less than 75; (2) Mesaticephals, with an index between 75 and 80; (3) Brachycephals, having an index of over 80. It is the practice of some anthropologists to deduct two units from the corresponding index of the living head so as to reduce the cephalic to the cranial index.

There is a tendency at present not to lay too much stress upon these purely empirical divisions, and some would raise the upper limit of dolichocephaly two or three units.

The following table gives the distribution of the cephalic indices in the five Departments; in the case

of Dordogne a further analysis is made, which proves that the southern part of that Department is much more brachycephalic than the northern. The mean index of this Department, if alone considered, gives extremely little information.

CEPHALIC INDEX—PROPORTION PER CENT.

	Charente.	Haute-Vienne.	Creuse.	Corrèze.	Dordogne.	North Dordogne.	South Dordogne.
67-69	.17	—	—	—	.22	.30	—
70-74	5.60	3.78	.58	—	5.95	8.24	—
75-79	41.95	37.81	19.24	6.90	38.30	48.53	11.54
80-84	41.82	42.86	62.38	43.27	39.46	37.63	44.22
85-89	10.85	14.71	16.92	41.73	13.83	5.00	39.92
90-94	.50	.84	.88	7.93	2.13	.30	6.93
95-97	—	—	—	.17	.11	—	.39
Mean index	80.43	80.93	82.16	84.93	80.70	—	—

It is evident that this table indicates considerable differences in the ethnic constitution of each Department. Taking the extremes, we have, on the one hand, North Dordogne with its 8.5 per cent. of indices below 75, or Charente with 5.7 and only .5 of ultra-brachycephals, and Corrèze on the other, which has no dolichocephal below 75, but has 8.1 per cent. of indices over 90.

Taken as they stand, the great majority of these indices fall into the brachycephalic division, while very few are dolichocephalic.

The mean index of the French population being 83·57, Dr. Collignon, in order to simplify matters, describes as brachycephals those indices above 83. The cantons which come under this grouping form

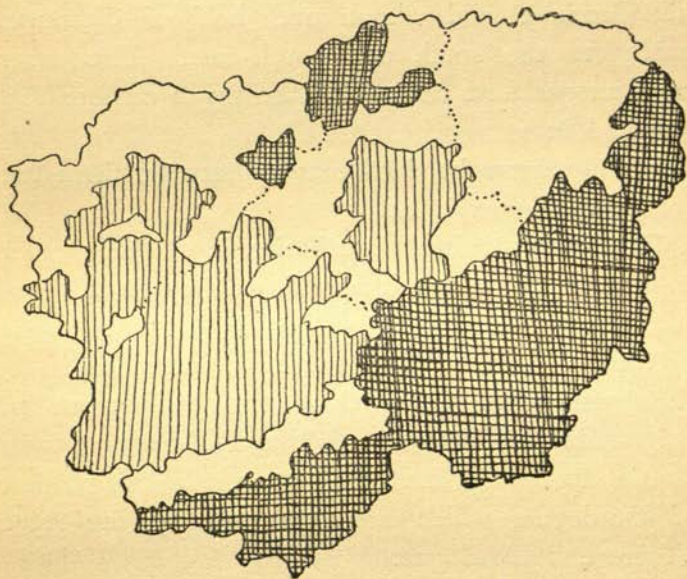


FIG. 17.

The Distribution of the Cephalic Index in the Dordogne District;
after Collignon.

Areas with an index of less than 80, shaded; those between 80 and 83,
left blank; those over 83, cross-hatched.

a compact mass to the south and south-east, as is seen in the accompanying map. To the north there are two islands in which the index does not exceed 83·8.

Inversely, and as a matter of convenience, he regards as dolichocephalic all the regions in which

the index is less than 80. Two large groups of dolichocephalic cantons are isolated by this means; the more important covers two-thirds of the Department of Dordogne (the valleys of the Isle and of the Dronne), and about one half of Charente, mainly to the south and south-east. The other has Limoges for a centre and the seven cantons that surround it.

In the narrow band of country between these two groups the index is 81.

This clearly-defined distribution is of the greatest importance, for alone it provides a key to the local ethnography.

Another point not less worthy of attention is the clear manner in which these two head types are separated: (1) between the two Departments of Dordogne and Corrèze; (2) between the two portions of Dordogne, which are separated by the rivers Vézère and Dordogne.

As a matter of fact the boundary between the two Departments of Dordogne and Corrèze was formerly precisely that between Périgord and Limousin, and in earlier times between the Petrocorii and Lemovices. To the right of this entirely conventional frontier the indices run from 85·4 to 87·3, while to the left they vary from 78·7 to 81·4, but there is nothing in history to explain this discrepancy. The explanation appears to be that well before the Conquest the two peoples

differed in race, the one being what Cæsar called Celts, the other probably belonging to the people whom he named Aquitainians.

The southern portion of Dordogne is also brachycephalic and Celtic, and so Dr. Collignon is inclined to think that it did not form part of the territory of the Petrocorii, but that it should be divided among the Nitiobriges and Cadurci, whose equally brachycephalic descendants still people Lot-et-Garonne and Lot.

Another line of evidence supports this conclusion. It is known that the primitive episcopal dioceses corresponded to the territories of the ancient Roman *civitates*, since a bishop was established in each city by the emperors. Whilst the northern, eastern, and western frontiers of the diocese of Périgueux correspond very closely with that of the modern Department, the region south of the Vézère belongs to the Bishop of Cahors, which tends to show that the natives of the south of Dordogne are the descendants not of the Petrocorii, but of the Cadurci.

The differences between the two parts of Limousin, of which the one forms part of Corrèze and the other the south of Haute-Vienne, can be explained in an analogous manner. The former is brown and brachycephalic, while the latter is fair and dolichocephalic.

One may well believe that the Lemovices, those

of the neighbourhood of Limoges, were no more Petrocorii than Celtæ, but a fair people of Belgic or Germanic origin, established in Celtica, who had overlorded the ancient brachycephalic people who there preceded them.

Inversely, Briva-Curetia, another old Gaulish town of Limousin, was the centre of gravitation of the first inhabitants, if not their capital.

In Charente there is only one canton in which the mean index rises over 83. In this canton of Chabanais is the small village of Chassenom on the left bank of the Vienne. It is interesting to see the old Celtic race here, preserved with a relative purity, still grouped around the ruins of its oppidum (Cassinodunum), where, compared with the rest of the Department, it appears as an island surrounded by the combined flood of brown and fair dolichocephals.

COLOUR OF THE HAIR AND EYES.

A statistical inquiry concerning the distribution of the colours of the eyes and hair leads to the following results. The browns predominate markedly over the blonds. But for a group of cantons in Creuse all the district should be ranged under the brown or moderately brown categories.

In the following table the numbers are in relation to 100, the differences between 100 and the fairs and

the darks represent the eyes and hair of intermediate tint:—

	Eyes.		Hair.			Half sum of eyes and hair.		Excess of dark over light.
	Blue.	Dark.	Fair.	Dark and black.	Black only.	Light.	Dark.	
Haute-Vienne	36.7	24.6	21.8	49.6	5.25	29.2	37.1	7.9
Creuse . .	34.7	23.3	21.9	53.9	6.12	28.3	38.6	10.3
Charente . .	33.8	23.6	17.2	57.6	5.80	25.5	40.6	15.1
Corrèze . .	29.5	23.3	15.4	58.4	3.80	22.3	40.9	18.6
Dordogne . .	34.2	23.6	15.0	66.3	12.05	24.6	45.0	20.4

On comparing this table with the map, it will be seen that although Dordogne has an absolute greater number of blonds than Corrèze it is relatively darker, owing to the fact that the darks are greatly in excess in certain cantons; in other words, Dordogne is more patchy and Corrèze more uniform in the distribution of their hair and eye colours. It is evident in using the word blond this term is employed in only a relative sense. It is with this reserve and for the sake of convenience that the term blond will be employed. In the most blond group, that in the neighbourhood of Aubusson in Creuse, the blonds amount to only 33.6 per cent.—that is to say, one-third.

In order to gain a clear conception of the distribution of the hair and eye colours, it will be simpler to assume the whole region as originally inhabited by a

brown population, and then to follow the probable route of the blonds.

The most important spot where the blond type is best preserved is the east of the Department of

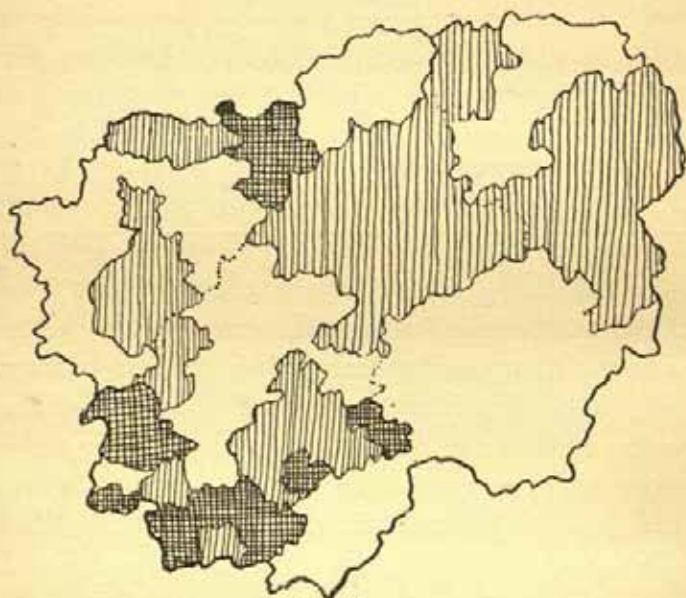


FIG. 18.

The Distribution of combined Hair and Eye Colour in the Dordogne District;
after Collignon.

Excess of Browns from 0 to 10, shaded; 10 to 30, blank; over 30, cross-hatched.

Creuse, especially the plateau of Gentioux and the upper basin of the river Cher and of its left affluents.

The second relatively blond region has Limoges for its centre. In certain spots the type is preserved with a remarkable purity, particularly among the

women. Dr. Collignon was very much struck with the resemblance of these to the women of Cotentin in Normandy. It appears that the blonds radiate from Limoges in four directions; (1) towards the north in the direction of the old Roman road of Argentomagus and Avaricum (Argentan and Bourges), later the route to Paris, that is to say, along the road which united this town with the great blond centres of the North of France; (2) towards the east where it joins with blonds of the Cher region; (3) to the west in the direction of Angoulême; and (4) southwards towards Périgueux.

The third route of blond immigration would be the route from Paris to Bordeaux through Angoulême.

Limoges formed a centre, and towards the four points of the compass lay four very ancient and important towns, Avaricum (Bourges), Gergovia (Clermont), Vesuna (Périgueux), and Ecolisma (Angoulême).

The latter town was the only one of the four that was not united to Limoges either by a Roman road of the first order, or later by a postal route; and we find in the region between these towns the blonds are deficient. The importance of the communications between Limoges and Bordeaux through Périgueux is affirmed by the long line of blonds which occur along that route. To take a biological simile, Limoges represents a ganglion

protruding its nerve fibres in all directions towards other similar ganglia.

The distribution of black hair is worthy of note. In Dordogne it is marked in *la Double*, in the valleys of the rivers Dordogne, Isle, and Dronne. Secondary centres extend towards the north of Charente and of Creuse. There is thus a current inverse to that of the blonds. The great pressure of blonds came from the north-east and from the north; it traversed the district obliquely in a north-east to south-west line. Inversely the black-haired race appears to be massed in the south-west, and to be distributed, with a gradually decreasing importance, towards the north-east and north.

STATURE.

The measurements of the stature are not so instructive from a racial point of view as might have been expected.

All the tall statures are massed at the circumference of the four Departments of which the statistics are available, with the exception of an important centre about Limoges. In the map the distribution of the heights over 1640 mm. (5 ft. 4½ in.) is shown by the vertical lines. In mapping the distribution of the statures under 1610 (5 ft. 3½ in.) it is seen that besides several scattered areas towards the south of the district under discussion, there is a large central

area which, following the example of Broca who found a similar area of a dwarfed population in Basse Bretagne, Dr. Collignon calls "the Limousin black spot" (*"la tache noire limousin"*).

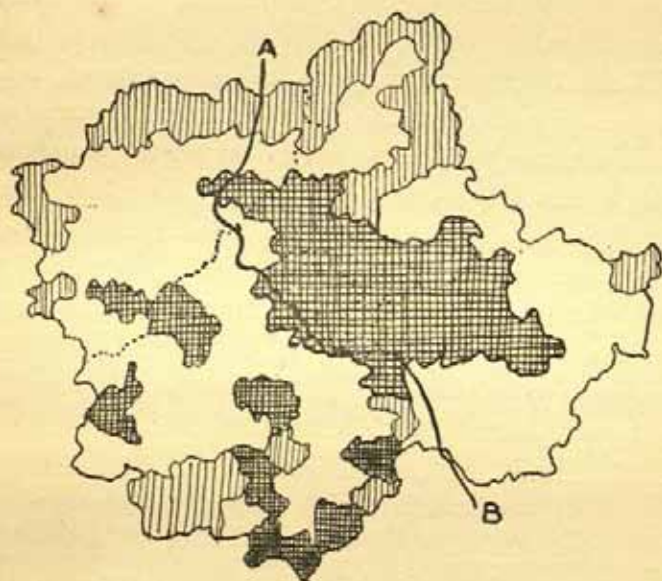


FIG. 19.

The Distribution of Stature in the Dordogne District (the Department of Creuse is omitted); after Collignon.

Stature less than 161 cm. (5ft. 3½ ins.), cross-hatched; between 161 and 164 cm., blank; from 164 (5 ft. 4½ ins.) to 166 cm. (5ft. 5½ ins.), shaded. The line A B separates the granites and crystalline rocks on the east from the calcareous beds on the west.

In other cantons less than 10 per cent. of the statures have under 1600 (5 ft. 3 in.), those in the black spot have without exception over 30 per cent.;

eight cantons have more than 40 per cent., one has 54·7 per cent., while that of Saint Mathieu has 67·6 per cent. less than 1600, four below 1540, and 8·8 per cent. below 1500 (4 ft. 11 in.)! True dwarfs, that is those with a stature below 1500 mm., are exceptional everywhere.

These figures are not due to an accidental and temporary selection, as the following figures of Bondin prove, which extended over a period of thirty years (1831-1860). These tables show that Dordogne, Corrèze, and Haute-Vienne are among the four Departments in the whole of France which have the greatest number of exemptions from conscription owing to deficiency of stature. The neighbouring Department of Puy-de-Dôme occupies the eighty-fourth rank, with 128 exemptions.

Exemptions per 1000.		Rank in France.	Heights of 1732 per 1000.		Rank in France.
Creuse . . .	89	63	Creuse . . .	44	74
Charente . . .	114	82	Corrèze . . .	43	77
Dordogne . . .	124	83	Charente . . .	41	79
Corrèze . . .	168	85	Dordogne . . .	39	80
Haute-Vienne . .	175	86	Haute-Vienne .	31·6	86

Inversely the high statures are also at a minimum, Haute-Vienne having the least proportion of tall people and the greatest population of short people of any Department of France.

Bondin and Broca considered that this remarkable shortness was purely a question of race, the normal smallness of the brachycephals. This very simple explanation will no longer suffice, in the presence of the dolichocephaly proved for Dordogne, Charente, and Haute-Vienne. If we compare the maps of the distribution of the cephalic index with those of colour and stature, and mentally superimpose them, we find that there is absolutely not a shadow of a relation between them. The "black spot" extends alike over the brachycephals of Corrèze, the brown dolichocephals of Dordogne, and the fair dolichocephals of Haute-Vienne. There is then no relation between this demonstrated phenomenon and race.

Some anthropologists seek a cause in the geological character of the soil; but here as in Brittany and Cotentin it explains nothing. It is true that the line of separation between the granites and crystalline rocks on the east and the calcareous beds on the west runs pretty closely along the southern border of the black spot; but we also find the greatest number of high statures on the granites, and the low statures flourish equally well on the Liassic and Cretaceous calcareous beds of Sarladais and Riberaçois.

The only plausible explanation is the social condition, and in this case it is summed up in the expressive French term *la misère*. The steep slopes and barren soil only produce poor cereals, rye, barley, and

buckwheat. The natives live on these, and on milk and chestnuts. Communication is difficult; no great tillage as in the fertile valleys of the Vienne and Gartempe, none of the larger industries that enrich a people. "In the cantons of Vigéois, Uzerche, and Treignac in Corrèze," writes M. Vacher, "the population is settled in confined valleys, in deep gorges receiving little light and air, with an impermeable subsoil and marshy ground." In a poor country the most elementary hygiene is unknown, the death-rate is raised, and organic defects are more frequent than elsewhere. One of the more direct corollaries of misery is ignorance. In many other parts of France, such as in the Hautes-Alpes and Sologne, poverty is allied with ignorance, and results in the degeneration of the race.

THE NASAL INDEX.

The nasal index is the ratio of the breadth of the wings of the nose to its length, the latter being measured from the root of the nose to where the septum passes into the upper lip. The narrow noses (leptorhines) are those with an index below 70; the mesorhines range from 70 to 85; while the broad noses (platyrrhines) are those above 85.

The mean nasal index is 68·8, but the individual range is enormous, 49·9 to 96·4, that is more than 46 units. As a whole the mesorhine indices, *i.e.*, those

over 70, are massed in the centre of the five Departments.

This distribution follows in the main that of the stature. But why? Simply in accordance with a law previously thus formulated by Collignon: "In a given race, leptorhiny is in direct relation to stature; the higher this is raised the longer the nose, the lower the height the more the nose tends to mesorhiny."*

A careful consideration of the data tends to show that, independent of stature, the brachycephals possess a mean nasal index of about 69, that is to say very near mesorhiny, which is in agreement with previous investigations. The dolichocephalic races are more leptorhine.

One result of this inquiry is that the value of the nasal index has received a serious blow. Certainly this character is very important for the discrimination of the great trunks of mankind, as has been abundantly proved in anthropological investigations in India, but so far as the European nations are concerned it is incontestable that the nasal index has only a subsidiary and relative value.

HEIGHT INDICES OF THE CRANIUM.

The importance of the vertical height of the cranium as a racial character has been emphasized

* "Étude anthropométrique élémentaire des principales Races de France," *Bull. Soc. d'Anthrop. de Paris*, 1883, p. 508.

by Virchow, but Collignon was the first to study this factor in the living. The two height indices are obtained by comparing the total height of the head measured from the vertex to the centre of the ear-hole with—(1) the length of the head, and (2) its greatest breadth, each of these two diameters being taken as 100.

The indices are classified as follows :—

	Height-length Index.	Height-breadth Index.
Platycephals	- 67	- 83
Mesocephals	67 - 70	83 - 85
Hypsicephals	70 +	85 +

A really high skull, if it is very broad, may appear relatively low, or a low but very narrow head, may appear decidedly hypsicephalic. Hence the necessity to consider first the cephalic index, and thereby to recognize the normal and harmonic fluctuations of the inverse variations of these two vertical indices.

Dr. Collignon has plotted the distribution of these indices for the Department of Dordogne alone. We have seen that the northern cantons are what he termed dolichocephalic, and the southern are brachycephalic. The length-height index of the former varies between 65 to 68, and of the latter from 70 to 72. Taking the mean at 66 and 70 respectively,

it follows that the dolichocephals are platycephalic and the brachycephals hypsicephalic; but this platycephaly is a true flattening of the skull, and is not merely due to a lengthening of the cranium, as it is not the most dolichocephalic cantons that are the most platycephalic.



FIG. 20.

Distribution of the Height-length Index in Dordogne; after Collignon.

70 +	Hypsicephalic (shaded)	85 +
67 - 70	Mesocephalic (blank)	83 - 85
- 67	Platycephalic (cross-hatched)	81 - 83



FIG. 21.

Distribution of the Height-breadth Index in Dordogne; after Collignon.

The oblique band enclosed with a thick line corresponds to the division between the dolichocephals and brachycephals. See Fig. 17.

On the other hand, all the brachycephalic cantons have a height-breadth index of from 81 to 84, that is, they are, or appear to be, platycephalic and mesocephalic, but their mean is mesocephalic.

The mixed race who inhabit the zone between the

brachycephals and dolichocephals (cephalic index 80-82) is also intermediate with a height-breadth index of 83-85, but the dolichocephals fall into two groups; the one with indices from 85 to 87 are hypsicephalic, the others, like the brachycephals, are mesocephalic and platycephalic.

Thus the platycephaly of the valley of the Isle is established.

The brachycephals are only false platycephals owing to an exaggeration of the transverse diameter.

Without going into further details, we may now make an attempt to unravel the ethnology of these five Departments. Taking the three characters of cephalic index, colour and stature, we can distinguish: short and dark or tall and fair brachycephals; fair, tall dolichocephals and dark dolichocephals.

The brachycephals occupy all the region south of the rivers Dordogne and Vézère, the whole of the Department of Corrèze and the east of that of Creuse. The brown brachycephalic type extends to the mountainous region of Auvergne, to the east of France and to the south of Germany. This race of short, dark brachycephals is a well-marked type which has received several names. Dr. Collignon, for want of a better term, adopts Broca's designation of Celts, as the founder of French Anthropology considered that these were essentially the Celtæ of Cæsar. They

are often called Auvergnats. The tall, fair variety is due to a crossing of this type with the fair race. A similar racial mixture occurs in Lorraine.

The fair dolichocephals inhabit the upper valley of the Cher; the neighbourhood of Limoges, whence they spread to the south, following the plateaux that separate the valleys of the Isle and of the Dordogne; and also the north of Charente, Angoulême, and in general along the very ancient route between Paris and Bordeaux. These are the modified descendants of the tall, fair, dolichocephalic race of North Europe. Dr. Collignon speaks of it as the Hallstadt race.

The brown dolichocephals require further analysis.

(1) A type can be distinguished which is characterized by its relative platycephaly, the extreme broadening of the face, a prominent chin, low orbits, and by the dark colour of the skin and hair. As it is usual in Europe to correlate a long, narrow face with a long head, and a short broad face with a rounded head, the association, as in this case, of a long head with a broad face forms what is termed a disharmony. In the fair dolichocephals, on the other hand, the head is high, the face narrow, the chin moderately prominent, the orbits normal, the skin, hair, and eyes fair. It is obvious that these two races are entirely distinct.

(2) A narrow-faced dolichocephal with a high head can be distinguished, but Dr. Collignon believes that it is a cross between two races, the brown and the fair

dolichocephals. This is a very favourable combination, and gives rise to a beautiful variety of man.

(3) A rare but recognizable type, with an extraordinarily narrow and elongated face, a retreating forehead, projecting jaws, and retreating chin; the concave nose is so broad as to be nearly platyrrhine, the hair and skin are dark.

Putting the second of these two varieties out of count, there only remain the brown dolichocephal with a disharmonic face, and that with a retreating chin. They both live in the basin of the Isle and its affluents, as much in Charente as in Dordogne.

From numerous other investigations we know that the Neolithic dolichocephals of Western and Southern Europe were a slight people with brown hair. They constitute the Mediterranean race of Sergi, the western branch being generally termed Iberians. The ancient cave-men of France belong to the same race; by comparing certain indices of these with the first group of our brown dolichocephals, we find a remarkable correspondence :—*

	Cephalic Index.	Height-length Index.	Height-breadth Index.
Caverne de l'homme mort	Dolicho.	Platyceph.	Mesoceph.
Old man of Cro-Magnon	"	"	Platy.
Recent Dordogne . . .	"	"	Platy.& Meso.

* These indices are taken from a subsequent memoir by Dr. COLLIGNON, (*Mém. Soc. d'Anth. de Paris*), i. (3^e sér.), 1895, pp. 94, 95.

Further, the Cro-Magnon man had a disharmonic face; this is also characteristic of the Neolithic dolichocephal of Laugerie, and it survives in their descendants in the valley of the Isle.

The remaining brown dolichocephalic type, with its low-typed, long, narrow, prognathous face, is considered by Dr. Collignon to be the far-removed descendants of the Quaternary race of Canstadt and Spy. The same type has been recognized by him in Tunis among the Berbers of Djerid (his *race Gétule*), as well as in Dordogne and in the south of Charente; that is to say, in places still occupied by the descendants of the race of Cro-Magnon. It might be expected that the very ancient race of Canstadt and the later race of Cro-Magnon were together beaten back by the great prehistoric invasions of Western Europe.

A few words will suffice to trace the prehistoric settlements and racial movements that have occurred in this district.

The earliest inhabitants were probably the people with retreating chins. According to the opinion of Dr. Collignon these were kinsmen to Palæolithic man. At the present day, as is only to be expected, this type is very rarely met with in anything like purity, and it is very difficult to isolate it statistically.

The whole west of Europe was later occupied by the brown dolichocephals, the Iberian branch of the

great Mediterranean race, of which the Cro-Magnon man was a variety. They buried their dead in the caves of the valleys of the Vézère, Isle, and Dronne. Judging from their art they were a skilful people, and not devoid of culture :—

“Later he pictured an aurochs—later he pictured a bear—
Pictured the sabre-toothed tiger dragging a man to his lair—
Pictured the mountainous mammoth, hairy, abhorrent, alone—
Out of the love that he bore them, scribing them clearly on bone.”*

There, protected in their barren, rocky valleys, weathering the storm of race conflict, unsubmerged by waves of race migration, still survive the children of early Neolithic man.

Also in Neolithic times a short, dark, brachycephalic folk came into France from the east by two routes flowing north and south of the Alps. The invasion followed the left bank of the Danube, entered the valley of the Rhine, and later spread into France through the pass of Belfort and by the lower Moselle. A second, probably later and less important, invasion crossed the river to reach Upper Italy and Switzerland, and thence gained the valley of the Rhone. Thus their migration has been from east to west.

When the invasions came of the tall, fair dolichocephals,—Kymri, Gauls, Cimbrians, Burgundians, Visigoths, Franks, &c.,—they more particularly

* RUDYARD KIPLING, “The Story of Ung,” *The Seven Seas* (1896), p. 129.

followed a course parallel to the North Sea. From an ill-determined point to the north-east or north they advanced invariably along the plains, probably on account of the chariots which they always brought with them. After having covered the plains of North Germany, where since then their descendants have always lived, and which became a second centre for emigrations, they passed to the north of the Black Forest to scatter upon the Netherlands and Flanders, the valley of the Seine and that of the Rhine. Thence their swarms were divided by the central plateau of France; one stream being diverted into Italy, the other into Spain, and thence to North Africa.

The Roman conquest scarcely, if at all, affected the population of these five Departments, and it is more than certain that since then no foreign element has produced any result that can be traced, for all the Barbarians, as well as the English, belonged to the fair race.

In a subsequent memoir on the Anthropology of the South-West of France (*Mém. Soc. d'Anthrop. de Paris*, i., 3^e sér., 4^o fascic., 1895), Dr. Collignon sums up his conclusions as follows:—

Such is, after an examination of anatomical characters, the distribution of the races in the south-west of our country. Is it possible to draw therefrom reliable indications of what it was formerly? Regarding this we may lay down this rule. When

a race is well seated in a region, fixed to the soil by agriculture, acclimatized by natural selection and sufficiently dense, it opposes, for the most precise observations confirm it, an enormous resistance to absorption by the new comers, whoever they may be.

The most striking example of this stability of seated races, of this force of inertia which renders them victorious, is certainly presented to us by Egypt. The modern Fellah differs in nowise from his ancestors several millenniums ago, who lived at the times of Tothmes and Rhameses, although, according to the calculations of M. Hamy, slavery had introduced upon the borders of the Nile more than twenty millions of negroes. These, in a climate which at first sight would be favourable to their acclimatization, were not able to perpetuate their race, neither directly nor indirectly, that is to say, by crossing. All the more reason, one may say, that the same can be said of the historic conquerors of this unfortunate country, from the Hyksos and the Persians down to the Turks and the latest comers, the English. The waves of foreign blood that have spread over Egypt have disappeared never to return.

The reasons are many. If the aboriginal race is more numerous than its invaders, and this is nearly always the case, it cannot be entirely destroyed; whatever be the slaughter which accompanies the conquest, the women and the children are preserved.

The importance of the subsequent crossings cannot then, at the maximum, attain more than one-third. The stable condition that follows puts then *ipso facto* the new comer in a minority from the commencement of the conquest, the work of selection by acclimatization does the rest. It is a matter of a few generations.

The only case where the occupation can be definitive is that of an invasion by a very superior race emigrating with women and children to a region peopled by nomads or true savages, such as the occupation of the United States or of Australia by the Europeans. In Canada, despite the political occupation and the incessant arrival of emigrants of their own blood, the English are absolutely balanced by the old French element, who were masters of the soil before their arrival.

But the presence of woman at the time of a conquest, if she is indispensable to a real and definitive colonization, since alone it ensures the perpetuity of pure descendants, is not, however, sufficient. Except in a savage country, the women of the conquering party would always be in a minority. Even in the case where restrictive laws would assure to their progeny particular privileges, making a kind of aristocracy, it could never happen that there would be only two strata of the population, a victorious aristocracy superimposed upon a

conquered democracy. We know the fate of all aristocracies. Their grandeur is their ruin; they survive thanks only to foreign relays, and on an average disappear in three or four centuries. One cannot say "*Væ victis*," but "*Væ victoribus*": everything comes to him who waits.

The Romans did not systematically depopulate Gaul, her submission satisfied them; the distribution of races at the time of the Roman peace did not undergo other changes than those which could operate quite locally, the deporting of a too obstreperous people or colonizing by veterans. The Barbarians passed like a torrent; they destroyed much, but they have not made in their campaigns a true colonization, "*ense et aratro*" of Marshall Bugeaud. The sword sufficed to assure their domination; to the vanquished—work. They have disappeared, except perhaps in the towns where they crossed with the Gallo-Roman middle class, after having preserved the forms or the imperial administration, for want of knowing and of being able to do better. The Arabs traversed the country, but to immediately disappear. It results, once more let it be repeated, that the present distribution of races should faithfully represent to us their ancient distribution, except in places where special economic conditions have been slowly modified, but in a constant manner, by foreign influences.

CHAPTER VI.

THE EVOLUTION OF THE CART.

IT is a truism that the commonest objects, those that we see around us every day, usually fail to arouse any interest as to their significance or origin. One of the great benefits of travel is to awaken interest in even the most trivial matters of daily life, and this is usually accomplished through the diversity in their appearance from that to which we are accustomed to see at home.

We who live in Britain, for example, see carts every day, but do we ever wonder what has been their history? We accept the finished product and there leave it, little thinking that in the sister isle there still persist strange survivals from the twilight of history which afford suggestive clues of the forgotten stages in the evolution of our common cart.

In this case no distant travel is necessary, there is no need to go to Asia or Africa, nor even to the remote parts of Europe; at our very door, so to speak, have we the links in the chain of evidence,

scarce one is missing. Probably such a sequence cannot be found in any other country in the world.

The history of the cart is one chapter of a much greater study—that of transport. The civilization of the world and the spread of culture are bound up with facility of transport, including in this term the means of conveyance and portorage, and the routes traversed.

Without doubt the most primitive means of transport was what an American anthropologist has termed "the human beast of burden." This has always been an important, but it tends to become a diminishing factor, though it can never be entirely replaced by other means. The absence of any other method of portorage is a sure sign of that low stage of culture which is termed savagery. Its extensive employment in higher grades of culture is due to slavery. Slave raiders load their human chattels with objects of merchandise to ultimately sell the whole caravan. The great architectural and engineering works of pagan antiquity were possible only through slave or forced labour. It would appear from this that under certain conditions human labour is more economical than beast labour, but sooner or later man has been in most places largely replaced by the beast, and the beast is being replaced by the freight train and other mechanical modes of transport.

A professional carrier can carry continuously

greater weight than an ordinary man ; and fifty, one hundred, two hundred pounds, and even greater weights are on record as usual weights for a day's journey. As soon as man learnt to domesticate animals he found that more could be carried upon their backs than upon his own. So the pack-animal marks the next stage of development.

In some parts of the west of Ireland there are no good roads, and everything has to be carried by human beings, or on packs by horses and asses. Even where the roads are good, as in the islands of Inishbofin and Inishshark, off the coast of Galway, they may be used for only foot traffic, as there are no wheeled vehicles of any description, and all goods are carried either in hampers slung on a person's back (the usual method of taking home potatoes and peats), or in two wicker panniers or cleaves, slung across the back of a pony or donkey.

With the building of good roads the primitive means of transport are being superseded by later methods ; but these new means of portorage are examples of the latest mechanical developments, the centuries of slow transition have been skipped, and light railways already, and auto-cars may in the immediate future, follow closely on the heels of the old-time human beast of burden and his dumb companions.

By-and-by it came to be discovered that an animal

could draw considerably greater weights than it could carry. A porter who goes short distances and returns unloaded can carry 135 pounds seven miles a day, but the same man can carry in a wheelbarrow 150 pounds ten miles a day, that is, half as much again.

When the red-skins of America shift camp they trail their tent poles behind their horses, pack up all their goods and chattels in the skin tent, and tie the bundle on to the poles. They are then free to move wherever they choose. Even the dogs may be employed to carry smaller loads on trailing stakes. This is a natural device, but one wonders how these nomad hunters managed in the horseless pre-Columbian days.

Captain Burt in his celebrated "*Letters from a Gentleman in the North of Scotland to his FRIEND in London*" (1754), gives an illustration of a vehicle consisting of two poles drawn by a small ill-kempt pony. The body of the cart is formed by two pieces of wood bent in a semi-circle, the ends of which are fastened to the shafts, the one close behind the pony and the other a little distance behind; the arches are steadied at the top by a piece of wood running from the one to the other. Thin pieces of wood, osiers perhaps, pass at intervals across the floor and ends of this very primitive contrivance.

Sir Arthur Mitchell found in Strathglass, Kintail, and elsewhere, in the years 1863 and 1864, carts

in use without wheels exactly of the kind just described; these are figured by Dr. Mitchell in his suggestive book, *The Past in the Present*.

If this vehicle has died out in Wales it must have done so very recently, at all events it is still in full use in certain parts of Ireland, notably in the Glens of Antrim.

On looking at the illustrations it will be seen that the Irish slide-car is primitive enough. Two shafts

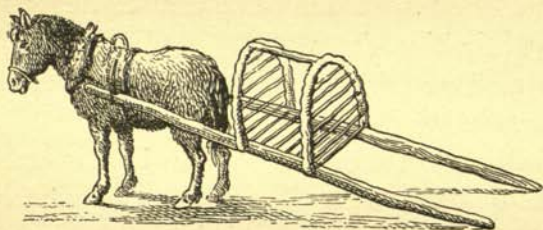


FIG. 22.

Slide-car, Inverness (1754); after Burt.

are harnessed on to a horse, the ends which drag on the ground are shod with short runners or shoes, sometimes the runners lie their whole length on the ground, or more generally they are tilted up so as to have pretty much the same slant as the shafts. (Plate III.) These runners, which do not appear in the figures given by Sir Arthur Mitchell, are a useful addition, as they save the lower ends of the shafts from wear and tear. The shafts are kept apart by cross-bars. In one car in Plate III., A, three holes

are seen in the last cross-bar, in which upright stakes can be inserted, as in the car in the background of Plate IV., Fig. 1, to retain the corn or the whins (as furze is called in Ireland) from slipping down behind. The lashing of a wicker basket or creel on to the shafts is an obvious step in advance, and these are used to bring down potatoes from the fields or turfs from the mountain. The straw harness in the lower figure of Plate III. is an interesting survival, and that, combined with the slide-car, carries us back to very primitive times.

The modern Irish name for this wheelless cart is the same as the old Gaelic name, *Carr Sliunain*. Dr. Sullivan* states that there is no reason to suppose that the Irish *Carr* is a loan-word from the Latin *Carrus*, the stem *Car* being probably common to the Latin, the Germanic, and the Celtic languages.

The Irish warrior of ancient times habitually carried a couple of spears, and a native poet, singing of the pursuit of a certain warrior, tells us that—

“The track of his two spears through the marsh
Was like the ruts of a car over weak grassy stubbles.”

The phrase “weak grassy stubbles” refers to the rich after-grass of soft meadows.† This is perhaps the first reference to the slide-car.

* W. K. SULLIVAN, *Introduction to E. O’Curry, Manners and Customs of the Ancient Irish*, 1873, i., p. cccclxxvi.

† *Loc. cit.*, p. ccccxliii.

PLATE III.



FIG. 1. Slide-car, Co. Antrim ; from a photograph by Welch.

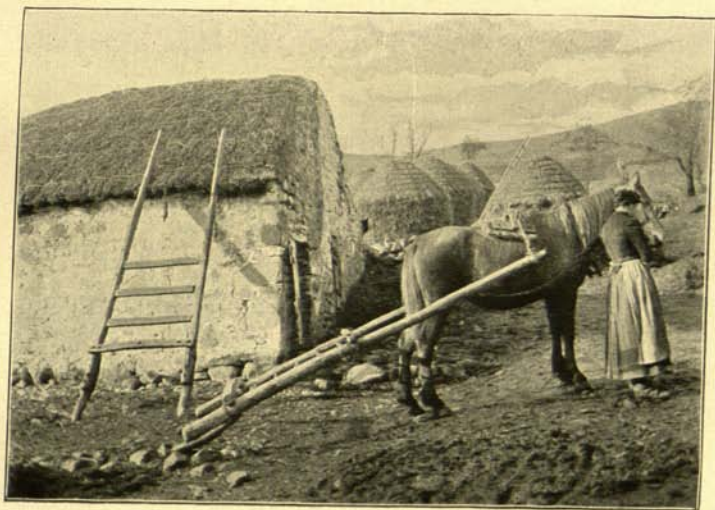


FIG. 2. Slide-car, Co. Antrim ; from a photograph by the Author.

[To face page 166,

Dr. Mitchell strikes a note of warning that is, perhaps, not unneeded.

"When I saw," he says, "what these carts were employed in doing, namely, transporting peats, ferns, and hay from high grounds down very steep hills entirely without roads, I saw that the contrivance was admirably adapted for its purpose, and that wheeled carts would have been useless for that work. But I saw more than this; I saw that these carts were used doing the exact analogue of what is done every day in the advanced south. When boulders, for instance, are removed on sledges from the fields in which they have been turned up; when trees are transported on sledges from the high grounds on which they have been cut; when a heavily-laden lorry puts on the drag as it comes down hill—what is it that we see but carts without wheels—carts without wheels preferred to carts with wheels, whenever the circumstances in which they are to be used makes the want of the wheels an advantage. It is not always an evidence of capacity or skill to use elaborate or fine machinery. A rough, rude tool may for certain purposes be the most efficient, and may show wisdom both in its contriver and employer. It would certainly show a want of wisdom in the Kintail Highlanders, if they used wheeled carts to do the work they require of their wheelless carts. Indeed, they could not so use them, except by putting the drag on hard and fast—being first at the trouble of getting wheels, and then at the trouble of preventing them from turning."

The same argument can be applied to Ireland. In a very hilly country half the time one is going up-hill and the other half down-hill; when going up-hill there is no load, and consequently the slide-car, being so

very light, is practically of no weight for a horse. Coming down-hill with a load a rigid vehicle has to be employed in any case, and so the slide-car is equally efficient, the chief drawback being that it can carry so little, but this is not of much account in small holdings. The slide-car has, further, the great recommendation of being made easily and cheaply without requiring the services of a skilled carpenter or wheelwright. It is also as easily repaired, and all the materials are ready to hand.

It is also interesting to note that these very primitive carts can be constructed entirely of wood and thongs, or ropes, and there is no necessity for any metal to be employed.

We now come to a gap in the evidence of the evolutionary history of the cart that is not easy to fill. What was the precursor of the wheel? There can be little doubt that the wheel was derived by slow modifications of an antecedent object, and there is a strong presumption that this "missing link" was a roller, but there does not appear to be any positive evidence to render this view absolutely certain.

The mechanical principle of the roller was known to remote antiquity, and it is generally accepted that the great stones of megalithic monuments, such as menhirs, cromlechs, and the like, were transported in this manner, as we know were the great statues of Assyria and Egypt.

It is not presupposing too much to surmise that a cylindrical tree-trunk might be placed beneath the shafts of a slide-car, or of a sledge, in order to reduce the friction. A constructional problem arises from the difficulty of keeping it in position. This could be overcome in the former by placing a short roller between the shafts and fixing a pin in the centre of each end of the roller, which could then revolve in a notch in the shafts, as in the accompanying diagram, or between two pegs, as in the Portugese cart, Fig. 31.

We must imagine a further development, which is also missing from Ireland, in the reduction of the central portion. This would become the practice as soon as man discovered that efficiency was increased by reducing the long frictional surface, and that the weight was lessened.

Herr Stephan, the late enlightened Postmaster-General of the German Empire, to whom we owe the introduction of the post-card, described, according to Poesche,* a very primitive cart that he saw in Portugal. A log is cut from the trunk of a large tree, the central portion is hacked away so as to leave a solid disc at each end joined by an axle. Poesche also mentions an ancient Egyptian battle scene, in which a large Aryan woman is depicted carrying off a wounded brother, husband, or son, on a waggon with similar wheels drawn by oxen.

* T. POESCHE, *Die Arier*, 1878, p. 98.

This explanation of the origin of wheels has been adopted by various writers* who have, however, regarded the sledge as the parent of the cart, as it was on sledges that the colossal statues of Egypt and the winged bulls of Assyria were rolled.

Dr. E. Hahn, however, in his learned and sugges-

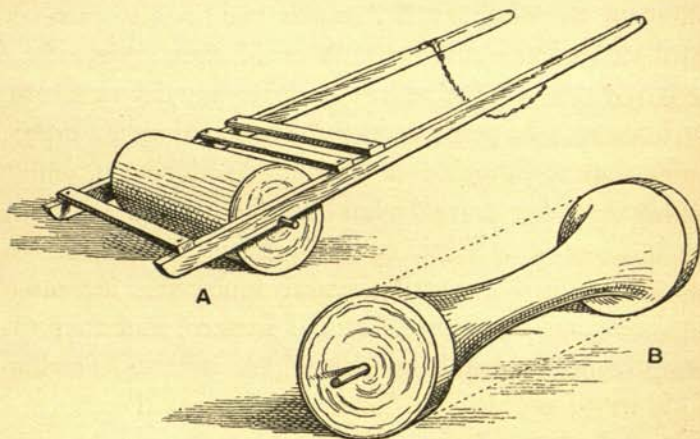


FIG. 23.

Diagrams illustrating a probable evolution of wheels from a roller.

tive essay, *Demeter und Baubo*, argues against this view. He thinks that in this case wheeled vehicles would have arisen wherever rollers have been employed; but it is not so, the waggon arose only in the district from which agriculture originally spread. He

* REULEAUX, *Theoretische Kinematik*, Braunschweig, 1875, p. 204; *Kinematics of Machinery*.

E. B. TYLOR, "On the Origin of the Plough and Wheel-carriage," *Journ. Anth. Inst.*, x., 1880, p. 74.

believes that the waggon was primitively a holy implement consecrated to the great goddess of agriculture and fertility, and that it only subsequently became a secular farm implement.

Dr. Hahn* definitely states as his belief that the waggon has arisen because the wheel existed. The wheel in its most simple form is only a disc pierced through the centre. Such discs of stone, clay, &c., occurred in the same culture district as that in which agriculture arose, and was at the same time an implement and a religious object. This is the spinning whorl, and the sacred symbols, such as the svastika, on numerous whorls from Hissarlik, suggest that they were often used as votive offerings. As spinning was an occupation of the women, these whorls were probably dedicated to a female divinity, presumably to the goddess of Nature and generation.

It is only necessary to stick two or four of these whorls on one or two pieces of stick, and to fasten something over the axis, and a waggon would result. That these whorls are not large explains also the small size of many holy waggons. Later, following this model, large waggons were made, and these holy waggons were drawn by the sacred animal of the great goddess, the ox, and conveyed the image of the goddess.

* E. HAHN, *Demeter und Baubo, Versuch einer Theorie der Entstehung unsres Ackerbaus*, 1896, Lübeck.

There is no need to follow Dr. Hahn in his disquisition on the curious wheeled objects of the Bronze Age, which were probably votive offerings, or at all events were religious symbols. His idea is that the small objects were symbols of the large real waggon in which rode the god or goddess, or the image of the deity.

Most students of ceremonial institutions will probably demur to Hahn's position. In the first place, there is no reason to believe that agriculture was discovered only in some area of Eurasia, and that the art thence spread over the greater part of the habitable world. Then the evolution of spindle whorls into cart wheels scarcely appears probable. It seems more in consonance with what we know of the history of sacred institutions and implements, that the waggon had an industrial origin, and it may well be that it arose in close connection with agriculture; the operations of agriculture have always been closely connected with religion, and there is no reason to deny that the agricultural cart at its inception may have been associated with the cult of agriculture. The small size of the votive offerings or wheeled symbols is no matter for surprise. On the whole, then, we may accept the older view of the origin of wheels as being the more probable alternative.

Dr. Hahn points out that he is dealing solely with the four-wheeled ox-waggon which was used for

religious purposes. Later two-wheeled horse-chariots were invented, and were used from India to Britain and North Africa. He adduces the authority of old Johann Scheffer, who published a book entitled *De re vehiculari*, in 1671, for the opinion that, contrary to what one would expect, the four-wheeled ox-waggon was the first vehicle, then the taming of horses led to the two-wheeled chariots or carts, and finally the horses were ridden.

The earliest history of the cart will perhaps always remain in obscurity; it is indeed probable that it arose independently in more than one area. The ancestral slide-car may have been one source, and it is by no means unlikely that a framework on rollers, which was used for moving large masses of stone, or even the common sledge, may also have given rise to a four-wheeled waggon.

We must now return from this long digression to a consideration of certain wheeled vehicles that are still in use, or, till recently, were employed in the British Islands. The wheels, however, are of small diameter, and are solid instead of having spokes.

In Capt. Burt's famous *Letters*,* we find illustrations of two kinds of block-wheel cart that were in use in Inverness about 1730. Both of them are simple modifications of the slide-car, which, as we have

* BURT, *Letters from a Gentleman in the North of Scotland to his FRIEND in London*, 1754.

already seen, was in contemporary use with them, with the addition of wheels. Concerning the latter we read :—

“THE Wheels, when new, are about a Foot and half high, but are soon worn very small : They are made of three pieces of Plank, pinned together at the Edges like the Head of a Butter Firkin, and the Axeltree goes round with the Wheel, which having some Part of the Circumference with the Grain, and other Parts not, it wears unequally, and in a little Time is rather angular than round, which causes a disagreeable Noise, as it moves upon the Stones.”

One of these carts appears to be nothing more than a wheeled slide-car, if the term be allowed, in which a round wicker basket is jammed between the shafts just behind the pony.

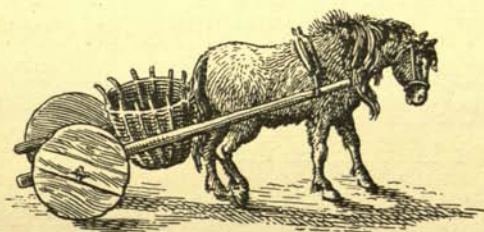
The other consists of an open framework, the base of which is formed by the two shafts ; and, as a consequence, the basket-like body of the cart is tilted up at the same angle as the latter. This is “that species wherein they carry their Peats.”*

A very similar cart to the last is engraved on the map illustrating Twiss's *A Tour in Ireland in 1775* ; but in this there is no front to the cart, and the side rails decrease in size from behind forwards, and cease by the flanks of the horse, so that when the

* These are called *kellachies* ; for another account of these and other primitive carts, see G. L. GOMME, *The Village Community* (1890), pp. 278, 286. ISAAC TAYLOR, *The Origin of the Aryans* (1890), p. 179, may also be consulted.

cart is being drawn the tops of the rails are approximately horizontal. An illustration (Fig. 25) of the same cart is given by Croker.*

In an engraving by James Malton, published in 1791, of the College Green, Dublin,† we find an illustration of a cart which consists of two shafts which



B

FIG. 24.

Two block-wheel carts, Inverness (1754); after Burt.

rest on pivots jutting out from the centre of two solid wooden wheels, which are connected together by a thick quadrangular axle-tree. In this cart the wheels and the axle are solidly joined together, and revolve

* T. CROFTON CROKER, *Researches in the South of Ireland*, 1824.

† MALTON and COWEN, *A Picturesque and Descriptive View of the City of Dublin in 1791*.

as one piece. The only difference between the wheels of this cart and those of our second "missing-link," as it may be termed, is that in the latter they are made out of a single tree-trunk, as in the Portuguese cart, whereas in the former they are built up of several pieces of wood. Owing to the small size of the wheels the shafts are inclined at a great angle, and in order to get it level, the platform of the cart has to be propped up behind by a couple of stakes; or, to put it in other words, boards are laid across the side-rails of such a cart as that figured in the *Tour in Ireland*.

There are contemporary engravings of other carts published towards the end of last century, which represent very similar carts—in counties Dublin and Wicklow for example—but in which the wheels are outside of the shafts; as no linch-pin is drawn we must assume that in these too the axle revolved along with the wheels.

These carts are described in the following manner by Twiss in his anonymously published book, *A Tour in Ireland in 1775* :—

"Goods are conveyed about the city on small two-wheeled cars, drawn by a single horse; the wheels are thin round blocks, each about twenty inches in diameter. The wheels of those cars which are used in the country are placed at a greater distance from each other than those of city cars."

Quite similar cars may still be seen in use in the north of Ireland, from County Donegal to County

PLATE IV.



FIG. 1. Block-wheel car, Glenshesk ; from a photograph by Welch.



FIG. 2. Block-wheel car, Carrickfergus ; from a photograph by Welch.

To face page 176.

Down. The wheels may be within the shafts and with a revolving axle; now, however, the latter is usually quite slender; or the wheels may be outside the shafts and with a linch-pin, showing that the axle is fixed and that the wheels alone revolve. Planks may be movably attached to the edges of the plat-



FIG. 25.

Irish low-back car (1824); after Croker.

form, or the sides may be permanently fastened, and so a cart, as opposed to what is more correctly termed a float or a lorry, is evolved.

The North Irish peasant-farmer, when he wishes to crush the clods of earth on his dry fields, will lift the cart with its shafts off the wheels, and replace them on a wooden roller, resembling the sketch on page 170, and to increase its effectiveness he puts stones into the cart. The cart, save for its platform, thus reverts to the stage of the first "missing-link."

"In Borrowdale it is on record that wheeled vehicles did not make their appearance till about 1770; and when these novelties did reach the lakes, they were clumsy and awkward in character. Clog-wheels were the first type used on farm carts, and there are still old men, of between eighty and ninety years, who can remember them in use. The wheels are clumsy discs of wood, joined by a great beam or axle, which is firmly fastened to them. The wheels are 1 ft. 10½ ins. in diameter, and 3 ins. wide in the tyre, where the iron bands or 'strakes' are formed by three pieces nailed to the wood. The distance between the wheels is 3 ft. 2 ins."*

But the cart is, so to speak, only half-fledged, it moves along slowly and heavily on its small, solid wheels.

The evolution of the spoke-wheel was probably a slow affair, and its stages are missing from Ireland, so we must turn elsewhere for evidence.

The employment of spoke-wheels is, however, of great antiquity. Messrs. Perrot and Chipiez note that :—

"Not one of the Assyrian military pictures can be named in which war chariots do not appear, and they are by no means the heavy and clumsy cars now used in some parts both of European and Asiatic Turkey. Their wheels are far from being those solid discs of timber that are alone capable of resisting the inequalities of a roadless country. They have not the lightness of a modern carriage, with its tires of beaten steel, but the felloes of their wheels are light and graceful enough to prove that the roads of those times were

* H. SWAINSON COWPER, "Some Old-fashioned Contrivances in Lakeland," *The Reliquary and Illustrated Archaeologist*, iv., 1898, p. 20.

better than anything the Mesopotamia of to-day can show. The spokes, which seem to have been fitted with great care and nicety, are, as a rule, eight in number." *

The chariot probably came into Egypt with the horse about the time of the oriental Pastoral Kings (2098-1587 B.C.), and it came as a fully-developed vehicle.

In the early Cyprian tombs clay models of chariots have been found; these are modelled with solid wheels, sometimes spokes are painted on the clay; other models, though decorated with structural details, are almost certainly intended to represent vehicles with block wheels. On the sarcophagi and on some vases the chariots have spokes. Messrs. Perrot and Chipiez,† while admitting that all war chariots had a strong family likeness to each other, deny the artist borrowed from Assyrian sources, and state their belief that he went no farther than his native city; "even the wheel-spokes are different; they are more solid and heavy in the Cypriot example, the wheelwright who made them has less skill than his Mesopotamian rival."

To come nearer home, a beautiful bronze bucket was discovered in 1891 on the banks of the Danube,‡

* G. PERROT and C. CHIPIEZ, *A History of Art in Chaldea and Assyria*, ii., p. 75.

† *A History of Art in Phœnicia and Cyprus*, i., p. 209; ii., pp. 181, 310 *et seq.*

‡ J. SZOMBATHY, "Die Göttweiger Situla," *Correspondenz-Blatt Deutsch Anth. Gesell.*, xxiii., 1892, p. 9.

about 37 miles to the east of Vienna. It belonged to the period of transition between those of Hallstatt and La Tène, that is to say about the commencement of the fourth century B.C., or at the time when iron was replacing bronze for cutting implements in that part of Europe. Amongst other subjects a chariot race is engraved on this bucket, or situla; the wheels of the chariots are either block-wheels with four nearly circular perforations, or spoke-wheels with four very

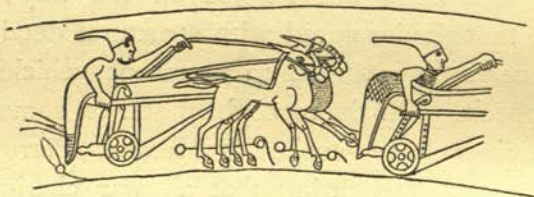


FIG. 26.

Celtic Chariot, from the Göttweiger Situla; after Szombathy.

broad spokes. This was evidently the character of the wheels of the war chariots of the Celts; we may assume that those of their waggons were of yet ruder construction.

The Roman evidence has been conveniently summarized by J. Yates and G. E. Marindin in their article on the "*Plaustrum*."* The body consisted of a platform, with or without sides; these were upright boards or open-work rails, or a large wicker basket

* *A Dictionary of Greek and Roman Antiquities*, edited by W. SMITH, W. WAYTE, and G. E. MARINDIN, 1891. The *plaustrum* was a heavy two-wheeled cart; the four-wheeled was the *plaustrum majus*.

was fastened on the platform. The wheels ordinarily had no spokes,* but were solid of the kind called *tympāna* or "drums," nearly a foot in thickness, and made either by sawing them whole from the trunk of a tree or by nailing together boards. These wheels were fastened to the axle, which revolved within wooden rings attached to the underside of the platform. Although these wheels were excellent for the preservation of the roads, they turned with a long circuit, and advanced slowly and with a creaking sound.† They were usually drawn by oxen, but sometimes by mules. The Greek *ἄμαξα* corresponded both to the *plaustrum* and the *plaustrum majus*; "the four-wheeled wain" is mentioned in *Odyssey*, ix. 241, and *Herodotus*, i. 188.

Professor Tylor figures an ox-waggon that is carved on the Antonine Column; it appears to have solid wheels, and the square end of the axle proves that it and its drum-wheels turned round together in one. He points out that the ancient Roman farm-carts were mostly made with wheels built up of several pieces of wood nailed together, "as are their successors which are used to this day with wonderfully little change, as in Greece and Portugal." The bullock-cart of the Azores‡ is a striking relic from the classic world; its

* *Non sunt radiatæ*, Prob. *ad Verg. Georg.*, i., 165.

† *Stridentia plaustra*, *Verg. Georg.*, iii., 536.

‡ BULLAR, *Winter in the Azores*, i., p. 121; cf. TYLOR, *loc. cit.*, fig. 12, p. 80.

wheels are studded with huge iron nails by way of tire."* Although the block-wheel was still in use in the Italy of the Roman Empire, spoke-wheels were also employed even for agricultural vehicles, but I have been unable to gather any Italian evidence of the transition stages.

My friend Mr. J. L. Myres, of Christ Church, Oxford, has very kindly given me several references to early Greek chariot wheels which have supplied links in the evolution of spokes that I was in search



FIG. 27.

Agricultural Scene on a Vase in the Campana Collection, Louvre; after Duruy.

of. The block-wheel is shown in A, Fig. 30. This is evidently a built-up wheel, but there is no rim or felloe to it.

Wheels with three spokes evidently derived from this are figured by Duruy† from various sources. The spirited little agricultural scene (Fig. 27) depicted on a vase in the Campana collection in the Louvre gives a clue to the structure of the wheel, which is seen on a larger scale on another vase (Fig. 28) copied by Duruy from Gerhard.‡ The wheel (B,

* E. B. TYLOR, "On the Origin of the Plough and Wheel-Carriage," *Journ. Anth. Inst.*, x, 1880, p. 80.

† V. DURUY, *Histoire des Grecs*, 1887, i., pp. 251, 373, 732.

‡ *Auserlesene Vasenbilder*, Taf. ccxvii.

Fig. 30) figured by Harrison and Verrall* from an archaic Greek plate in the British Museum of the sixth century B.C., which also consists of three spokes, is another example of the same type of wheel. A variety with two of the spokes slightly curved is admirably rendered on an Etruscan silver coin in the



FIG. 28.

Ancient Greek Carriage on a Vase; after Duruy, from Gerhard.

British Museum † (C, Fig. 30), the date of which may be about the middle of the fifth century, or earlier. A wheel of this description was found by Gastaldi‡ in the turbary of Mercurago, near Arona in North Italy;

* JANE HARRISON and MARGARET VERRALL, *Mythology and Monuments of Ancient Athens*, 1890, p. 289, fig. 30.

† B. V. HEAD, *A Guide to the principal Gold and Silver Coins of the Ancients, from circ. B.C. 700 to A.D. 1*. *British Museum*, 3rd Ed., 1889, pl. 15, fig. 1.

‡ B. GASTALDI, *Lake Habitations and Prehistoric Remains in the Turbaries and Marl-Beds of Northern and Central Italy*, London, 1865.

"it is a wheel of elegant form, in which there is not the slightest trace of any metal." The figure given by Gastaldi (p. 112) proves that these wheels could be made most skilfully in the Bronze Age.

The four-spoked wheel is characteristic of Greek vehicles, and may be seen on innumerable coins and vases. It was in use in the Mykenæan Period. A



FIG. 29.

Mykenæan War Chariot of the Heroic Age on the François Vase; after Duruy.

war chariot of the heroic age is painted upon the François vase (Fig. 29)* with this kind of wheel: in order to give greater support to the felloe, the spokes either splay out or are clamped by triangular blocks. An interesting feature in this wheel is the indication of lashing at the junction of the spokes with the hub; it looks as if these were fastened together by means of leather thongs. It is impossible to say whether in

* From DURUY, *l.c.*, p. 155, after *Monum. dell' Instit. archeol.*, iv., tav. liv., lv.; and W. HELBIG, *Das homerische Epos aus den Denkm. erläutert.*, fig. 18, p. 101.

this instance actual lashing is intended, or whether the wheels were decorated with a pattern which had its origin in an antecedent method of fastening; examples of the latter will be found in my little book *Evolution in Art*. A method of supporting and strengthening the rim, analogous to the last device, is found on an Euboian coin of the early part of the sixth century B.C.,* but in this case (D, Fig. 30) small struts are employed.

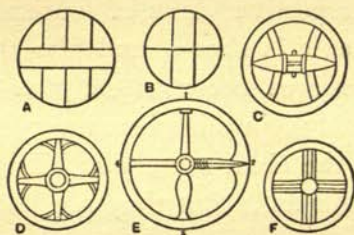


FIG. 30.

A Series of Early Greek Chariot Wheels from various sources.

The shape of the spokes of Greek wheels and the method of their insertion into their respective felloes vary considerably; in E, Fig. 30, will be found four variants; of these, 1 is from a coin of Tarentum; † 2 is from the car of Triptolemus, on a vase, in which again there is a chevron ornament on the spokes at their insertion in the hub which is suggestive of tying. ‡ Nos. 3 and 4 are common forms, especially

* *Brit. Mus. Guide*, pl. 5, fig. 21. † *Brit. Mus. Guide*, pl. 7, fig. 5.

‡ DURUY, *l.c.*, i., p. 53; see also HARRISON and VERRALL, *l.c.*, p. cix., fig. 22, p. cxxxix., fig. 36.

the latter. An odd variant* (F, Fig. 30) may represent a twinned four-spoked wheel, it occurs on a tetradrachm of Syracuse of about 500 B.C.

Mr. Myres informs me that Mykenæan and Dipylon cars regularly have plain four-spoke wheels; † and this is normal till Roman times. Six spokes occur in the seventh to the sixth centuries, however, ‡ and later, as on a coin of Chalkis§ of the third to the second century B.C.; but most of the apparently six-spoked wheels are perspective views of four-spoked wheels, in which the axle is shown, and also the projecting hub. Eight spokes occur as early as the seventh century (probably), in an oriental car on a Cyprian vase, || and in the sixth century at Klazomenae, on a painted sarcophagus. ¶ But they are not common till much later, as, for example, on an Athenian coin ** of the third to the second century B.C.

After I had written the foregoing I came across a most interesting paper, by Professor de Aranzadi, on "The groaning and other waggons of Spain," †† which supplies very valuable evidence as to the real

* *Brit. Mus. Guide*, pl. 9, fig. 34.

† e.g., Brunn, *Gr. Kunst-geschichte*, i., fig. 97, 100.

‡ e.g., on a Melian vase, Conze, *Melische Thongefasse*, and Brunn, *Gr. Kunst-geschichte*, i., p. 109.

§ *Brit. Mus. Guide*, p. 43, fig. 32.

|| Brunn, *Gr. Kunst-geschichte*, i., fig. 96.

¶ Brunn, *loc. cit.*, fig. 135.

** *Brit. Mus. Guide*, pl. 65, fig. 14.

†† TELESFORO DE ARANZADI, "Der ächzende Wagen und Andres aus Spanien," *Archiv. für Anthropologie*, xxiv., 1896, p. 215.

nature of these early wheels. The built-up solid wheel of Ancient Greece (Fig. 30, A) finds its exact counterpart among the Basques of to-day. (Fig. 31.) The planks of which the wheel is made are kept together by a transverse plano-convex bar, on the inner side, and by two annular iron bands, which are fastened at

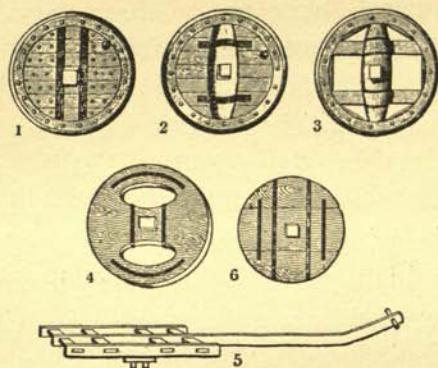


Fig. 31.

Various Spanish Wheels; after Telesforo de Aranzadi.

1. The outer side of a Basque wheel. 2. The inner side of the same wheel. 3. The Cantabrian-Asturian wheel. 4. Portuguese wheel. 5. Portuguese cart. 6. Wheel from Larrasoana.

the periphery, on the inside and outside of the wheel; but a still simpler kind of wheel (Fig. 31, 6) also occurs. The intermediate stage (Fig. 30, C) is still in use in Spain, Aranzadi calls it the Cantabrian-Asturian wheel. In this the felloe is formed of six pieces of wood; two of the primary planks remain and the crossbar is now biconvex in section; the two peripheral iron bands are also present. In one form

from Cangas de Tineo, the two planks fill up the angles which the crossbar makes with the felloe, and the crossbar forms the only spoke.

In Portugal wheels are made out of a single piece of wood (Fig. 31, 4), in which two elliptical holes are cut; the wheel is strengthened by bands of iron. An analogous wheel, built up of three boards, occurs in Galicia. The latter type is found in the ox-carts of the Canary Islands and among the Zuñi Indians of New Mexico, to which places it was brought by the Spaniards. I have been informed that in Mexico, where this kind of wheel is also found, it is sometimes made without any metal parts. A perfectly similar wheel is figured by Gastaldi;* it was made of three pieces of walnut-wood, these were clamped by two curved pieces of larch-wood, which were let into the wheel; the latter had two semi-circular perforations on each side of the axle. The wheel belonged to the Bronze Age of Northern Italy, and was found in a bog at Mercurago, near Arona.

It is tempting to regard such perforated block-wheels as representing the precursors of spoke-wheels. If in a solid wheel, with four perforations, it was found that the holes could be enlarged without seriously weakening the contrivance, a wheel with four broad spokes would result; and it might be discovered that it was better to make spokes

* B. GASTALDI, *loc. cit.*, p. III.

intentionally than to leave them as supports between holes.

I do not, however, think that this was the actual process of evolution. Most probably the wheel was composed originally of a single piece of wood, later it may have been constructed of boards (Fig. 31, *e*) which were variously strengthened. Yet later it was discovered that it was not necessary to make the wheel solid, and various expedients, some of which have been noted above, were devised to lighten the wheel and yet retain its strength.

Groaning through Spain, as if still in the pangs of their labour, do we find these various forms of cumbersome wheels, essentially the same as they creaked three millenniums ago in Ancient Greece.*

The "groaning cart," or as the Spaniards poetically term it, the "singing cart," "*Carro que canta*," may still be heard in the picturesque parts of Cantabrian and Atlantic coasts; but it is probably doomed to disappear, as carts of the same shape but with an iron hub in the wheels, with felloes, with the axle fastened to the floor of the vehicle, and which do not squeak, are silently but surely replacing them. The friction of the axle against the wedges in the floor of the waggon which keep it in its place, produces the squeaking or jarring sound which from time to time

* Block-wheels, which may be mere discs of wood, sometimes perforated with holes, occur in China, Korea, and other parts of Asia.

sounds like a tune or its octave; this is useful as a warning to prevent two carts from meeting in a narrow street, and also serves for the recognition of an approaching waggon. In the towns the creaking of carts is forbidden, so the drivers grease the axles with tallow, soap, or bacon, but as soon as they have passed the last house of the town they remove the tallow and put resin and water on the axle to make it groan again, so great is the pleasure they take in it. In Galicia there is a folk-song, which runs as follows:—

“When thou wilt that the waggon sings,
Moisten the axle in the river,
For, if thoroughly wetted
It sings like a pipe.”

When these carts are driven on natural roads, which have been made by repeated use, even the steepest hills are not avoided. They are used for all kinds of field work, for carrying manure, or bringing in the harvest, and also they are very important at weddings for carrying the bride's dowry to the house of the bridegroom.

Professor de Aranzadi gives various details which are important for those who would go into further details of the construction of primitive carts. Dr. Gadow* devotes a chapter to “Ox-carts and different modes of yoking” in his book on Spain; he gives

* HANS GADOW, *In Northern Spain*, London, 1897, pp. 272-280.

five excellent figures of carts, and graphically describes "the most awful squeaking, squealing, creaking, croaking, howling noise." He states, the natives "either say that the oxen like the music, or that the noise drives away the devil."

We have already seen that in yet earlier times than those of Rome and Greece the spoke-wheeled war chariots bore the Assyrian warriors on their paths of conquest, so soon did the early and rapidly-perfected wheel of the war-chariot outstrip the backward wheel of the "slow lumbering wains of the Eleusinian mother."

As Professor Tylor truly observes :—

"In looking at these clumsy vehicles we certainly seem to have primitive forms before us. There is, however, the counter-argument which ought not to be overlooked, and which in some measure accounts for the lasting-on of these rude carts, namely, that for heavy carting across rough ground they are convenient as well as cheap and easily repaired. Considering that the railway-carriage builder gives up the coach-wheel principle and returns to the primitive construction of the pair of wheels fixed to the axle turning in bearings, we see that our ordinary carriage-wheels turning independently on their axles are best suited to comparatively narrow wheels and to smooth ground or made roads. Here they give greater lightness and speed, and especially have the advantage of easily changing direction and turning, which in the old block-wheel cart can only be done by gradually slewing round in a wide circuit."

* Vergil, *Georgics*, i., 163.

We must now return to Ireland.

It is impossible to say how long ago spoke-wheels were introduced there; we may, however, feel pretty certain that it was during the Bronze Age, and we may also assume they probably accompanied the war chariot.

We know that three great branches of the Celtic stock, the Gauls, the British, and the Irish, used war-chariots.

With regard to the two first, we have (as O'Beirne Crowe* points out) authentic evidence of the fact in contemporary Roman writers, and as to the latter, the ever-faithful and very ancient Irish documents are equally clear on this point.

In the feast of Bricriu, Loegaire Buadach's horses and chariot are thus described by Find-abair (Bright-beam)† to her mother, Medb, queen of the Con-nachta :—

"I see, indeed," says Find-abair, "the two horses which are under the chariot—two horses ardent, speckled grey: of like colour, of like form, of like goodness, of like victory. . . . A wood-band, withe-y chariot. Two black, adjusted wheels: two beautiful entwining reins: steel, sword-straight shafts: a splendid body of strong joinings. A ridgy, strong-bright yoke."

* J. O'BEIRNE CROWE, "Siabur-Charpat Con Culaind." *Journ. Roy. Hist. and Arch. Assoc. Ireland. (Kilkenny Arch. Soc.)*, vol. i. (4th Ser.), 1870, p. 413. "The Irish Chariot."

† Sullivan translates this name "Fair-browed." *Loc. cit.*, cccclxxxi.

The same lady describes Conall Cernach's chariot thus :—

"A wood-band, withe-y chariot. Two bright, brazen wheels: a bright pole of much-silver: a very high, noisy body. A ridgy, strong-proud yoke: two wreath-y, strong-yellow reins."

Again, after describing the horses, as before, Findabair describes the chariot of the hero Cu Chulaind thus :—

"A withe-band chariot of witheing. Two very yellow, iron wheels: a pole with a witheing of *findruine*. A tin body of slope-joinings. A ridgy, strong-golden yoke: two wreath-y, strong-yellow reins."

From these and other descriptions it is evident that the body (*cret* our "crate") of the chariot was always of wood, that is well-wrought wicker-work on a strong timber frame. In our third quotation the body is said to be made of tin, elsewhere it is described as "a very high, noisy body, and it of tin, of slope-joininglets." Now, decorating chariots with tin was a favourite practice among the ancient Celts. Thus Pliny (*lib.* xxxiv. cap. 17) says that the Gauls were in the habit of adorning their vehicles with tin. Behind the chariot were, according to O'Beirne Crowe, two removable shafts, for in the *Book of Leinster* we read, "Let the shaft of my carriage be reached me, that I may try the ford before the horses." In front was the pole, most probably of wood, and overlaid with silver; but still

we are told several times it was made of silver, one version being, "a bright pole of bright-silver, with a witheing of *find-ruine*." To this a single yoke for the two horses was attached. It had two wheels only, sometimes all of iron or bronze; when of wood, which we presume to have been the case where the material is not specified, these wheels always had an iron tire. There is reason to believe that the Celtic chariot-wheel was relatively very small.

In the *Sculptured Stones of Scotland*, ii. (1867) p. lvi. (Spalding Club), Stuart makes the following statement:—

"Occasionally fragments of chariots have been found in British sepulchres. About 1815 a barrow, near Market-Weighton, in Yorkshire, was opened, in which was a cist containing the skeleton of a man. . . . On each side had been placed a chariot-wheel, of which the iron tire and ornaments of the nave have alone remained. The wheels had been about two feet eleven inches in diameter." In a neighbouring tumulus the wheels were about two feet eight inches in diameter.

Dr. Sullivan says* the wheels were made of bronze or of iron; the former was the older material, and seems to have been only traditionally remembered when the principal tales took their present form, the material then in general use being iron. The chariot wheel was not a mere disc, but had spokes. He knew

* W. K. SULLIVAN and E. O'CURRY, *On the Manners and Customs of the Ancient Irish*, vol. i., Introduction, pp. cccclxxv-ccccxxxiii.

of only one passage from which the number of spokes can be inferred. The passage in question is the description of Cu Chulaind's chariot in the very ancient Irish manuscript, *Siabur Charpat Conchulaind*: "The Phantom Chariot of Cuchulaind."

"A stately Brog after that pair [of horses];
two firm black wheels;
two symmetrical five-spoked wheels."

The chariots (*carpats*) in the foregoing account appear to have been the ordinary war-chariots, as well as the vehicles which were used for travelling. Cu Chulaind and other warriors had, however, as Sullivan points out, a special war-chariot, the *Cath Carpat serda*, or scythed battle-chariot. O'Beirne Crowe translates it the serrated war-chariot, "because when fully furnished, every part of it available for attack or defence being closely spiked, presented the edge-appearance of a saw (Irish *serr*, Latin *serra*)."

These warriors of the heroic age, whether of Erin or Greece it matters not, took a laudable pride in their war accoutrements, and not least in the decoration of their chariots. These descriptions from Irish sagas recall to mind one from the great Greek saga:—

"So Hera, the goddess queen, daughter of great Kronos, went her way to harness the gold-frontletted steeds; and Hebe quickly put to the car the curved wheels of bronze, eight-spoked, upon their axle-tree of iron. Golden is their fellow,

imperishable, and tires of bronze are fitted thereover, a marvel to look upon; and the naves are of silver, to turn about on either side. And the car is plaited tight with gold and silver thongs, and two rails run round about it. And the silver pole stood out therefrom; upon the end bound she the fair golden yoke, and set thereon the fair breaststraps of gold, and Hera led beneath the yoke the horses fleet of foot, and hungered for strife and the battle-cry." (*Iliad*, v. 730.)

From gods and demi-gods we must descend* to mortals, and from the inspiring times when the world was young we must pass to the *fin-de-siècle*.

Mr. Hamilton* states that in 1823, in the Brown Hall estate in Donegal, "carts they had none; most of the carrying was done in creels on ponies' backs. Some superior farmers had what were called *low-backed* cars—a sort of platform with shafts, and under it a pair of solid block-wheels. One rich man had spoke-wheels, which were greatly admired. . . . Crowds came to see the first cart that was turned out; but though it was voted '*illegant*,' it was declared useless. 'For,' said a sage among the spectators, 'who ever heard of a cart in this country?' And his argument seemed to weigh much with his auditors. However, in a few years later the Scotchmen had at one time orders on hand for fifty carts."

Spoke-wheel vehicles jostled block-wheel cars a

* J. HAMILTON, *Sixty Years' Experience as an Irish Landlord*, [1894], p. 47.

century ago in Dublin, as they still do in parts of Ulster. The country carts with solid wheels are laggards from the early Bronze Age—possibly from Neolithic times; the spoke-wheel carts are perhaps the modified descendants of the war-chariot which the Gaelic-speaking Celts introduced into the British Islands. We have here, in the evolution of the wheel, another example of the stimulus to invention and improvement that war gives to technology, which improvements may be later introduced into the peaceful avocations of life.

Further investigations must decide whether the eccentric spokes of the modern Basque and ancient Greek wheels were characteristic of the vehicles of the agricultural Mediterranean Race, and whether the radiating spoke-wheels were invented, or introduced into Europe, by the mobile Aryan peoples.

A most interesting series of spoke-wheels can be seen, for example, at Dundonald, near Belfast, in Co. Down. The cart itself is of the same type as that associated with block-wheels; but there are two varieties of spoke-wheels. In that both the wheels are small—scarcely larger than the solid wheels; but in the one case they are placed within the shafts, and in the other case outside of them. Thus we get the same two varieties that we find among the block-wheel cars. It is obvious that in the first variety the wheel must be kept small, otherwise there would not be

room enough for it beneath the floor of the cart ; but this necessary limitation does not obtain for the second variety. Here the conditioning factor appears to be a blind adherence to traditional methods, for the

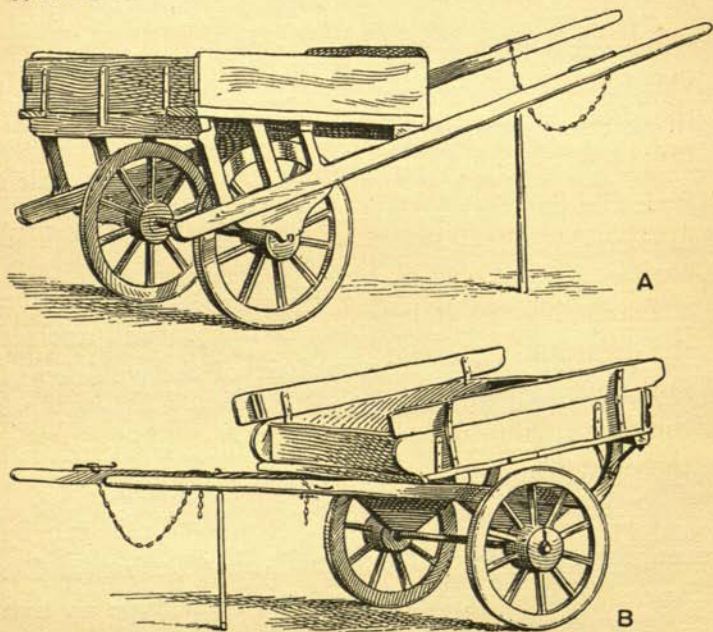


FIG. 32.

Two Carts at Dundonald, Co. Down ; from photographs.

people are accustomed to the old style of cart, with its familiar small wheels.

We have seen that it is more convenient to make block-wheels of small size, and this necessitates a considerable slant in the shafts, which has to be recti-

fied by propping up the hinder part of the floor of the cart. If this particular form of cart is persisted in, the wheels must be kept small, even when they are outside of the shafts, or else they would make the floor of the cart slope downwards in front.

I have a photograph of another cart which shows two interesting features: first, a slight reduction in the upright back-staves; and second, the shafts proper are added on to the lower framework of the cart, and are placed at such an angle to it that they approximate to the horizontal position of ordinary shafts.

From this last it is but a small step to so increase the diameter of the wheel that the shafts can lie in a horizontal position, and thus form the foundation of the floor of the cart. This is the present condition of the ordinary cart.

CHAPTER VII.

THE ORIGIN OF THE IRISH JAUNTING-CAR.

IN the last chapter we studied a series of primitive vehicles which are either in use at the present day in Ireland, or which comparatively recently were employed in various parts of the British Islands. We have now to investigate the origin of a conveyance which is absolutely confined to Ireland, a true insular variety of carriage.

There is very good evidence that the jaunting car was evolved at the end of the last century, or more probably within the first few years of this century. It is therefore by no means an ancient vehicle, and unlike many other implements it has no long ancestry of progressive improvements from an early type, but, once started, it rapidly passed through its developmental history.

We have not far to seek for the parental form; in fact, we have already made its acquaintance as a cart. In his *Hibernia Curiosa* Mr. Bush* gives the following

* J. BUSH, "*Hibernia Curiosa*. A Letter from a Gentleman in Dublin to his Friend at Dover in Kent. Giving a general View of the Manners, Customs, Dispositions, etc. of the Inhabitants of Ireland. . . . Collected in a Tour through the Kingdom in the Year 1764." Dublin, 1769, p. 30.

graphic account of the various uses to which the cart was put in 1764 :—

“ But the drollest and most diverting kind of conveyance for your genteel and ungenteel parties of pleasure is what they call here the *Chaise-marine*, which is nothing less or more than any common *car* with one horse. A simple kind of carriage, constructed with a pair of wheels, or thin round blocks, of about twenty inches in diameter, an axle, and two



FIG. 33.

Irish Low-back Car (1769); after Bush.

shafts, which, over the axle, are spread out a little wider than by the sides of the horse, and framed together with cross pieces, in such manner as to be nearly in a level position for three or four feet across the axle. These simple constructions are almost the only kind of carts, in common use, for the carrying or moving of goods, merchandise of every kind, hay, straw, corn, dung, turf, &c., throughout the kingdom.

“ A sketch of the figure and construction of one of these cars I have here given, and, when used for parties of pleasure,

on the level part LL is laid a mat, for the commonalty, and for the genteeler sort of people a bed is put on this ; and half a dozen get on, two behind and two on each side, and away they drive, with their feet not above six inches from the ground as they sit, on little pleasurable jaunts of three or four or half a dozen miles out of town ; and are the most sociable carriages in use, for ten or a dozen will take one of these *chaise-marines*, and ride it by turns, the rate being seldom, in such cases, more than foot pace. I assure you they are the drollest, merriest curricles you ever saw. We were infinitely diverted at meeting many of these feather-bed *chaise-marine* parties, on the Sunday that we landed, coming out of town, as we went up to it from Dunlary.”*

Twelve years later the author of *A Tour through Ireland*† alludes to the same method of conveyance. After describing the ordinary block-wheel car, he continues : “ They are frequently used as vehicles for the common people on their parties of pleasure ; a bed or a mat is at such times placed on the car, and half a dozen people sit on it, with their legs hanging a few inches from the ground ; they are generally dragged a foot-pace.” The author (Twiss) was severely criticised after the appearance of this book, and subsequently he printed a metrical reply to his critics, which, though it gives an amusing description of the embryonic jaunting-car, can

* The accompanying illustration is taken from the Dublin edition ; the book was reprinted in London in the same year, but the corresponding illustration was evidently taken from a very poor sketch, and shows an almost impossible sort of vehicle.

† Twiss, *A Tour through Ireland*, London, 1776, p. 3.

scarcely be credited with mollifying them. His
 "Heroic Answer"* is as follows:—

"Well might an artist travel from afar
 To view the structure of a low-backed car.
 A downy mattress on the car is laid,
 The rev'rend father mounts, and tender maid;
 Some back to back, some side by side are plac'd

* * * *

By dozens thus, full many a Sunday morn,
 With dangling legs the jovial crowd is borne;
 Clontarf they seek, or Howth's aspiring brow,
 On Lexlip, smiling on the stream below.
 When ease and cheapness would thy Twiss engage,
 Cars be preferr'd to noddies or to stage."

Fifty years later the old low-back car was nearly completely superseded throughout Ireland by the ordinary cart. The Halls† thus describe it in its declining days:—

"The car, or rather cart, used by the peasantry, requires some notice. Flat boards are placed across it, and upon these straw is laid, and often a feather-bed. The one described in the engraving has the old-fashioned wheels cut out of a solid piece of wood. These vehicles are now, however, nearly obsolete; we met but few of them during our latest journey; their unfitness having been understood, they have given way before modern improvement."

Hone, in his *Every-day Book* (1824), ii., p. 239, says that the country car always had the wheels

* *Repository, a Collection of Fugitive Pieces*, ed. by J. Reed, 1790.

† Mr. and Mrs. S. C. HALL, *Ireland: its Scenery, Character, etc.*, London, 1841, i., p. 65.

outside the shafts; ropes were intertwined across the rails (Fig. 25), and on these a ticking stuffed with straw, or a quilt, was laid.

About the beginning of this century it occurred to someone in Dublin to protect the legs of passengers from getting in the way of the wheels, and from being splashed with the mud, by attaching a foot-board to the sides of the flat cart. Two boards were also placed along the cart in such a way as to support the travellers' backs and to leave a space between them in which the luggage could be placed. As in the case of many other inventors, the name has not been preserved of this benefactor to the riding public of Ireland. This obvious improvement at once "caught on," and in 1806 Sir John Carr* makes one of the first allusions to the jaunting-car. He says:—

"Upon the road we saw several carriages peculiar to the country; that which struck me most was the jaunting-car, an open carriage, mounted upon two small wheels, drawn by one horse, in which the company sit back to back, and hence the Irish, in badinage, call it an Irish *vis-à-vis*; whilst, on the other hand, considering the position of the parties and of the coachman, who is elevated in front, I have heard it more appropriately, though less delicately, nominated the *cul-à-cul*. This carriage is very convenient and easy, and will carry six persons besides the coachman."†

* JOHN CARR, *The Stranger in Ireland: or a Tour in . . . etc., in the year 1805*, London, 1806, p. 32.

† This paragraph was transcribed by E. Dubois in his *jeu d'esprit* on Sir John's book: E. DUBOIS, "My Pocket Book, or Hints for a Ryghte

Thirty years later Mr. Inglis* informs us that the car had spread all over Ireland:—

“Although there are carriages of all descriptions in Ireland, and coaches too on many of the public roads, the jaunting-car is the national vehicle, and Ireland would scarcely be Ireland without it. It may be said completely to supersede, as a private vehicle, the whole of the gig tribe—denney, tilbury, cabriolet, &c.—and to be a formidable rival to the coach as a public conveyance.”

Two years later Barrow† published his *Tour round Ireland*; but he does not give a flattering account of the jaunting-car of his date, and this and Maclise's etching of such a car in rainy weather which illustrated Barrow's book were severely handled by a patriotic reviewer in the *Dublin Penny Journal* of May 21st, 1836. Two woodcuts, which are said to be caricatures, are given on p. 371; but they illustrate the kind of jaunting-car then in vogue. Barrow thus relates his first experience of this vehicle: immediately on his arrival at Kingstown he was asked—

“‘Would your honour please to have an inside or an outside car?’ ‘My good fellow, let me know what the difference is, and I will tell you.’ ‘The difference, sure, is this: the inside

Merrie and Conceited Tour in 4to, to be called ‘The Stranger in Ireland in 1805, by a Knight Errant,’ and dedicated to the paper-makers,” London, 1807. Neither Carr's nor Dubois' figures of the jaunting-car are of sufficient interest to be reproduced here.

* H. D. INGLIS, *Ireland in 1834. A Journey throughout Ireland*, London, 1834, i., p. 24.

† BARROW, *A Tour round Ireland, through the Sea-coast Counties, in the Year 1835*, London, 1836.

car has the wheels outside, and the outside car the wheels inside.' After this luminous exposition, I thought it best to see them, and made choice of an outside one. 'What shall I do,' said I, 'if it rains?' 'Change sides wid me, your honour, and if the rain comes in front, go over to the opposite side and take it in the rear!'"

An earlier writer in that famous publication, *The Dublin Penny Journal*, has displayed his patriotism by singing the praises of the jaunting-car:—

"Who that has watched," writes the anonymous author, "the beautiful daughters of the 'Green Isle' borne through the streets of our extending metropolis on this handsome and commodious vehicle" [the author is here referring to a private car, as contrasted with the cars that plied for hire], "that will not feel curious to know from what humble principle it has thus risen to perfection. And in good time have I met with Master Bush's *Hibernia Curiosa*; he was a careful and observant traveller." [The quotation is then printed which we have just given from Bush.] "Such was the jaunting-car of Ireland in 1764, and could the honest gentleman to whom we are indebted for this description 'revisit the glimpses of the moon,' and see the vehicle of 1832, how great would be his praises and surprise." (Vol. i., July 14th, 1832, p. 20, with woodcut.)

In their charming book on Ireland Mr. and Mrs. S. C. Hall* refer at length to the various vehicles in use in 1841:—

"The outside jaunting-car is that to which especial reference is made when speaking of the 'Irish' car. It is exceedingly light, presses very little upon the horse, and is

* *Loc. cit.*, p. 64.

safe as well as convenient; so easy is it to get on and off, that both are frequently done while the machine is in motion. It is always driven with a single horse; the driver occupies a small seat in front, and the travellers sit back-to-back,* the space between them being occupied by 'the well'—a sort of boot for luggage; but when there is only one passenger the driver usually places himself on the opposite seat 'to balance the car,' the motion of which would be awkward if one side was much heavier than the other. The

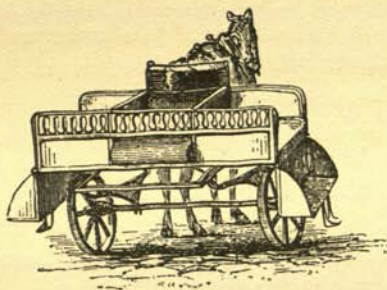


FIG. 34.

Early form of Jaunting Car (1841); after Hall.

foot 'board' is generally of iron, and is made to move on hinges, so that it may be turned up to protect the cushions during rain. This foot-board projects considerably beyond the wheels, and would seem to be dangerous; but in cases of collision with other vehicles, a matter of no very rare occurrence, the feet are raised, and injury is sustained only by the machine. The private cars of this description are, of course, neatly and carefully made, and have a character of much elegance; but those which are hired are, in general,

* This arrangement has been characterized as unsocial; but conversation is easily carried on by leaning across "the well." Its disadvantage is that the eye can take in but the half of a landscape.

badly built, dirty, and uncomfortable; yet in nine places out of ten the traveller has no chance of obtaining a vehicle of any other description, and will often find, even in a populous town, that if 'the car' be out, he must wait until its return; cars are seldom more numerous than 'head inns,' that is to say, one generally suffices for a town."

"Clonmel has been rendered 'famous' in modern Irish history by the successful exertions of a single individual, of whom it is not too much to say that he has done more to improve the condition of the peasantry and the country than any other person of our age. We refer to Mr. Charles Bianconi, and the travelling-cars that bear his name. He is a native of Milan, and about the year 1800 voyaged to Ireland, first visiting Dublin, and subsequently settling in Clonmel, where he carried on the trade of a picture dealer and cleaner and frame maker, but upon a very limited scale. . . . By habits of industry, prudence, and forethought he contrived to save money. . . . He conceived the design of running a public car, that, by conveying passengers at a much less expense than the stage coaches, might answer the purposes of the comparatively humbler classes. He ran his first car—from Clonmel to Cahir—on the 5th of July, 1815. The experiment was very discouraging at the commencement; he was frequently for whole weeks without obtaining a passenger; but his energy and perseverance ultimately triumphed, and he has succeeded in obtaining a large fortune for himself while conferring immense benefit on the community; having preserved an irreproachable character and gained the respect of all classes."*

The Halls inform us that in 1840 Bianconi's stud consisted of 1300 horses, "a larger number than her Majesty possesses in Ireland," his cars travelled daily

* *Loc. cit.*, ii., p. 76.

3500 miles, and visited no fewer than 128 cities and towns. It is difficult at the present time, with our intricate system of traffic, to realize what a boon Bianconi's cars must have been to the residents in the more remote country towns and districts. Though we may well believe that matters had improved since 1760, when Derrick wrote that he set out from Cork for Killarney "on horseback, the city of Corke not affording at this time any sort of carriage for hire."

The sympathetic travellers, from whom so much has already been quoted, carefully describe the various vehicles they came across in Ireland. One more extract must be made :—

"Machines for travelling in Ireland are, some of them at least, peculiar to the country. The stage-coaches are precisely similar to those in England, and travel at as rapid a rate. They, of course, run upon all the great roads, and are constructed with due regard to safety and convenience. The public cars of M. Bianconi have, however, to a large extent, displaced the regular coaches, and are to be encountered in every district of the south of Ireland. In form they resemble the common outside jaunting-car, but are calculated to hold twelve, fourteen, or sixteen persons; they are well horsed, have cautious and experienced drivers, are generally driven with three horses, and usually travel at the rate of seven Irish miles an hour; the fares averaging about twopence per mile. They are open cars, but a huge apron of leather affords considerable protection against rain; and they may be described as, in all respects, very comfortable and convenient vehicles. It would be difficult for a stranger to conceive the immense influence which this

establishment has had upon the character and condition of the country; its introduction, indeed, has been only second to that of steam in promoting the improvement of Ireland, by facilitating intercourse between remote districts, and enabling the farmer to transact his own business at a small expense and with little sacrifice of time."*

All subsequent travellers in the remoter parts of Ireland have profited by the example set by Bianconi, for "long-cars," as they are usually termed, are still an important means of conveyance.

Like Bianconi, the Right Hon. A. J. Balfour was impressed with the fact that a facile and cheap means of conveyance is essential to material progress, and so he instituted the system of light railways in Ireland. Whether this scheme has succeeded or not, or whether a service of auto-cars may not prove to be more efficacious, may be open to question; but there can be no question as to the desirability, one may safely say the necessity, of cheap and rapid means of conveyance.

By comparing the illustrations of the outside car of fifty years ago (Fig. 32) with that of the present day (Plate V., Fig. 2), one can at a glance see that the machine has been greatly improved, the last refinement being the addition of pneumatic tyres to the wheels.

It is not devoid of interest to consider how far the evolution of the cart and outside car can be

* *Loc. cit.*, i, p. 63.

PLATE V.

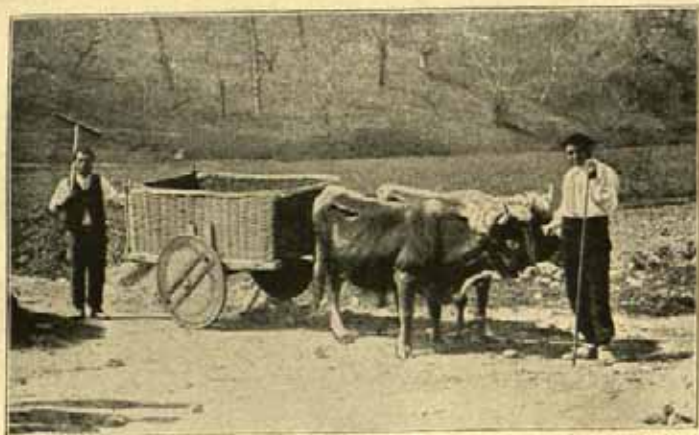


FIG. 1. Basque Ox-waggon ; after Telesforo de Aranzadi.



FIG. 2. Irish Outside- or Jaunting-Car ; from a photograph by Welch.

To face page 210.

compared with the evolution of animals, and perhaps the analogy is not so far fetched as it may appear at first sight.

In both cases the evolution is undirected so far as the subjects of it are concerned; but in the case of the cart the evolution is determined by a reasoning being, instead of by "natural selection." An extended study of the history and evolution of manufactured objects leads one, however, to the conclusion that the human intelligence does not make itself so much felt as one would expect. As a general rule the improvements on previous objects are slight, and often take a long time to be discovered; but when once adopted there is a tendency for them to spread with comparative rapidity, and to be subject to a number of progressive modifications, until another stationary phase is arrived at. In other words, the process of evolution of manufactured objects is apt to be spasmodic, periods of active metamorphosis are preceded and succeeded by periods of stagnation.

So far as the palæontological evidence goes, while one may be convinced that the fossil remains of a given period are genetically related to those of the beds above and below it, one cannot always be sure whether certain fossils are actually related in the direct line to other remains in a superposed stratum. There may be strong presumptive evidence without

a positive assurance—the record being too imperfect for absolute proof.

Among living animals we find forms in any one group which belong to various stages of specialization. In some cases highly-specialized types may live side by side with comparatively undifferentiated forms, the latter often recalling, though in an imperfect degree, some of the stages through which the higher type may have previously passed. It is not always easy to suggest a reason why some low types should persist and others perish. The fact remains that such is the case. In almost all groups of animals we have examples of the persistence of some types for periods which, even speaking in a geological sense, may be termed vast.

The persistence of the slide-car and various forms of block-wheel car is thus analogous to what we find among animals. The reason for this continuance is another matter, and requires an explanation, though we cannot expect that this will hold good for carts and animals alike.

We may provisionally assume that the solid wheel, in all countries, preceded the spoke wheel, wherever the latter occurs, except in those cases where the spoke wheel was introduced into a previously wheelless district. The spoke wheel could never have been invented *de novo*. As primitive types may persist under certain conditions, we may further assume that

existing vehicles with solid wooden wheels are the direct descendants of more ancient types, and where they occur along with spoke wheels they may be regarded as laggards in evolution.

The argument for the slide-car is not so satisfactory. There is no proof whatever that the slide-car was the first stage in the evolution of the cart, either in Ireland or elsewhere. Probably the evidence will never be conclusive on this point. There is a strong presumption in favour of this theory for the British Islands; but as the vast bulk of our culture was derived from the mainland of Europe, we may have owed our primitive carts to the Celts. Classical authorities agree in ascribing the use of carts or waggons and chariots to the Gauls and other Celtic tribes, and we know that two thousand five hundred years ago these peoples had both solid-wheeled and spoke-wheeled vehicles, but there is no mention made of the slide-car. It is a curious fact that block wheels and their variants (*i.e.* those wheels that are without radiating spokes) are found in many of the least Aryanised parts of Europe, and it is tempting to suppose this may be the characteristic wheel of the pre-Aryan agriculturalists.

There are numerous striking examples of the persistence of non-specialized animals in the remote parts of the earth. For example, the mud-fishes are found only in Australia, parts of Central Africa,

and tropical South America. The great running, flightless birds, such as the ostrich, occur only in New Zealand, Australia, New Guinea and some neighbouring islands, Africa, and South America. The lowest of all the mammals, the egg-laying duck-mole, is found only in Australia and Tasmania, while the spiny ant-eater also extends into New Guinea. These examples could be greatly increased, but they will suffice to illustrate this point.

The generally-received explanation of these facts is that the ancestors of these forms at one time inhabited the northern continents, and as opportunity offered they gradually extended southwards, and owing to sinking in the earth's crust, or to other geographical changes, they became isolated in the more remote spots. For some reason or other, which does not concern us now, the great northern continents were the seat of the evolution of the higher forms of mammalian life, perhaps even of vertebrates generally, and in the keenness of the struggle for existence the less specialized forms were usually at a disadvantage, and if they could not adapt themselves to new conditions they had to die out. The great southern land areas were only temporarily connected with the northern lands at various periods, and so they received consignments of low-grade animals at various periods, and these lower types were able to continue. For example, New Zealand

was cut off from the rest of the world before any snakes or terrestrial mammals had wandered so far. Australia received a contingent of only the two lowest groups of mammals. Africa, south of Sahara, for a long time was stocked with other mammals of a low type, for it is only comparatively recently that the higher mammals, such as elephants, antelopes, lions, leopards, and the like, have been able to migrate from their home in Europe and to swarm across or around the Sahara barrier; but being higher types they have supplanted and largely exterminated the lower forms.

This is pretty much what we find among the carts we have studied. In some of the remote and backward parts of the mainland of Europe lumbering carts with solid wooden wheels still persist. In the western parts of the British Islands, where competition has not been so keen, earlier types have been isolated and continued down to our own day, and it may well be that the slide-car is really an ancestral form which has been preserved in the islands at the fag-end of Europe.

There are also some points of interest in connection with the evolution of the jaunting-car. There is contemporary evidence to show that the means for the conveyance of passengers in Ireland up to the beginning of this century left a great deal to be desired. Hackney coaches had been introduced

from England, but they were expensive to hire. One-horse vehicles appear to have been employed in Ireland long before the London cab was borrowed from Paris, which was virtually in 1823, although nine cabriolets were licensed for parts of London in 1805. Mr. Hansom did not invent his two-wheeled modification till 1834; but the present "hansom cab" was really the invention of Mr. John Chapman, who patented it at the end of 1836.

Early in the eighteenth century the "Ringsend Car" plied between Dublin and Irishtown. It consisted, according to the authors* of a *History of the City of Dublin*, of a seat suspended on a strap of leather between two shafts, and without springs. The noise made by the creaking of this strap, which supported the whole weight of the company, peculiarly distinguished this mode of conveyance. This was succeeded by the "Noddy," a kind of cramped, covered one-horse shay, and so called from its oscillating motion backwards and forwards; it disappeared about the same time as the century. The low-backed car was then in process of evolution into the jaunting-car, but in 1806 a new vehicle sprung into existence; this was the noisy four-wheeled "Jingle," which had a period of popularity for thirty years, and finally

* J. WARBURTON, J. WHITELAW, and R. WALSH, *History of the City of Dublin*, London, 1818, ii., p. 1173.

gave place to the outside jaunting-car. The inside jaunting-car was also in use about this time; it may have had its origin from seats being placed along the sides of an ordinary cart in such a manner that the passengers faced one another, their legs being inside the conveyance. A little later a cover was added to the latter, and so the "covered car" was arrived at, the last of which, it is stated, was seen in Dublin some dozen or so years ago. All these one-horse vehicles have been beaten in the struggle for existence by the outside or jaunting-car, which has practically not only vanquished coaches in the past, but has prevented the hansom cab from establishing itself in Dublin. The ordinary cab is too useful in wet weather and for carrying luggage to be much affected by the competition of the car.

We have seen how rapidly this vehicle spread over Ireland, being adapted in many ways to the country. It was elongated by Bianconi, and proved in his hands, and in those of his imitators, an important factor in the betterment of the condition of the small farmer in country districts.

There was a need in Dublin during the last century for light one-horse vehicles; several writers connect this with the fashion at that time for sea-bathing. In response to the demand came a supply, the slow "Ringsend Car" gave place to the objectionable

"Noddy," the rickety "Jingle" supplanted the "Noddy," and had a short but brilliant career. When the "Noddy" was in its decline, the prehistoric, low-backed car was unostentatiously being transformed into the outside-car, and when it was perfected the noisy, swift "Jingle" yielded to the superior qualities of its rival. All these vehicles were of purely local origin, but, so far as the available evidence shows, the jaunting-car alone belongs to the same sequence as the ordinary Irish cart of the last century.

CHAPTER VIII.

TOYS AND GAMES: CAT'S CRADLE AND KITES.

AT first sight it does not appear that games played by children would afford a very profitable field for investigation, but if we wish to learn all we can about mankind no branch of inquiry should be neglected. I shall endeavour in this and the following chapters to indicate some of the conclusions which may be drawn therefrom.

The games played by children have a very varied origin, and a similarly unequal value to the student. Before we consider the games played by our children it is desirable to glance at those played by savages.

The children of savages play at the occupations of their elders, and the boys will have their toy bows and arrows; where the natives spear fish, boys and girls will have toy fishing spears, with which they attempt to catch fish. They play with toy canoes, and so forth. Even when the adults have discarded a weapon such as the bow and arrow for a more serviceable weapon, the children will continue their toy—whether it be in New Guinea or in England.

Our English boys still delight in the implements of warfare of their barbaric ancestors, such as the bow and arrow, the sling, the sword and shield. The memory of these has been preserved from generation to generation through the unbroken continuity of boyish practice.

Games of ball have now with us purely a diversional character, but it seems probable that even this harmless amusement has a somewhat sinister history.

Mr. Newell, the distinguished American folklorist, reminds us that in England country folk speak of the "camp-game" of ball and of the "camping-ground." Pollux, writing in Greek in the second century, gave an account of the "common ball," or "ball battle," of his day. Almost exactly the same was the ancient Norse game, except that the resemblance to warfare was closer. Playing the game was called "*kemping*," from *Kemp*, a warrior or champion, and the field was a "kemping-ground." The Persians and Turks still practise a different sort of game, which is played on horseback. The Byzantine court adopted from the East the playing on horseback and the racket, but introduced these into a game resembling the ancient "ball battle." The historian Cinnamus describes the Emperor Manuel, in the twelfth century, as fond of this kind of polo.

From the Eastern custom we get our tennis, whilst, according to Newell, most of our games with bat

and ball seem to have come down to us from the North. "The history of the change from actual to imitative warfare, from the latter to a harmless and courtly amusement or to a rustic pastime, from this last again in our days to a scientific sport, may supply material for serious reflection."*

These early games of ball were evidently martial exercises, and encouraged for the purpose of keeping the young men in good condition for actual warfare.

Our children also copy the actions of their parents, but it is noteworthy that they prefer the more primitive to the more civilized pursuits, and their games retain more of the savage character than is typical of nineteenth century culture. The love of playing with dolls and of dressing and tending them, and of pretending to keep house, of preparing food, and other characteristics of girlhood, fall into the same category as the hunting and martial games of boys.

There are other games which may be regarded as being more purely diversional in character, as, for example, certain of the games of ball and numerous other simple amusements. Many of these are played equally by adults and children, whether savage or civilized.

Mr. Stewart Culin, who has made the study of games a speciality, and who has written a valuable

* W. W. NEWELL, *Games and Songs of American Children*. New York, 1884, pp. 177, 178.

and beautifully illustrated work on the subject, from which I have made many gleanings, emphasizes the fact that while games occur as amusements or pastimes among civilized men, among savage and barbarous peoples they are largely sacred and divinatory; and this naturally suggests a sacred and divinatory origin for many modern games. The latter have, however, so nearly lost their original meaning, that even with the light afforded by history it is practically impossible to trace their origin. The only other available method of inquiry is the comparative one, and it will be found that I have largely availed myself of this in the following essays, though I have employed the more strictly historical method wherever possible.

"Games,"* says Culin, "must be regarded, not as conscious inventions [here he is speaking in general terms], but as survivals from primitive conditions, under which they originated in magical rites and chiefly as a means of divination. Based upon certain fundamental conceptions of the universe, they are characterized by a certain sameness, if not identity, throughout the world. Without the confirmation of linguistic evidence, they are insufficient to establish the connection of races or the transference of culture."

* STEWART CULIN, *Korean Games: with Notes on the Corresponding Games of China and Japan*. Philadelphia, 1895. Introduction, pp. xvii.-xix., xxxiv.

The most important point elucidated by Culin is the proof of the early use of arrows for divining purposes. For convenience the arrows were flattened, and ultimately were replaced by long narrow strips of cardboard, on one side of which was painted a distinctive device, while on the other was a queer design, which is evidently the conventional representation of the scar of the leaf which primitively marked the shaft of the arrow when it was actually a reed. (Fig. 35.) These elongated cards were shortened and broadened,

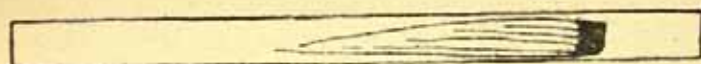


FIG. 35.

Back of a Korean Playing Card; after Culin.

This figure was kindly lent by the proprietors of the *Reliquary and Illustrated Archaeologist*.

and from them have been derived our modern playing cards, which even now retain amongst the credulous a divinatory property, and are also still used for gambling as well as for more innocent amusement. Korean playing cards still bear representations of the feathers of the arrows from which they were derived, and their Chinese name varies only in tone from that of the arrow, *tsin*.

In the fourth year of Hejira, Mohammed prohibited wine and *Meisir*; the latter was a gambling game of the heathen Arabs, in which seven arrows were shaken from a quiver.

Another remarkable evolution from the employ-

ment of arrows in divination is that of the Chinese dominoes, and Europe has borrowed this game from China. Culin calculates that of the ninety-seven Korean games described by him twenty-three may be referred to the arrow employed as an implement of magic or divination.

Lastly, there are games and toys which are the secularized and degenerate survivals of magical practices other than purely divinatory, and even of religious rites, although these two often merge into one another.

I have taken a few games and toys, and have endeavoured to work out their history as an illustration of the methods of modern research. The evidence is at present incomplete, but we cannot satisfactorily determine the game of cat's cradle, with which I commence, or that of the top, in the following chapter, to be other than simple diversions. The tug-of-war was probably a magical rite, and kite-flying had apparently a religious significance. Finally, the bull-roarer at the present day represents the three aspects of amusement, magic, and religion.

CAT'S CRADLE.

One child holds a piece of string joined at the ends on his upheld palms, a single turn being taken over each, and by inserting the middle finger of each hand under the opposite turn, crosses the string from finger

to finger in a peculiar form. Another child then takes off the string on his fingers in a rather different way, and it then assumes a second form. A repetition of this manœuvre produces a third form, and so on. Each of these forms has a particular name, from a fancied resemblance to the object—barn-doors, bowling-green, hour-glass, pound, net, fiddle, fish-pond, diamonds, and others.*

The following forms are those known to Mrs. Gomme. They are produced *seriatim* :—

1. The cradle.
2. The soldier's bed.
3. Candles.
4. The cradle inversed, or manger.
5. Soldier's bed again, or diamonds.
6. Diamonds, or cat's eyes.
7. Fish in dish.
8. Cradle as at first.

The different orders or arrangements must be taken from the hands of one player by another without disturbing the arrangement.

Nares suggests that the proper name is "Cratch Cradle," and is derived from the archaic word *cratch*,† meaning a manger.‡ He gives several authorities

* *Notes and Queries*, vol. xi., p. 431.

† In the *Century Dictionary* the term *cratch* has two meanings, "a grated manger," "a rack or open framework."

‡ MURRAY, in *The New English Dictionary*, does not support this etymology.

for its use. The first-made form is not unlike a manger. Moor (*Suffolk Words*) gives the names as cat's cradle, barn-doors, bowling-green, hour-glass, pound, net, diamonds, fish-pond, fiddle. A supposed resemblance originated them. Britton (*Beauties of Wiltshire*, Glossary) says the game in London schools is called "Scratch-scratch," or "Scratch-cradle."*

Amongst other Korean games Mr. Culin† has investigated that known as *Ssi-teu-ki*, or "Woof-taking." It is practically identical with our cat's cradle, as is usually played by girls. The figures, which are the same as in our own children's play, are named as follows: (1) cover for hearse, (2) chess-board, (3) chop-sticks, (4) cow's eyeball, (5) rice-mill pestle.

"In Japan cat's cradle is called *aya ito tori*—'woof pattern string-taking.' The figures are identical with those in Korea, but receive different names. (1) [?]; (2) *nekomata*, defined as 'a mountain cat, into which a domestic cat is supposed to transform itself'; (3) *koto*, a musical instrument, or *geta no ha*, the two pieces of wood under the soles of clogs; (4) *umano me*, horse-eye; (5) *tsuzumi*, a musical instrument.

"In South China cat's cradle is called *kang sok*, which means literally 'well-rope.' It is spoken of as

* This account of the English game, with the references, is taken from Mrs. GOMME'S "The Traditional Games of England, Scotland, and Ireland," i. (*Dictionary of British Folk-Lore*, Part i.), 1894, p. 61.

† STEWART CULIN, *Korean Games: with Notes on the Corresponding Games of China and Japan*, Philadelphia, 1895, p. 30.

an amusement for girls, but is known to all Cantonese labourers. They make the same figures as those of Korea and Japan, but do not, they tell me, give them names. The order of the figures, after the first, is not necessarily that here given."

Miss Fielde* says that the Chinese of Swatow call cat's cradle "sawing wood" in allusion to the final act in the performance.

Dr. A. R. Wallace, the famous traveller, who formulated a theory of natural selection synchronously with Darwin, thus describes† his finding this game in Borneo :—

"One wet day in a Dyak house, when a number of boys and young men were about me, I thought to amuse them with something new, and showed them how to make 'cat's cradle' with a piece of string. Greatly to my surprise, they knew all about it, and more than I did; for, after I and Charles had gone through all the changes we could make, one of the boys took it off my hand, and made several new figures which quite puzzled me. They then showed me a number of other tricks with pieces of string, which seemed a favourite amusement with them."

Lieut. de Crespigny‡ writes of the Dusuns of Borneo :—

"Near me were two children playing at 'cat's cradle' exactly as I remembered to have played it in my own childhood."

* *A Corner of Cathay*, New York, 1894, p. 87.

† A. R. WALLACE, *The Malay Archipelago*, 1869, i., p. 183.

‡ *Proc. R. Geogr. Soc.*, ii., 1858, p. 344. Quoted from H. LING ROTH, *The Natives of Sarawak and British North Borneo*, i., 1896, p. 366.

The knowledge of this game was probably common to the members of the Polynesian stock before they separated off into different groups, as we find it in the Eastern Pacific in Mangaia, one of the Hervey Group, and again, so far south as New Zealand.

Dr. W. Wyatt Gill,* the illustrious missionary of the Hervey Group, informs us that "cat's cradle (*ai*) was a great delight of old and young. Teeth were called into play to help the fingers. One complication, in which the cord in the centre is twisted into a long slender stem, and therefore called 'the coco-nut tree,' I have never known a European to unravel."

Two early travellers give us the following account of the game as it is played in New Zealand:—

"*He whai or maui*.—The 'cat's cradle' is a game very similar to our own, but the cord is made to assume many more forms, and these are said to be different scenes in their mythology, such as Hine-nui-te-po, Mother Night bringing forth her progeny, Maru and the gods, and Maui fishing up the land. Men, canoes, houses, etc., are also represented. Some state that Maui invented this game."†

"In the game of *Maui* they are great proficient. This is a game like that called 'cat's cradle' in Europe, and consists of very complicated and perplexing puzzles with a cord tied together at the ends. It seems to be intimately connected with their ancient traditions, and in the different figures which the cord is made to assume; whilst held on both

* W. WYATT GILL, *Life in the Southern Isles*, 1876, p. 65.

† R. TAYLOR, *Te Ika a Maui; or, New Zealand and its Inhabitants*, London, 1855, p. 172.

hands, the outlines of their different varieties of houses, canoes, or figures of men and women are imagined to be represented. Maui, the Adam of New Zealand, left this amusement to them as an inheritance.*

Tregear† also mentions the representation of *Tawhaki* (lightning) ascending to heaven.

These statements are very interesting, and suggest that we have here to do with some symbolism that has in course of time become obscured. On the other hand, *Maui* may be merely a pastime, and the string figures or designs may be nothing more than casual illustrations of the mythology of the natives. There do not appear to be sufficient data at present to settle this point.

Dr. Codrington‡ says, "Cats'-cradle, in Lepers' Island *lelegaro*, in Florida *honggo*, with many figures, is common throughout the [Melanesian] Islands."

The Motu children of Port Moresby, in the south-eastern peninsula of New Guinea, are as well versed in the intricacies of "cat's cradle" as are our own.§

I remember once going into a native hut in an

* E. DIEFFENBACH, *Travels in New Zealand*. London, 1843, vol. ii., p. 32.

† E. TREGEAR, "The Maoris of New Zealand," *Journ. Anth. Inst.*, xix., 1889, p. 115.

‡ *The Melanesians*, 1891, p. 341.

§ W. Y. TURNER, "The Ethnology of the Motu," *Journ. Anth. Inst.*, vii., 1878, p. 483.

island in Torres Straits, and seeing a little black boy playing with a piece of string, the two ends of which were tied together, in much the same manner as our children play at cat's cradle. The first figure that he made with it was precisely the same as our "cradle," but the subsequent ones were different. He was greatly surprised when I picked the string off his hands to make "the soldier's bed," which I then transformed into "the candles," back into "the reversed manger," and from that into "the diamonds," and so on. I found that a couple of natives did not play together as we do, "taking off" from each other, but that usually each played separately. They can make much more elaborate devices than ours, and the process is correspondingly elaborate, and feet and teeth are at times pressed into service. On the other hand, although many are extremely complicated in manipulation the final result may be simple. The following are some of the forms I saw the natives make:—A mouth; a coco-nut palm; liana, or some forest rope-like climber; a fish; a crow; a dog; a crayfish, certain movements of the hands represented the motions of the living animal; a sea-snake, which, when the hands were drawn apart, had an undulating movement, such as sea-snakes have in swimming through the water; one figure was intended for a canoe, without an outrigger, and another for one with an outrigger; one, by a stretch of the imagination,

was said to indicate a family of one picaninny (child), and yet another a family of two.*

Among the Australians Eyre† remarks, "string puzzles are another species of amusement with them. In these a European would be surprised to see the ingenuity they display, and the varied and singular figures which they produce. Our juvenile attempts in this way are very meagre and uninteresting compared to them."

Professor E. B. Tylor,‡ who has noted some of the references I have just given, says it is evident that the Dyaks and Maoris did not learn it from Europeans, and though cat's cradle is now known over all Western Europe, we cannot find any record of it at all ancient in our part of the world. It is known in South-East Asia, and he thinks that "the most plausible explanation seems to be that this is its centre of origin, whence it migrated westward into Europe, and eastward and southward through Polynesia and into Australia." It would be interesting if it could be established that this game has travelled in the manner suggested by the great Oxford anthropologist. The occurrence of a similar string game among the Eskimo requires explanation.

* A. C. HADDON, "The Ethnography of the Western Tribe of Torres Straits," *Journ. Anth. Inst.*, 1890, xix., p. 361.

† *Central Australia*, ii., p. 229.

‡ E. B. TYLOR, "Remarks on the Geographical Distribution of Games," *Journ. Anth. Inst.*, ix., 1879, p. 26.

We know that all over the world string, cords, and knots enter largely into magic, and there may be some forgotten or unrecorded connection between cat's cradle and a magical rite. The association of cat's cradle with mythology in New Zealand is also worth bearing in mind.

At present we cannot carry the investigation any further until more evidence is to hand. It does not appear to me improbable that some of these varieties of cat's cradle may have been independently invented.

KITES.

Although now fairly widely distributed in Europe and common enough in England, the kite is a comparatively recent plaything in Europe, having been introduced in the course of oriental trade from the far East during the seventeenth century. Strutt, writing in 1801, says he does not find "any reason to conclude that it existed here much more than a century back,"* and the first record he found was in a French and English Dictionary, published by Miegé, A.D. 1690, where among other significations *cerf volant* denoted a "kite."

Such being the case it is evident there cannot be much to learn from a study of kites in Europe,

* J. STRUTT, *The Sports and Pastimes of the People of England*, 1801, Book iv., p. 292.

nor have we a great variety in forms. The old type with a crescentic upper margin is giving place to a diamond or lozenge-shaped form. Occasionally one sees other shapes, but these are obviously importations, or imitations, of Chinese or Japanese kites.

From being a mere toy the kite has recently become a scientific instrument. Kites appear to have been first applied in meteorology by Alexander Wilson, of Glasgow, who, in 1749, raised thermometers attached to kites into the clouds.* Three years later, Franklin performed in Philadelphia his celebrated experiment of collecting the electricity of the thunder-cloud by means of a kite.† Although kites have served a variety of purposes, their first systematic use in meteorology was probably in England, between 1883 and 1885, when E. D. Archibald made differential measurements of wind velocity by anemometers, raised by kites fifteen hundred feet (*Nature*, vol. xxxi.) In 1885 A. McAdie repeated Franklin's experiment on Blue Hill, using an electrometer. Since then there has been a very notable development in scientific kite-flying in the United States; in Europe attention has chiefly been directed to balloons, though the latter have many disadvantages as compared with the former. A kite-balloon is now being tried in the

* *Trans. Roy. Soc. Edinburgh*, x., p. 284.

† SPARKS, *Works of Benjamin Franklin*, v., p. 295.

German army, but it is inferior to the simple kite for meteorological researches.*

"In Washington the Weather Bureau has, under the direction of Prof. Willis L. Moore, chief of the Bureau, been carrying on an extended investigation into the best kinds of kites for use in sending up meteorological instruments. Prof. C. F. Marvin has recently minutely described the kind of kite now in use by the Bureau.† This kite is a modification of those used by Hargrave in Australia, and is not at all like the ordinary kite. Instead of being flat, and tapering at the lower end, as in the usual form, these kites are box-shaped, with their ends open and their sides partly covered with cloth or silk. This style of kite, which has also been in use at Blue Hill for some months, is found to be admirably adapted to the purpose for which it is intended, and when fine piano wire is used to hold it, instead of twine, is a splendid flyer.

"Clayton, of the Blue Hill Observatory, has for some time been using kites to help in determining the altitudes of the base of stratus and nimbus. These clouds, which so often cover the whole sky with a uniform sheet, can only have their heights determined under the most favourable circumstances if the ordinary theodolite is used.

"The work done at Blue Hill Observatory with kites was outlined by Clayton before the Boston Scientific Society at a recent meeting.‡ The kites at present in use are the Eddy, or tailless, and the Hargrave, or box kite. Continued experiments at Blue Hill have resulted in the development of scientific kite-flying on a remarkable scale. Recent ascents

* LAWRENCE ROTCH, "On obtaining Meteorological Records in the Upper Air, by means of Kites and Balloons," *Proc. American Acad. Arts and Sci.*, xxxii., 1897; reprinted in *Nature*, lvi., 1897, p. 602.

† *Monthly Weather Rev.*, Nov., 1895.

‡ *Boston Commonwealth*, May 9th, 1896, 12-13.

have reached altitudes but little short of a mile above sea level; and excellent records have been obtained by means of a self-recording instrument which gives automatic readings of temperature, pressure, humidity, and wind velocity. The meteorological results already obtained are of great value, and the full discussion of them is awaited with interest. Among the most important matters that have been noted is the presence of cold waves and warm waves at considerable elevations some hours before the temperature changes are noted at the earth's surface. The prospect of improving our weather forecasts by such soundings of the free air is very encouraging, and it is more than likely that before long some practical use will be made of these discoveries.

"The next few years will undoubtedly witness many improvements in kites used for meteorological purposes, and the United States seems to be distinctly in the lead in this work at the present time."*

True to the tradition of thousands of years, the ingenuity of Europe is concerned in an endeavour to increase her machinery for war. It is extremely difficult for an expert marksman to hit even a captive balloon, and it is doubtful whether our newest field-gun would be of much service in this respect, but a kite would be much more difficult to hit. Therefore it really does become of some interest to know whether an enemy can by means of a parcel of kites take photographs of our defences, and by the same method detonate over our cities several dozen pounds of nitro-glycerine.

Captain Baden-Powell, of the Scots Guards, is our

* R. DE C. WARD, *Science* (N.S.), iii., 1896, p. 801.

great authority on kites in England. He makes these toys of our childhood on such a scale that they can, with a good wind, carry up a staff officer. He is understood to laugh at balloons as a means of observing a foe, and to claim that, whereas balloons must be a failure when the wind is strong, kites will do nearly all their work in a gale or half a gale.

The use of kites for scientific purposes is obvious enough. By their aid real bird's-eye views may be taken with a camera flying aloft, the shutter being actuated by mechanical means or preferably by electricity. Mr. Woglom* gives us some specimens of views of New York City taken from the neighbourhood of Washington Square. We do not know that they show us much more than could be had from the roofs of some of the monster buildings which the straitness of New York necessitates, and which are unhappily not unknown now in London. But they at least prove the possibility, which the ordinary man might well have doubted, of manipulating a camera attached to a kite. If that can be done at 200 ft. from the ground while the kite is in the air, it can obviously be done at 2,000 ft.

"The form of kite from which the 'parakite' is an evolution is the general form of the Asiatic kite, substantially a square, whereof the two diagonals are respectively horizontal and

* GILBERT TOTTEN WOGLOM, *Parakites: A Treatise on the Making and Flying of Tailless Kites for Scientific Purposes and for Recreation*, 1896. (Putnam and Sons.)

vertical with a convex windward side, the convexity produced by a third transverse member which is curved upward as well as to the windward face. The Woglom parakite flies without a tail, and will not fly properly with one."*

With all our vaunted progress and science we have not so very much to pride ourselves upon even in this latest development of military tactics; for we are, after all, only following in the footsteps of the Chinese and Japanese.

Kites are said to have been invented by the Chinese General, Han-Sin, about 200 B.C. He flew in the air figures of different forms and colours, and thus signalled from a besieged town to the army that was coming to his succour.†

In a war with Japan, some 400 years ago, a Korean general encouraged his dispirited soldiers, who were discouraged by the appearance of falling stars, by secretly making a kite, to which he attached a small lantern, and one dark night he sent it up. The soldiers accepted this as an auspicious omen, and renewed the struggle with increased energy.

Another general flew a kite across an impassable stream; it lodged in a tree on the other side, and by its means he pulled a strong cord across and ultimately made a bridge.

Ui Shosetsu, the Japanese who tried to upset

* *I.c.*, p. 16.

† F. DILLAYE, *Les Jeux de la Jeunesse*, 1885, p. 34.

the Tokugawa Government in the seventeenth century, made a large kite, to which he fastened himself, and, being carried up into the air, he was enabled to overlook the castle of Yedo.

A famous Japanese robber, Ishikawa Goemon, in the sixteenth century, attempted by mounting on a kite to steal the two celebrated solid golden fish, which, as finials, adorned two spires of the great castle of Nagoya. The fish were worth the risk, as they were valued at from £15,000 to £16,000, but the daring thief failed in his purpose.

It is to the same end of Asia that we must turn if we wish to study kites from an anthropological point of view, and there we shall find them in profusion, of quaint and varied form, brilliant in colour, and in addition we find them put to diverse uses and imbued with symbolic significance.

Nor are the times and seasons for kite-flying unimportant. With us kites may be flown all the year round, provided there is wind enough; but, as a matter of fact, spring is the more usual season for the sport. In the far East we find that definite times are appointed for this exercise.

In his learned book on *Korean Games*, Mr. Stewart Culin informs us that the time for kite-flying in Korea is the first half of the first month; after this time anyone would be laughed at who flew a kite, nor will anyone touch a lost kite. On the fourteenth day

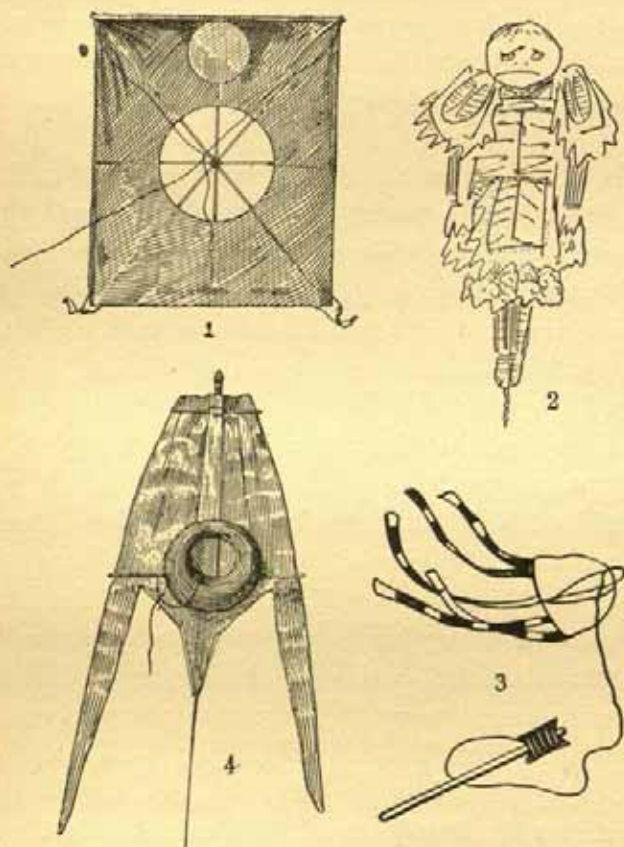


FIG. 36.

ORIENTAL KITES.

1. A Korean kite, with "crow's feet"; 2. A Chinese kite; 3. "Cuttlefish" kite from a Japanese drawing (1-3 after Culin); 4. Kite from the Solomon Islands (from a specimen in the British Museum).

of the same month it is customary in Korea to write on kites a wish to the effect that the year's misfortunes may be carried away with them. A mother does this for a small boy, adding his name and the date of his birth. The inscription is written along the bamboo frame, so that it may not be readily seen by anyone who might be tempted to pick up the kite. The boys tie a piece of sulphur paper on the string of such a kite, which they light before sending up, so that when the kite is in the air the string will be burnt through and the kite itself blown away.

It is evident that the kite is, in this instance, treated as a "scape-goat," the goat of the Hebrews being replaced by a bird. In Japan kites are called "octopus," "paper-hawk," "paper-owl," &c.; and in Korea the rectangular kites are provided at each of the lower angles with triangular pieces of white paper called the "crow's foot," and near the upper border is a disc of coloured paper, which probably is the vestige of an antecedent bird's face. (Fig. 36, No. 1.) All classes fly kites, from the king downwards. Women sometimes fly kites from their yards, but it is said that anyone can tell when a kite is flown by a woman.

In Japan the season for kite-flying greatly varies; in general it appears to depend upon the prevailing winds. At Tokyo it begins on the first day of the New Year, and kites are never flown at any other

season. On the other hand, at Nagasaki, kites are not flown in the first month, but the festivals for kite-flying are the 3rd, 10th, 15th, and 25th of the third month, the 3rd being the occasion of a "religious festival of dolls" (literally of "chickens," or "young birds").

On the 5th of the fifth month is the boys' festival. Streamers and small flags are displayed, and a large coloured carp of cloth or paper. This fish is respected, as it resolutely overcomes all the difficulties it encounters in its passage up the streams of the country, even ascending waterfalls; thus it is emblematic of what it is hoped will be the career of the boys. Models of helmets and warriors are also exhibited as expressions of the hope that boys may become great men. There is a distinct association of ideas between long flags and kites. The same day in other parts of Japan is an especial occasion for kite-flying. In the province of Suruga all the boys who can afford it have a kite on this day. It is considered very unlucky for a boy to lose his kite; should this happen, it is customary for search parties to follow the lost kite even for a distance of twenty miles, and those who bring it back are rewarded with presents of sake. It is recorded that a boy once lost his kite on the day of this feast, and a few months later he died. Girls never have kites. In this case it appears that the kite is regarded as a "life-token," or "external

soul," of the boy. But this symbolism is limited to certain occasions and places. In Nagasaki, when a kite escapes, no special effort is made to recover it.

The middle and upper classes in China indulge in the pastime in a desultory way; it is not with them a national sport, as with the Japanese and with the natives of the countries south of China.* The Koreans say that the Chinese do not know how to fly kites, and that when a Chinaman grows tired he will tie the string on to a tree and lie down and watch it.†

In Hong Kong the kite-flying season is the end of summer; but in some parts of China the ninth day of the ninth month has been from ancient times the great kite-flying festival, when paper birds and bizarre monsters flit, swoop, and hover in multitudes in the bright sunshine. (Fig. 36, No. 2.)

In the mountains of the province of Canton kites are flown in gangs.

"The flier dismisses a leash of three, united by three lines of a few feet in length. At the junction of the three ends he attaches a single line, which is dismissed a few feet farther in the air. Then raising another separate leash of three—similar in arrangement to the first—he ties the joined ends of the second leash to his main single line, and dismisses the second trio, the first trio being in the air beyond and above the second. He repeats the operation as many times

* G. T. WOGLOM, *Parakites*, p. 9.

† S. CULIN, *Korean Games*, p. 12.

as his stock of kites and his stock of patience will allow. He heedfully chooses kites which have been proven sidewise fliers, so that they may not foul each other; if a fresher wind attacks his exhibits, his painstaking is ineffective; they will swirl into a confusion of entanglement which would exasperate any but a Chinaman."*

To a very large extent kite-flying in China and Japan is now a simple amusement; but this is what one constantly finds in the history of ancient ceremonial customs. Mr. Woglom informs us that the Japanese have their kite-clubs with quite large membership rolls. One prominent club, the Shiyen Kwai, holds assemblies annually in January for consultation and to competitively decide upon new designs. Prizes for beauty of design and decoration, and for perfection in build and accuracy in flight, are competed for at the meetings, which are protracted for several days. The club meetings are held in Tokyo, and the flights are held in the suburbs.

The "Festival of the Cherry-Bloom" is a season for national sport. Old men, up to eighty years of age, after their tiring efforts in raising their pets into the heavens, and too feeble to stand continuously, are attended by servants with chairs. When travelling through a sparsely inhabited section, the rider will see ancient, mummy-like Japanese sitting by the roadside, perhaps upon a bamboo-pole support, contentedly flying and watching his kite hour after hour.

* G. T. WOGLOM, *Parakites*, p. 9.

Nowadays in Japan, the kite-flying by both adults and children is practised outside the cities; the police regulations forbid it in the narrow city streets.

One exciting form of the sport is known as kite-fighting. The strings, for a portion of their length, are covered with powdered glass, or sharp-edged, curved pieces of glass are fastened to the tails of the kites, the object being to cut the string of an opponent's kite by a sawing motion of the string of your own kite whilst both are flying. It has been stated that kite-cutting did not originate in China, but that it was brought from India. A description of this skilful pastime is given by Woglom in *Parakites*.*

In Siam each mandarin has his special form of kite with a distinctive colour. The king, also, is said to have a magnificently decorated kite, which is flown at sunset and kept flying all night by mandarins of the first rank. It is withdrawn at sunrise.† Here again there must be a symbolic or magical significance for this curious custom.

Not only in Further India, but in India itself, on the one hand, and in the Malay region to the south, is kite-flying practised. It is very prevalent in Java. The several Javanese communities have each their peculiar kinds of kites, and they hold contests to

* *Parakites*, pp. 6, 8, 9.

† F. DILLAYE, *Les Jeux de la Jeunesse*, 1885, p. 39.

prove superiority of manufacture or skill in manipulation. The old form of English kite was a Javanese pattern. Woglom says the Javanese kites are seldom decorated, except with dirt. The Javanese, more generally than the Japanese, gamble on the results of kite competitions and kite battles. They fly them to heights of 700 to 1200 feet for display.

Dr. Codrington* informs us that in Melanesia kites are used as toys in the Banks Islands, and in the New Hebrides they are made and flown at the season when the gardens are being cleared for planting. The kite is steadied by a long reed tail, and a good one will fly and hover very well.

In Lepers' Island the kite is called an "eagle," and the following song is sung when flying one:—

"Wind! wherever you may abide,
Wherever you may abide, Wind! come hither;
Pray take my eagle away from me afar.
E-u! E-u! Wind! blow strong and steady,
Blow and come forth, O Wind!"

But the kite is put to a more utilitarian use in the Solomon Islands and Santa Cruz.† Here it is flown from a canoe, and from it hangs a tangle of spiders' web or of fibre, which it drags along the surface of the water and in which fish with long

* R. H. CODRINGTON, *The Melanesians: Studies in their Anthropology and Folk-Lore*, 1891, pp. 342, 336.

† *Loc. cit.*, p. 318.

slender under jaws become entangled. (Fig. 36, No. 4.)

The Fijians know of the kite by the Polynesian name of *Manumannu*, "bird," but apparently they do not fly it.*

The use of the kite was widely spread in Polynesia, being recorded from the Society Islands and as far south as New Zealand. Ellis states, "The boys were very fond of the *uo*, or kite, which they raised to a great height. The Tahitian kite was different in shape from the kites of the English boys. It was made of light native cloth instead of paper, and formed in shape according to the fancy of its owner."†

In New Zealand "the name of the kite is the old term for the hawk. Their figure is generally a rough imitation of the bird with its great out-spread wings; these kites are frequently made of very large dimensions of *raupo* leaves, a kind of sedge, neatly sewn together and kept in shape by a slight framework. The string is most expeditiously formed and lengthened at pleasure, being merely the split leaves of the flax plant [*Phormium tenax*]. This is a very favourite amusement."‡ Dieffenbach says, "The kite is of triangular form, and is very neatly made of the light

* SEEMANN, *Viti*, p. 45.

† W. ELLIS, *Polynesian Researches*, i. (2nd Ed., 1831), p. 228.

‡ R. TAYLOR, *Te Ika a Maui; or, New Zealand and its Inhabitants*, 1855, p. 172.

leaves of a sedge; its ascent is accompanied with some saying or song, such as the *He karakia pakau*. It is a sign of peace when it is seen flying near a village."* Dieffenbach gives the words of this song, but unfortunately it is not translated. Tregear† says the kite *kahu* (hawk), or *pakau* (wing), is made from the leaves of the *rauipo* (*Typha angustifolia*).

There were three kinds of kites in the remote Hervey Islands, which were either egg-shaped, club-shaped, or bird-shaped. As the latter were more difficult to make, they were scarce and justly admired by the childish old men who delighted to fly them on the hill-tops of Mangaia. Besides a terminal bunch of feathers, the long tail of these kites was decorated respectively with four, six, or three bunches of yellow *ti* leaves. The four bunches of the egg-like kite represent a constellation called the "Twins and their parents" (*Piriereua ma*), about which an interesting myth is given by the Rev. Dr. Wyatt Gill.‡ The only children of Potiki were twins, a girl named Piri-ere-ua, or "Inseparable," and a boy. Their mother, Tarakorekore, was a great scold and gave them no peace. On one occasion when their mother would not give them some fish they ran away and leaped up into the sky, where they were followed by

* E. DIEFFENBACH, *Travels in New Zealand*, ii., 1843, p. 31.

† E. TREGEAR, *Journ. Anth. Inst.*, xix., p. 115.

‡ *Myths and Songs*, p. 40.

their parents, who continually chase but can never overtake them :—

SONG OF THE TWINS.

Wherefore fled the children of Tarakorekore?
Anger at the cooked fish of Potiki.
They stealthily rose, and ran and fled for ever.

Alas! that a mother should thus ill-treat her children.
Such was not *my* (the father's) wish; and when I intercede,
She will not relent.

She thrashes them—is always at it.
If one sleeps at Karang or elsewhere,
Still there is no peace—only threats and blows.

The six bunches denote the Pleiades; this beautiful constellation was of extreme importance in heathenism, as its appearance at sunset on the eastern horizon determined the commencement of the new year, which is about the middle of December. Dr. Gill gives* the mythical account of the origin of the group. The three bunches represent "The Three" (*Tau-toru*), that is, the three bright stars forming Orion's Belt. The tapa of which the kites were made was decorated with devices appropriate to the tribe of the maker. A tail with six bunches of leaves was about twenty fathoms (120 feet) in length.

The origin of kite-flying is thus accounted for. The god Tane, the Giver of food, once challenged his eldest brother Rongo, the Resounder, whose home

* *Loc. cit.* p. 43.

is in the shades, to a kite-flying match. But the issue of this trial of skill was the utter discomfiture of Tane by Rongo, who had secretly provided himself with an enormous quantity of string. This contest is the subject of a poem composed by Koroa about 1814 A.D.*

A KITE SONG.

Call for the dance to lead off.

The hill-top Atiu is covered with kites,
 Pets of Raka who rules o'er the winds.

Solo. Dance away!
 Go on!

Chorus. See, yon hill-top Atiu covered with kites—
 Pets of Raka, god of the winds.

Solo. Aye,

Chorus. I am a bird † of beautiful plumage.

Solo. Cleave, then, the dark clouds.

Chorus. Take care lest Tautiti gain the day.

Solo. Once Tane and Rongo tried their skill,
 With divine kites in spirit-land.

Solo. Who was beaten?

Chorus. Tane; for his string fell short.

Solo. Two thousand fathoms of string!

Chorus. Yes; 'twas Rongo's,
 Whose kite touched the edge of the sky.

Thus mortals have acquired this agreeable pastime, the condition of each game being that the first kite that mounts the sky should be sacred to and should bear the name of Rongo, the divine patron of the art. The names of all subsequent kites were indifferent.

* *Myths and Songs*, p. 123.

† *i.e.* a kite.

Children's kites were, and still are, extemporized out of the leaves of the gigantic chestnut tree. Sometimes one sees a boy—but it is no longer as in the olden time the grandfathers—flying a properly made kite.

Elsewhere* Dr. Gill gives a Mangaian legend about kites which is about 360 years old, and with it "The song of the Twin Kites."

Kites are said, as I have previously mentioned, to have been invented by the Chinese general, Han-Sin, about 200 B.C. There is no reason to disbelieve that Han-Sin employed kites for the purpose stated, but the undoubted religious character of kite-flying in so many places suggests rather that this is not at all likely to have been the origin of the custom.

Probably we shall never know how the kite first originated—it may have been independently invented in several places, but this is not by any means certain. We Europeans certainly learnt the art of kite-flying from South or Eastern Asia.†

The divine origin of kites in spirit-land, according to the ancient Mangaian myth, points to its having been an ancestral custom, and as kite-flying, accompanied with the singing of mythical chants, appears to be

* W. WYATT GILL, *From Darkness to Light in Polynesia, with illustrative Clan Songs*, London, 1894, p. 39; cf. also *Life in the Southern Isles*, by the same author, p. 64.

† E. B. TYLOR, "Remarks on the Geographical Distribution of Games," *Journ. Anth. Inst.*, ix., 1879, p. 23.

widely spread in the Pacific, we may safely regard the custom as not having various independent centres of origin in Oceania, but as having been brought by the Oceanic peoples in their wanderings from the Malay Archipelago. Dr. Gill believes that the Polynesians first arrived in the Hervey Islands some two or three hundred years ago, and that their swarming from Savai'i took place some five or six centuries ago.* How and when their ancestors got to the Samoan group is still very problematical. An additional argument in favour of the natives of the Hervey Group bringing their kites with them is found in the Plan of the Winds as handed down by the ancient priests, which, with slight variations, is known from many other of the Oceanic groups. The number of wind-holes in this plan exactly corresponds with the points of the mariner's compass. In the olden times great stress was laid on this knowledge for the purpose of fishing, and especially for the long sea voyages which these adventurous navigators undertook from group to group. The Chinese are credited with having invented the mariner's compass long anterior to the Christian era. I should not be surprised if ultimately it was found to be the case that the compass, with certain other elements of Chinese culture, was brought to that country by a maritime people who were early merged into the general population of that

* *Myths and Songs*, p. 167.

mixed people, and who have subsequently been forgotten. It was known to the Arabs in mediæval times, and from them, through the crusaders, the knowledge spread over Europe. As Dr. Gill points out,* the absence of iron throughout Polynesia would easily account for the loss of the magnet, but the plan of the card was perpetuated.

Thus once more our attention is directed towards Eastern Asia, not only as the head-quarters, but also as the place of origin of the kite. It may yet be shown that it actually originated among the Indonesian stock before the Polynesians had swarmed off from the so-called Malay Archipelago to found new homes in Oceania. There are anthropologists who claim a southern origin for the fine type of the Japanese; possibly these adventurous and skilful seamen, like the Norsemen of Northern Europe, may have formed an aristocracy among the agricultural and settled peoples of Japan and Korea, and brought with them their social organization and a higher culture. If this be so, it is not improbable that kite-flying was a religious exercise of these people, and the kite may have been a symbol of the soul or spirit of man.

If we grant, and there is to my mind very good reason for so doing, that the kite was a religious symbol of the primitive Indonesian race, we may

* *Myths and Songs*, p. 319.

fairly go one step further and suggest that the kite itself is merely the liberated sail of a canoe. Amongst a seafaring folk this accident must often arise, and the excitement of hauling down a sail that had blown away might very well lead to the process being intentionally repeated on a small scale.

It is tempting to imagine that as the sails of a canoe are virtually the life of a canoe—that is, the source of its movement, the loss of which leaves behind it an inert log at the mercy of the elements, so the kite by analogy may have come to be regarded as the “external soul” or “life-token” of the owner. For an elucidation of the remarkable belief that the soul can be located in an extraneous object far removed from the body, the reader is referred to the concluding part of Dr. Frazer’s monumental work, *The Golden Bough*.^{*} Mr. Hartland, in his great study of the *Legend of Perseus*, deals fully with the life-token; he is of opinion we are “justified in treating the life-token and the external soul as almost always one and the same thing in belief and custom” (p. 30).[†] Granting the truth of the statement that the King of Siam’s kite is flown at night by a trusted mandarin, the fact would bear the interpretation that during the hours of darkness and danger the royal

^{*} J. G. FRAZER, *The Golden Bough, a Study in Comparative Religion*, 1890, ii., p. 296.

[†] E. SIDNEY HARTLAND, *The Legend of Perseus, a Study of Tradition in Story, Custom, and Belief*, 1895, ii., pp. 1-54.

soul was peacefully soaring in the calm heavens, far removed from mundane risks.

Problems such as these, which are suggested by the comparative study of toys, have in themselves those very dangers which beset the kites themselves. The string which binds them to the solid earth may snap, and they may be lost in the clouds, or they may fall, as it were, lifeless to the ground.

CHAPTER IX.

TOYS AND GAMES: TOPS AND THE TUG-OF-WAR.

TOPS.

WE have seen that the kite has been introduced into Europe from Eastern Asia, but Schlegel believes the reciprocity has not been all on one side, as, according to him, the West has repaid in the top its debt to the East for the kite.

There are many kinds of tops, but they can be resolved into a few groups:—the whipping-top; the top turned by a string wound round the upper end as in the humming-top, in which case there is usually a detachable handle, or by the string enwrapping the lower end as in the usual peg-tops; and lastly the top, or teetotum, spun by being twisted by the hands or fingers.

Every spring tops appear in our streets with the regularity of the seasonal revivals of Dame Nature herself.

“Tops are in, spin ‘em agin;
Tops are out, smuggin’ about,”

cried the ragamuffins in Hone’s time* and so they still do. The last phrase has reference to an unwritten

* W. HONE, *The Every-Day Book*, i., 1824 (February 15), p. 253.

code of boy-life, that confiscation ("smuggling") of toys is allowable when they are "out."

Nares * has collected several references which show that tops were at one time owned by the parish or town. In *Twelfth Night* † we read, "He's a coward and coystiril, that will not drink to my niece, till his brains turn o' the toe like the parish top."

Beaumont and Fletcher refer more than once to this strange civic toy:—

"I'll hazard
My life upon it, that a boy of twelve
Should scourge him hither like a parish top,
And make him dance before you." ‡

"And dances like a town-top, and reels and hobbles." §

Sir W. Blackstone asserts also, that to "sleep like a town-top," was proverbial. Stevens, in his Notes on Shakespeare, states that "this is one of the customs now laid aside: a large top was formerly kept in every village, to be whipt in frosty weather, that the peasants might be kept warm by exercise and out of mischief while they could not work." It is very improbable that this is the real signification of the curious custom of having a village top. Judging from what we know of other instances of village recreations, it is probable that there is

* R. NARES, *Glossary*, "Parish Top."

† SHAKESPEARE, *Twelfth Night*, Act i., Scene 3.

‡ BEAUMONT AND FLETCHER, *Thierry and Theod.*, Act ii., Scene 4.

§ *Ibid.*, *Night Walker*, Act i., Scene 4.

something behind this which has not yet been elucidated.

Hone* refers to a top being used in the ritual of the burial of Alleluia in one of the churches in Paris. "According to a story (whether true or false) in one of the churches of Paris, a choir boy used to whip a top marked with *Alleluia*, written in gold letters, from one end of the choir to the other." This does not seem to be very likely, but strange customs often persist to an unexpected and almost inexplicable extent, and, if it be true, we may find in this and analogous customs some clues which may throw light upon the town tops.

The whipping-top has an ancient pedigree in Europe. In a work of the thirteenth century, *Le Miracle de Saint-Loys*, the whipping-top (*sabot*) is mentioned;† and it is figured in the marginal paintings of English MSS. of the fourteenth century.‡

Pliny refers to a top identical with the modern one, and specimens of such tops have been recovered from the ruins of Pompeii, and are still exhibited in the museum of Naples. There are, as a matter of fact, several allusions in Latin and Greek authors to the whipping-top. The whipping-top is mentioned in an old MS. dating to about 500 B.C. A stranger of

* W. HONE, *The Every-Day Book*, i., 1824 (February 2), p. 199.

† F. DILLAYE, *Les Jeux de la Jeunesse*, Paris, 1885, p. 191.

‡ J. STRUTT, *The Sports and Pastimes of the People of England*, 1801, Book iv., Chap. iv., p. 288.

Atarne consulted Pittacus of Mitylene, one of the Seven Sages of Greece (651-569 B.C.), concerning a wife. The question was whether he should take a certain girl in his own rank of life who had a fortune equal to his own, or a damsel of higher status and with more money. The sage told him to go to a group of boys who were playing at whipping-tops in the midst of a wide cross-road. As he approached them he heard one of the boys say to his fellow, "Whip the nearest one," and he accepted this as an oracle.

The oldest record is the discovery of Dr. Schliemann of terra-cotta tops in the so-called Third City of Troy, and at the present day the boys of Asia Minor still spin tops with whips.

When the traveller, Palgrave, was at Riadh, the capital of Wahabees in Central Arabia, he saw a boy spin a top on his left hand, he then took it on the forefinger of his right hand, which he held at full length above his head, and repeated the following formula :—

"Not by my strength, nor cleverness, but by the strength of God and by the cleverness of God."

The whipping-top is known in the far East. Stewart Culin* in his beautifully illustrated work on *Korean Games* gives a plate of a couple of boys

* STEWART CULIN, *Korean Games: with Notes on the corresponding Games of China and Japan*, Philadelphia, 1895.

playing on the ice. The top is made of hard wood with an iron point, it is played with in winter and usually spun on the frozen ground. The Koreans also share the humming-top with the Japanese, who call it "thunder top."

The learned Chinese scholar, Gustav von Schlegel, of Leiden, many years ago* also distinguished between the various kinds of tops of Eastern Asia: the ordinary small top, driven with the whip (*Tanzknöpfe*, i.e. "dance-button," is its name on the Neckar), the humming-top, the whistling-top which is thrown, and the top turned round with the fingers, &c. The first of these, according to Schlegel, spread from Europe through Java to Japan and Korea. Schlegel never saw it in China, nor is it mentioned in the older Chinese works.

The Japanese, according to Dr. R. Andree in an erudite paper on "The Game of Tops and its Distribution" in a recent number of *Globus*, call the different sorts of top *tok-lok*. This word is not known in China, and in the old Japanese encyclopædias the name is *tolo*, which is the Dutch *tol* which, together with its name, was introduced, says Schlegel, into Japan from Java. The Korean and Japanese humming-top corresponds exactly with that used in Java, and they are all made of bamboo. Culin

* *Chinesische Brauche und Spiele in Europa*, Dissertation, Jena, 1869.

† R. ANDREE, "Das Kreiselspielen und seine Verbreitung," *Globus*, lxi., 1896, p. 371.

figures a large number of Japanese tops of various kinds, many of which are very ingenious.

From Japan this top passed across to China, where in Amoy it is called *kan-lok*, which has the same signification as the Japanese *tolo*. The large humming-top is called in Amoy "earth-thunder," and in Canton "noisy goose." Thus the *Bromtol* of the Netherlands (the *toupie bourdonnante* of the French) has also wandered afar.

According to Bastian* the game of top is known in Burmah and Siam. Different kinds of tops are found in Malasia. The true humming-top and the whipping-top occur in the Malay Peninsula and Archipelago. A humming-top from the Straits Settlements in the British Museum is made of a section of bamboo, with an oblong opening in the side. Mr. C. H. Read also describes a Malay top (*gasing*) made in a lathe, and furnished with an iron peg at the base. It differs from the European top in having the string wound round the upper part. It was obtained at Sélángor, Straits Settlements. (Fig. 37, No. 6.)

Riedel† found tops among the Uliassern, Serang, Kaisar, and Wetar. A simple wooden top driven by a whip was found by Dr. Max Weber‡ in the

* BASTIAN, *Reise in Birma*, p. 60; *Reise in Siam*, p. 324.

† RIEDEL, *Sluiken kroeshaarige Rassen*, pp. 84, 131, 428, 433.

‡ MAX WEBER, *Ethnographische Notizen über Flores und Celebes*. Leiden, 1890, pl. v., fig. 12.

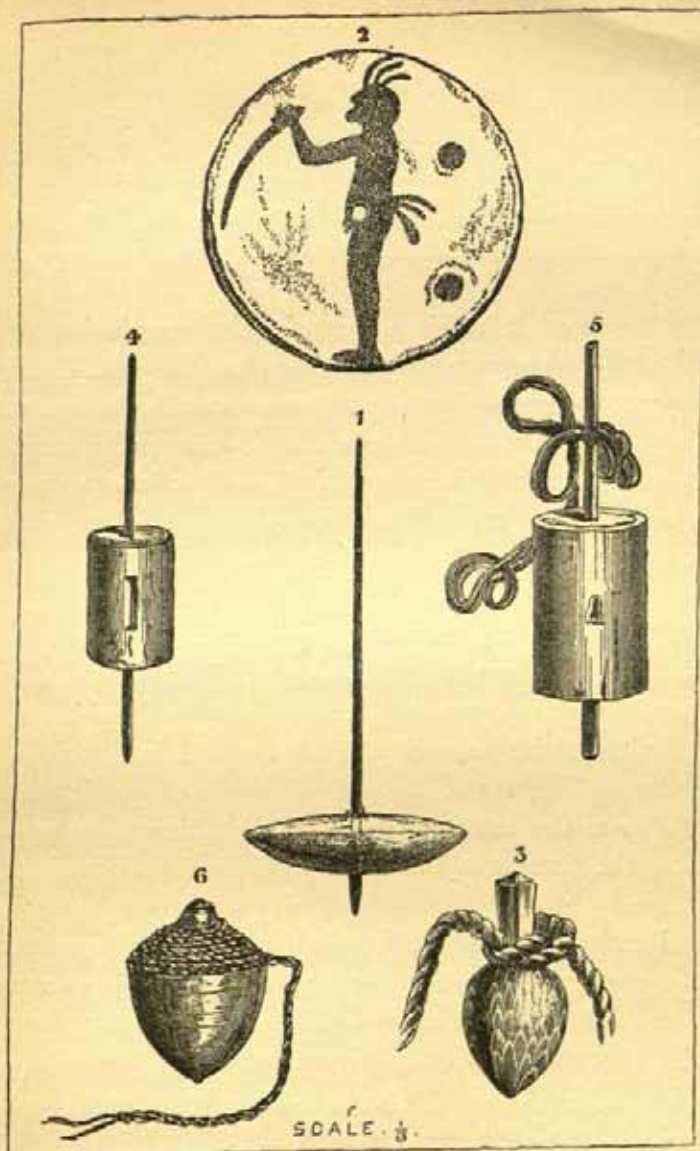


FIG. 37.

EASTERN TOPS; after C. H. Read.

1, 2. Stone teetotum or top from Mer (Murray Island), Torres Straits; 3. Wooden spinning-top from Timorlaut, Tenimber Islands; 4. Bamboo humming-teetotum or top, Straits Settlements; 5. A similar toy from Sakayana, Stewart Islands, West Pacific; 6. Malay peg-top from Sillangor, Straits Settlements. The scale is between one-third and one-fourth.

Island of Flores, and a spinning-top was collected by Dr. H. O. Forbes in Timorlaut. C. H. Read,* who has described this (Fig. 37, No. 6) and other tops, points out various Malay influences that are seen in this island.

Ling Roth,† in his very valuable compilation on Bornean ethnography, records that the Sea-Dyak boys are very fond of playing with tops. He figures one on page 104 which is a double cone; the string is wound round the upper half, and it is evidently spun as a peg-top. The boys play games, but, with the exception of the top, the young men look upon games as beneath them.

There are very few recorded instances of tops from Oceania. A humming-top (Fig. 37, No. 5) is said to come from the Stewart Islands (Sakayana), which lie a little to the east of the Solomon Islands in the Western Pacific; it is made of bamboo, and is very similar to the one from the Straits Settlements, except that the lateral opening is small and of irregular shape.

Read confesses to having some doubts about the correctness of this locality, though the specimen came from the Godeffroy Collection, where they have the best means of testing its accuracy.

* C. H. READ, "Stone Spinning-tops from Torres Straits, New Guinea," *Journ. Anth. Inst.*, xvii., p. 85.

† H. LING ROTH, *The Natives of Sarawak and British North Borneo*, 1896, i., pp. 103, 104, 367.

Among the Polynesians I have come across two records only.

Hedley* says, "Spinning tops I found to be a popular amusement on Nukulailai (Ellice Group, W. Pacific). Their tops were simply cone shells spun on their apices. A game was to spin two shells in a wooden dish, out of which by rotating and colliding the winner would knock the loser. The shells were spun either like a teetotum between the finger and thumb, or to give greater force one end was steadied by the finger and thumb of the left hand, while the impetus was given by drawing the right forefinger briskly across it."

The Rev. R. Taylor† informs us that "the whipping-top is played in every part of New Zealand; the top used is more of a cone, and of less diameter than our English one, but in other respects it is just the same." Dr. Dieffenbach‡ merely says, "A top, called *kaihora*, nicely formed, and managed as it is by us, supplies another of their amusements." E. Tregear§ speaks of a whipping-top with two points.

Dr. Codrington|| informs us that tops are made in

* C. HEDLEY, "The Atoll of Funafuti, Ellice Group," *Australian Museum, Sydney Memoir*, iii., 1897.

† *loc. cit.*, p. 172.

‡ *loc. cit.*, p. 32.

§ *Journ. Anth. Inst.*, xix.

|| R. H. CODRINGTON, *The Melanesians*, 1891, p. 342.

the Solomon Islands of the nut of a palm and a pin of wood, the whole visible length of which, between two and three inches long, is below the head. To spin the top a doubled string is wound round the shaft, and the two ends are pulled smartly asunder. A similar top was used in Pitcairn Island by the half-breed Tahitian children of the *Bounty* mutineers.

Tops are recorded from Netherlands, New Guinea, by de Clercq and Schmeltz,* and they also occur in Torres Straits at the opposite side of that island. (Fig. 37, Nos. 1, 2.)

I have had as many as four men at a time spinning tops for me, on the ball of their big toes, on the verandah of my house in Murray Island, Torres Straits. These tops, or rather teetotums, are made of pieces of a fine-grained volcanic ash, of the shape of a split pea, some four to six inches in diameter and pierced with a hole in which a long piece of palm wood is inserted. The top is revolved by rolling the stick between the palms of the hands; it may be spun on a slightly concave fragment of a shell, or on the ball of the big toe, for these Papuans sit like a tailor, but bend their feet so that the soles face directly upwards.

Quite lately Mr. Etheridge† has described and figured a humming-top, or rather teetotum, from the

* DE CLERCQ en SCHMELTZ, *Ethnogr. Beschrijving van Nederl.—Nieuw-Guinea*, 1893, p. 241.

† R. ETHERIDGE, Junr., "The Game of Teetotum practised by certain Queensland Aborigines," *Journ. Anth. Inst.*, xxv., 1896, p. 259.

Cairns District, in North Queensland. The toy is made of a small gourd about three inches in diameter ; besides the holes for the axial stick the gourd is pierced by four holes. The top is spun between the palms of the hands on a blanket, or on any piece of hard ground, and are often used to amuse children. The tops were used before the occupation of this part of the country by the English. Mr. Etheridge admits there is a bare possibility that they may be a remnant of Malay or Papuan influence. It is a significant fact, he adds, that the further we go north of the Australian continent, the more apparent is the resemblance between the weapons and the implements of the North Australian Aborigines to those of New Guinea.

In the recently published account of the Horn Expedition to Central Australia, Dr. Stirling says :* "I also saw them spinning water-worn, round pebbles on the bottoms of inverted "billy-cans," but I saw none of the beautifully balanced tops moulded out of clay and provided with a peg, which the natives in the north-east of South Australia proper (Blanche-water) † spin, in competition against one another, on some smooth surface such as a piece of tin. At the locality mentioned I saw one spun by a lubra (woman)

* E. C. STIRLING, *Report on the Work of the Horn Scientific Expedition to Central Australia*, Part iv., "Anthropology," 1896, p. 86.

† Lat. 29° 30' S. ; long. 139° 6' ; about.

remain "asleep" for four minutes." It is difficult to believe that any Malay influence could be felt right in the heart of Australia.

According to Andree there are only two records of tops from the whole of America. The German traveller Kohl* saw the boys of the Odschibwä (Ojibwa) Indians playing with tops made out of nuts and acorns; but it is an open question whether this game is, as it were, in the process of evolution among these Indians, or whether it has been introduced by European settlers. The second record is more extraordinary, as it is a humming-top which was brought one hundred years ago by Vancouver from Nootka Sound, North-West America, and therefore before European influence had penetrated so far. This top, which is exhibited in the British Museum,† has a handle, through which the string passes, just as in those sold in the toy-shops of Europe.

The complication of a separate perforated handle is certainly a noteworthy feature, and it evidently has some relation to the whirligigs that Murdoch‡ describes and figures (fig. 374) among the Point Barrow Eskimo. One should not rashly surmise that

* J. G. KOHL, *Kitschi-Gami*, i., p. 119.

† C. H. READ, *Journ. Anth. Inst.*, xxi., 1891, p. 108.

‡ J. MURDOCH, "Ethnological Results of the Point Barrow Expedition," *Ninth Annual Rep. Bureau Ethnol.*, Washington, 1887-88, 1892.

both of these somewhat complicated toys have been introduced from a people of higher culture, as we find these same Eskimo make mechanical toys. There are many other points about these hypoboreans that are of great interest. Murdoch came across only one teetotum (p. 376, fig. 375) among the Eskimo; it was spun with the fingers.

Dr. Andree did not recall any top from the negroes of Africa; but I find a "sacred humming-top of the Massanigas" is figured in p. 358 of the English translation of Ratzel's *The History of Mankind*, vol. ii., 1897.

The history of the peg-top is much more scanty. Strutt* believed it to be a modern invention, and thought it "probably originated from the te-totums and whirligigs. . . . The usage of the te-totum may be considered as a kind of petty gambling." According to M. Dillaye† it (*la toupie*) is not mentioned in French documents older than the fourteenth century; and M. L. Becq de Fouquières argues that there is no evidence that it was known to classical authors. Godwin Austen‡ saw the children of the

* J. STRUTT, *The Sports and Pastimes of the People of England*, 1801, chap. iv., sec. vi., p. 288. Strutt says when he was a boy the te-totum had only four sides, marked respectively with T. (take all), H. (half of the stake), N. (nothing), and P. (put down; that is, a stake equal to that you put down at first).

† F. DILLAYE, *Les Jeux de la Jeunesse*, Paris, 1885, p. 195.

‡ LIEUT.-COL. H. GODWIN AUSTEN, *Journ. Anth. Inst.*, ix., 1879, p. 30.

Naga Hills spinning peg-tops with string; the top was made out of a very hard wood, and was pointed below. This top may be allied to some of the tops of the Malay Archipelago, which are certainly a kind of peg-top.

The story of the wandering of the kite is much more consistent than is that of the migration of the top. So far as the far East is concerned Schlegel has definitely expressed his opinion as to the top being a migrant from Europe. Once established in Java it could easily travel down the Malay Archipelago and be stranded with other flotsam and jetsam on the islands which have been washed with the wave of Malay culture.

If, for example, the use of tobacco has been taught to Malays by the white man and by them transferred to the Papuans, so that we found it smoked in the Torres Straits before it had been brought directly by European voyagers, it is not too far-fetched to assume that the stone tectotum may have followed the same route. On the other hand, the shape of the Murray Island top is so similar to the heads of the disc-shaped stone clubs, that one is tempted to believe that this may have been its origin, especially when one remembers that in this island alone, for a district extending for some hundreds of miles, is the fine-grained, easily-worked stone found of which these tops are made. The labour of making stone clubs

is so very great that there would be no inducement to make playthings out of a refractory rock; but the ash of this volcanic island evidently appealed to some native as being a workable material, and it is also suggestive that the motion of spinning these tops is similar to that employed by these people in making fire by their fire-sticks and in drilling holes.

The sporadic appearance of the humming-top in North Queensland is very remarkable. It really looks as if this was an independent invention, especially as Dr. Stirling has recorded true tops from Central Australia; but the fact that it is a humming-top is rather against this view, as this is a complication which is unlikely to arise *de novo*. A teetotum, or a simple top, may have been invented more than once, but it is highly improbable that a humming-top would be invented before a simpler form of type, and we know that this kind of top is found in the neighbouring Archipelago.

The tops of New Zealand again require an explanation, as there is no indication whatever of any direct Malay influence. The Maoris may have brought it with them when they migrated to New Zealand, but then we should expect to find it more frequently in Polynesia; on the other hand, they may have learnt it from the Melanesians, who probably formed the earlier population.

I must confess that I am by no means satisfied

that the top has had a single centre of diffusion from which it has spread to Africa on the one hand, and to N.W. America, to New Zealand, and to Australia on the other. The problem is a very interesting one, but I do not think the means for its solution are yet available.

THE TUG-OF-WAR.

Allusion was made, when noticing the mediæval town tops, to the fact that village recreations often have a significance which is not apparent at first sight. We will see what lies at the back of such an apparently simple sport as the tug-of-war.

At the present time the tug-of-war is merely one event in school or other "sports"; but we find that it has had a history worth recording. In former days at Ludlow the inhabitants of Broad Street and Corve Street wards had an annual tug-of-war, employing a rope three inches thick and thirty-six yards long, with a large knob at each end. The rope, which was paid for by the Corporation, was given out at the window of the Market Hall by the Mayor at four o'clock on the appointed day, when all business was suspended and the shops shut. One man stood on another's shoulders, and the chimney-sweep's wife on his shoulders. These represented the Red Knob; three others, mounted in the same way, representing the Blue Knob. If, during the contest, the rope was

pulled down Mill Street, the Red Knob won, and the knobs were dipped in the River Teme in token of victory; but if the Blue Knobs dragged it through the Bull Ring, the dipping took place in the River Corve. After the rope was won it was taken back to the Market Hall and given out again, and if the same side won, the contest was ended; but if the opposite side conquered, then the rope was given out a third time, and the victory remained with the side that won twice.

The rope was then sold, and the money got for it was spent in beer, and then fighting and quarrelling commenced. These disorderly scenes, and the dangerous accidents resulting, caused this custom to be discontinued in 1851.

There are many other examples of contests between two wards or two parts of villages or towns, which often take the form of a football contest; nominally it is a football match, but in reality it is a faction fight. Mr. Gomme, from whom I have largely borrowed, has collected several instances of such feuds in his *Village Community*,* and points out their significance; for example, the Seneca Indians of North America played a ball game by phratries (or clans) the one against the other; and the Greek phratries developed the same custom.

* G. L. GOMME, *The Village Community: with special reference to the Origin and Form of its Survivals in Britain*, 1890, pp. 240-246.

In the North-West Provinces of India a very thick grass rope is pulled by the villagers among themselves. The party in whose quarter the rope is broken, or by whom the rope is pulled out of the hands of their antagonists, are the victors, and retain the rope for a year. It is well known that the quarters of an Indian village are clan quarters. Now, there is reason to believe that some at least of the contests in a British village or township are the remnants of a really hostile feeling which existed between the inhabitants of those districts.

The reason for this hostility is probably the same both in India and in Britain; it is not so much local rivalry as racial or tribal animosity. In two parts of the same manor, as at Eling, in Hampshire, or even in the same town, as at Nottingham, the modes of descent of property may vary; on one side of a boundary junior right or borough English is the custom, while on the other side of the boundary the rule of primogeniture is followed. The custom of inheritance by the youngest son is a very ancient one, and in this country dates from long before the practice of making the eldest son the heir. In Indian villages we have side by side the Dravidian aborigines, who are low castes, and the various higher castes, with their increasing purity of Aryan blood; and it may be that in our British villages there is an analogous racial or tribal mixture; thus these parish

contests, which are recognized and sanctioned by the municipal authorities, are the vestigial expression of a very real jealousy which had its origin in the very roots of the history of our country.

Side- or faction-fights are common all over the world. The city of Seoul, in Korea, is divided into five districts, N., S., E., W., and middle, and every person is officially enrolled under one of these directions. This distribution of space enters into the whole philosophy of existence in this part of the world.

Immediately after kite-flying time, that is, after the 15th of the first month, these side- or faction-fights take place. They are commenced by little boys, who make ropes of straw and fight with them. Sides are formed which advance and retreat. Bigger boys join, and at last the men are drawn into the fray. Stones are then the principal weapons employed, and many injuries, and even deaths, result.

In Japan faction-fights, called "Gempei," occur, which take their name, like the well-known Guelphs and Ghibellines, from the famous rival families, Genji and Heiké, "Gempei" being a "portmanteau" word combined from Gen and Hei. The side that represents the Genji wear their colour white; and the other, which represents the Heiké, take red. The rival families were located east and west, and the

sides in these sports may be regarded as associated with these directions.*

Dr. F. Boas informs us that among the Eskimo the boys born in summer fight those born in winter!

In the first month of the year in South China, village fights occur on the open plains; sometimes they are very serious affairs.†

Professor Culin, in his valuable *Korean Games*,‡ to which I have had to refer so often, gives a suggestive clue to the origin of the straw rope contest to which allusion has just been made. This is played by any number of boys about the 15th of the first month. In the country the entire population of districts and villages engage against other districts or villages at this season. It is believed that the village that wins will have a good harvest. The rope is of straw, two feet in diameter, with its ends divided into branches. The men take the main stem, and the women the branches. The latter frequently do more than the men, as it is customary for them to load their skirts with stone on these occasions. The *Dictionnaire Coréen Français* defines the rope as a "rope which they pull by the two ends to secure abundance."

The tug-of-war is a common amusement among

* CULIN, *Korean Games*, p. 63.

† GRAY, *China*. London, 1878, I., p. 256.

‡ STEWART CULIN, *Korean Games: with Notes on the corresponding Games of China and Japan*. Philadelphia, 1895, p. 35.

schoolboys in Japan under the name of "rope-pulling." According to *The Japanese Months*, on the 15th day of the eighth month in the old calendar people turned out to admire the full moon, and made offerings to it of *dango*, a kind of cake made of rice, beans, and sugar. The sport known as "tug-of-war" afforded amusement on the same evening to the boys of rival villages, or to contending parties belonging to the same place, grown-up persons sometimes joining in the fun. Each side has its own rope, which is of large size, and made of rice-straw. There is a loop at each end, and a stick is passed through the loop at one end of each rope, so that both are pulled at the same time. The contest is concluded when one party is pulled over the dividing-line, or till the ropes break. This practice is now a thing of the past. It is significant that the period from the middle of July to the middle of August is an anxious period for the farmers, whose rice-plants are in danger of perishing from lack of water should no rain fall for several consecutive days.

The tug-of-war thus resolves itself in Korea and Japan into a magic ceremony to ensure a good harvest. Probably the straw rope typifies the harvest, and the pulling it over a boundary would ensure a fruitful harvest for the winning side. This is quite in accordance with the working of the savage mind, as innumerable examples from what is known as

sympathetic magic will testify. It is interesting to note that in Korea itself the ceremony has broken down, and is degraded in Seoul into faction-fights; but, true to their origin, they begin with straw ropes; and, further, it is noteworthy that the small boys retain the older fashion—they are more true to the traditional custom. Further research will show whether the contests in our villages and towns are merely racial or tribal in origin, or whether there may not be some harvest ritual behind them.

CHAPTER X.

THE BULL-ROARER.

IN some parts of the British Islands boys occasionally play with a toy which consists of a thin slat of wood tied to the end of a long piece of string, the rapid whirling of which results in a noise that is expressed in the various names given to this simple instrument. Prof. E. B. Tylor informs me that the name of "bull-roarer" was first introduced into anthropological literature by the Rev. Lorimer Fison,* who compares the Australian *türndün* to "the wooden toy which I remember to have made as a boy, called a 'bull-roarer,'" and this term has since been universally adopted as the technical name for the implement.

For some years past I have collected all the specimens and information I could about this interesting object. I have one specimen made by a boy at Balham in Surrey (London, S.W.); it is $7\frac{3}{8}$ inches in

* FISON and HOWITT, *Kamilaroi and Kurnai*, 1880, p. 267. Prof. E. B. Tylor in his review of this book in *The Academy* (April 9th, 1881, p. 265), gives "whizzer" as an alternative name.

length and $1\frac{1}{4}$ inches in breadth, 187 mm. by 30 mm.* The ends are square, and it is serrated along each side. I have heard of it in Essex, but have not seen a specimen.

In West Suffolk it is called a "hummer" and is slightly notched; I have been told that in East Suffolk the edges were sometimes plain. I have several specimens from different parts of Norfolk, where it is called "humming buzzer," or simply "buzzer" ($10\frac{1}{8} \times 1\frac{1}{2}$, $11\frac{1}{8} \times 1\frac{7}{8}$, $11\frac{1}{2} \times 1\frac{3}{8}$; 257×38 , 282×47 , 292×35). The ends are usually square, but the string end is rounded in the last one; the sides may be serrated or simply notched along both surfaces of each side, the notches being more or less deep. One specimen "buzz" from Mid-Norfolk is rounded at the string end and pointed at the other, and with only five notches along each side ($7\frac{1}{4} \times 2\frac{1}{8}$, 184×54). I have been informed that in Cambridgeshire it was called a "bull," and has plain edges. In Bedfordshire its name is "buzzer." The Lincolnshire variety, "swish," is quadrangular, like the ordinary Norfolk form, and notched. I have heard of its occurrence in the East Riding of Yorkshire, but have no details. In East Derbyshire it is known as a "bummer" or "buzzer." My Derbyshire specimen is plano-convex, the string end is square and the

* Subsequently I give, within brackets, the English measurements, followed by the same converted into the metric system.

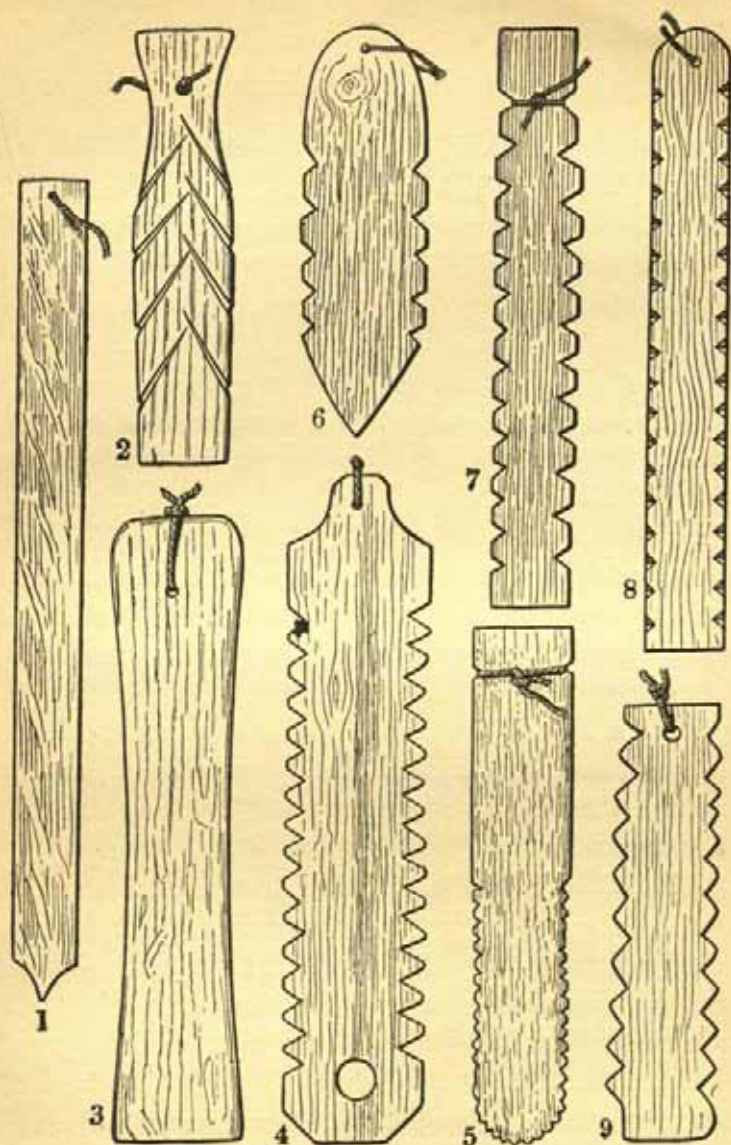


FIG. 38.

BULL-ROAKERS FROM THE BRITISH ISLANDS.

1. Ballycastle, Co. Down; 2. Warwickshire, Staffordshire, and Shropshire; 3. Warwickshire;
4. Montgomeryshire; 5. Derbyshire; 6, 7, 8. Norfolk; 9. Balham (Surrey).

other rounded. In nearly every specimen the string passes through a hole near one end; but in this example the string is tied in a nick in each side near one end, the opposite half and the free end are alone serrated ($10\frac{1}{8} \times 1\frac{7}{8}$, 257×47). A model of a Warwickshire type has the ends practically square, but the sides are slightly concave ($6 \times 1\frac{3}{4}$ at each end and $1\frac{1}{2}$ in the middle, 152×44 and 38). Another model, also called "bummer," said to be used in Warwickshire, Staffordshire, and Shropshire, has square ends, and the sides are concave near the string end, and there are four pairs of oblique grooves in the middle ($7\frac{1}{2} \times 1\frac{1}{2}$ and 1 in the narrow part, 190×38 and 25). I must confess that I am not satisfied about these two last implements. I have one or two others that were given me by the same friend which vary considerably in form, and had no localities given with them. I reserve these for the present, as I have my doubts about them.

The Rev. Elias Owen, of Oswestry, kindly had a "roarer" made for me as they were used sixty years ago in Montgomeryshire in Wales. Here again we have the East Anglian pattern, but with the ends differently finished off. Although there is a large hole at one end, strangely enough the string is tied through a small hole at the other extremity. ($12\frac{1}{4} \times 2\frac{1}{4}$, 311×64). (Fig. 38, No. 4.)

I have been told that the bull-roarer was known as

a "thunder-spell"* in some parts of Scotland, and in Aberdeen as a "thunder-bolt." Professor Tylor also records it from Scotland.† My friend Mrs. Gomme has very kindly allowed me to copy the following from the second volume of her *Traditional Games of England, Scotland, and Ireland* (1898, p. 291):—

"*Thun'er-Spell*.—A thin lath of wood, about six inches long and three or four inches broad, is taken and rounded at one end. A hole is bored in that end, and in the hole is tied a piece of cord between two and three yards long. It is then rapidly swung round, so as to produce a buzzing sound. The more rapidly it is swung the louder is the noise. It was believed that the use of this instrument during a thunder-storm saved one from being struck with 'the thun'er-bolt.' I [Dr. Gregor] have used it with this intention (Keith). In other places it is used merely to make a noise. It is commonly deeply notched all round the edges to increase the noise.

"Some years ago a herd-boy was observed making one in a farm kitchen (Udny). It was discovered that when he was sent to bring the cows from the fields to the farmyard to be milked, he used it to frighten them, and they ran frantically to their stalls. The noise made the animals dread the bot-fly

* Since the above was in type, Mr. W. S. Laverock, of the Liverpool Museum, has informed me that "thunner-spells" are quite common in Aberdeenshire and Kincardineshire; they were made by farm-servants and villagers. They are usually flat laths, twelve to fifteen inches in length and two and a half to three inches wide; the perforated end was rounded, and the notching varied in amount according to the taste and patience of the maker. They were used with a short string. Mr. Laverock does not know whether the word "spell" means, in this connection, a charm, or the Scottish term for a shaving, the English "spill."

† *Journ. Anth. Inst.*, xix., p. 163.

or 'cleg.' This torment makes them throw their tails up, and rush with fury through the fields or to the byres to shelter themselves from its attacks. A formula to effect the same purpose, and which I have many and many a time used when herding, was: Cock tail! cock tail! cock tail! Bizz-zz-zz! Bizz-zz-zz!—Keith (Rev. W. Gregor).

"Dr. Gregor secured one of these that was in use in Pitsligo, and sent it to the Pit-Rivers Museum at Oxford, where it now lies.

"They are still occasionally to be met with in country districts, but are used simply for the purpose of making a noise."

In her first volume, under the title of "Bummers," Mrs. Gomme writes:—

"A play of children. 'Bummers'—a thin piece of wood swung round by a cord (*Blackwood's Magazine*, Aug., 1821, p. 35). Jamieson says the word is evidently denominated from the booming sound produced" (p. 51).

I have only two notices of the bull-roarer from Ireland—one from the town and county of Cork, the other from Ballycastle, Co. Antrim, where the Rev. J. P. Barnes kindly gave me a specimen, which is a long, narrow lath, with straight, smooth sides; the string end is square, but the opposite end is rudely pointed ($13\frac{3}{4} \times 1$, 350×25). (Fig. 38, No. 1.) Its use is very local, but I am informed that the schoolboys in Coleraine often make them. Mr. Barnes writes:—

"From enquiry made, I come to the conclusion that the 'Bull-roarer' (its local name) is not indigenous, but an im-

portation. The boy who gave me this says he got the idea from his father, who is a coastguard; his father once tied a string to a piece of wood lying near the fireside, and began to twirl it round for the children's amusement, saying, 'That's what I have seen niggers do in the West Indies.'

This last remark is very suggestive. The form is not like that which I have collected in England, and certainly does more resemble the *Oro-stick* of West Africa (Fig. 39). It would be a strange circumstance—but not more strange than others that we have already studied—if the dreaded god of vengeance of West Africa should become the plaything of a boy in the north of Ireland.*

Dr. Schmeltz, the Director of the Ethnographical Museum at Leiden, has written a laborious monograph on the bull-roarer. He commences by describing a child's toy well known in Germany as the *Waldteufel*. It is a small cardboard cylinder, open at one end and closed at the other; to the middle of the drum is fastened a horsehair, the other end of which is tied to a piece of wood. When the implement is swung round it makes a horrible sound.

* Since the above was in type I have been informed that "boomers" are in common use among boys in Co. Down. They are notched in various ways, sometimes on one side only; they appear, in fact, to be of very diverse form. Those given to me were made for me, and may not represent the common form of bull-roarer in the north-east corner of Ireland. My informant stated that once when, as a boy, he was playing with a boomer an old country woman said it was a "sacred" thing. It would be worth while to follow up this clue.

I have a perfectly similar toy that was bought in the streets of Cambridge, except that a piece of fibre replaces the horsehair; this has a loop at the unattached end, which revolves loosely in a notch at the end of a short piece of wood. The wood at this spot is coated with resin, so as to produce a grating sound; this is conducted along the fibre, and the cylinder acts as a resonator. I have been unable to discover the English name for the "Devil of the woods." My friend, Director Schmeltz, suggests a connection between this toy and the bull-roarer. I quite fail to see how the simple slat of wood could develop into the more complicated cylinder. All one can say is that they both make a disagreeable sound. As to the origin and significance of the *Waldteufel*, nothing whatever is known, and we have no evidence before us to connect this toy with any magical or religious rite.*

An analogous implement to the bull-roarer is that which is called in America the "buzz." It usually consists of a small, flat, rectangular piece of wood, in which two holes are pierced, and through these a long, continuous piece of string is passed. The loops of the string are held in the two hands, and the wood is swung round so as to twist the string. The hands are strongly and steadily drawn apart,

* J. D. E. SCHMELTZ, "Das Schwirrholtz," *Verh. des Vereins für naturw. Unterhaltung zu Hamburg*, ix., 1896, p. 92.

which causes the wood to revolve at a rapid rate, and to produce a buzzing sound; if properly managed the momentum is so great that the string twists itself up again, and so on indefinitely.

Culin* informs us there are two kinds in Korea. The first is a simple circular card with two holes through which the cords are passed, the other is a more complicated arrangement. The first form occurs in China and Japan. Murdoch describes and figures one from the Point Barrow Eskimo,† and Culin says the buzz is to be found widely distributed among the Indians of North America.

It is an occasional plaything in England, but I do not know its history. Mr. Thomas Drew informs me that on a summer's evening fifty years ago the young weavers of Belfast were fond of playing with the "bummer." It was an oblong piece of wood, pierced with two holes, and serrated all round.

This toy has not yet been connected with any ceremonial usage.

A German friend has informed me that he has seen the bull-roarer in the Black Forest, where it is known as *Schlägel*; and I have also heard that it is sometimes seen in fairs at Basel in Switzerland. Tylor (*Academy*, April 9th, 1881, p. 265) says it is called *Brummer* in Germany. In West Prussia, near

* *Korean Games*, p. 22.

† *Ninth Ann. Rep. Bureau of Ethnol.*, p. 378.

Marienwerder, the true bull-roarer (*Schwirrholz*) has been noted by Siedel.* A narrow piece of light wood, a span in length, was fastened to a whip, the whirling of the whips was called *burren*, and not every boy could do this equally well; the success depended also partly on the length and weight of the bull-roarer as well as on the nature of the whip. The little piece of wood had to be cut and smoothed with care before it would work properly. After a lapse of thirty years, Siedel has forgotten how he fastened the wood on to the whip, and also certain other details. The game was known in the neighbourhood generally. About the years 1869 and 1870 a number of the pure Germans of this district emigrated to America, and their place has been partly taken by Poles, and it would be interesting to find out whether the Polish children have adopted this toy, or whether it is restricted to the Germans.

The distribution of the bull-roarer in Europe is carried a step further by Figura,† who states it not only occurs in Poland, but in and beyond the Carpathians. He was born on the banks of the San in Galicia, which separates the Ruter and the Poles, and the bull-roarer is used on both sides of the river. He says:—

“As a child of agricultural parents, I often returned in the evening to the village on horseback, driving the cattle home.

* H. SIEDEL, “Das Schwirrholz in Westpreussen,” *Globus*, 1896, p. 67.

† F. FIGURA, “Das Schwirrholz in Galizien,” *Globus*, 1896, p. 226.

Not always, but often, at such times the bull-roarer is used by the young herdsmen when in good humour. The bull-roarer is a longish, thin piece of wood, notched at one end on both sides, and fastened with a simple knot at the end of a whip. At the beginning of the revolutions the bull-roarer produces a note corresponding to the letter b——s (greatly protracted). By swinging some time and more quickly the high note passes into a low organ note. This tuning effect is called in Galicia, among both Poles and Ruthenians, *bsik*. The wooden object itself has no name. This buzzing or humming noise excites pasturing cattle. As soon as the bull-roarers are started the calves stretch out their tails into the air, and kick out their hind legs, sometimes to the right, sometimes to the left, as if they were dancing. After some minutes the old cattle follow the young ones, and there is a general stampede to the village. Therefore one says in Galicia that a man whose brain is not quite right has a '*bsik*.' It is supposed that the animals get into an idiotic condition owing to the buzzing of the bull-roarer.

"In what a curious way an idea may change may be seen from the following. It is well known that in the year 1831 thousands of young Poles emigrated to foreign parts, especially to France, and there a great number enlisted in the Algerian foreign legion. The Poles used to play cards, and their game was called *bsik*. The Frenchmen got to like the game; they could pronounce the word, but in writing it down according to French orthography it became *besique*! Thus this favourite game of the French gaming clubs owes its name to the bull-roarer."

In one of his charming and suggestive essays Andrew Lang* first drew attention to the fact that

* ANDREW LANG, "The Bull-roarer: A Study of the Mysteries," *Custom and Myth* (2nd Edition), 1885, p. 39.

the bull-roarer was employed in ancient Greece in connection with the Dionysiac Mysteries :—

“Clemens of Alexandria, and Arnobius, an early Christian father who follows Clemens, describe certain toys of the child Dionysus which were used in the mysteries. Among these are *turbines*, *κῶνοι* and *ρόμβοι*. The ordinary dictionaries interpret all these as whipping-tops, adding that *ρόμβος* is sometimes ‘a magic wheel.’ The ancient scholiast on Clemens, however, writes: ‘The *κῶνος* is a little piece of wood to which a string is fastened, and in the mysteries it is whirled round to make a roaring noise.’

“In the part of the Dionysiac mysteries at which the toys of the child Dionysus were exhibited, and during which (as it seems) the bull-roarer was whirled, the performers daubed themselves all over with clay. This we learn from a passage in which Demosthenes describes the youth of his hated adversary, Æschines. The mother of Æschines, he says, was a kind of ‘wise woman,’ and dabbler in mysteries. Æschines used to aid her by bedaubing the initiate over with clay and bran. The word here used by Demosthenes is explained by Harpocration as the ritual term for daubing the initiated. A story was told, as usual, to explain this rite. It was said that when the Titans attacked Dionysus and tore him to pieces, they painted themselves, first with clay, or gypsum, that they might not be recognised. Nonnus shows, in several places, that down to his time the celebrants of the Bacchic mysteries retained this dirty trick.

“In Lucian’s Treatise on Dancing we read, ‘I pass over the fact that you cannot find a single ancient mystery in which there is not dancing. . . . To prove this I will not mention the secret acts of worship, on account of the uninitiated. But this much all men know, that most people say of those who reveal the mysteries, that they “dance them

out." Lucian obviously intends to say that the matter of the mysteries was set forth in *ballets d'action*. Now this is exactly the case in the surviving mysteries of the Bushmen. Mr. Orpen, the chief magistrate in St. John's Territory, made the acquaintance of Qing, one of the last of an all but exterminated tribe. He gave a good deal of information about the myths of his people, but refused to answer certain questions.* 'You are now asking the secrets that are not spoken of.' Mr. Orpen asked, 'Do you know the secrets?' Qing replied, 'No, only the initiated men of that dance know these things.' To 'dance' this or that means 'to be acquainted with this or that mystery'; the dances were originally taught by Cagn, the mantis, or grasshopper god. In many mysteries Qing, as a young man, was not initiated. He could not 'dance them out.'"

This is the whole of the evidence I have been able to gather respecting the occurrence of the bull-roarer in Europe.

In Africa it is found in the west and south. Mrs. R. Braithwaite Batty† describes the cult of *Oro* ("Torment"), a god of terror and vengeance. The *Oro* represents the active embodiment of the civil power, the local police, the mysterious head or idol of the Civil Government. Under the name of *Oro* the initiates exercise unrestricted and unquestioned vengeance on offenders. Any woman getting a sight of or finding out the secrets of *Oro* would be put to death.

* *Cape Monthly Magazine*, July, 1874.

† R. BRAITHWAITE BATTY, "Notes on the Yoruba Country," *Journ. Anth. Inst.*, xix., 1890, p. 160.

"The supposed 'voice of Oro' proceeds from a small piece of wood, actually worshipped as a god—narrow and tapering at each end—somewhat thinner at the edges than in the middle, about an inch wide, and measuring from nearly a foot to three feet in length. This Oro stick is attached to a string, which is fastened to the thin end of a bamboo, or pliable rod, of from six to eight feet or more in length, the string being about double the length of the stem or handle, which is used something after the fashion of a long carter's whip. The motion is horizontal, rotary, and continuous. According to the velocity and the size of the stick is the sound produced—sometimes a high, shrill tone, sometimes deep and grave. The largest stick requires a man of gigantic strength to twirl it." (Fig. 39.)

The Bushmen of South Africa have a bull-roarer which slightly increases in width towards its free end, and then has a pointed termination; the button-like attached end has a circular notch round which its string is tied, the other end of the string is fastened to a stick. It is spoken of as a rain-charm, and is said to be also used as a clapper in driving game, and again, "they try to charm their luck in hunting by means of bull-roarers."* (Fig. 40, No. 1.)

According to a correspondent of Prof. Tylor's in South Africa, the bull-roarer is employed to call the men to the celebration of secret functions. A minute description of the instrument and of its magical power to raise a wind is given in Theal's *Kaffir Folklore*, p. 209.†

* RATZEL, *The History of Mankind* (English Edition), ii., pp. 275, 276. i., frontispiece. † LANG, *l.c.*, p. 38, and BOURKE, *l.c.*, p. 479.

He says: "There is a kind of superstition connected with the *nodiwu* that playing with it invites a gale of wind. Men will, on this account, often

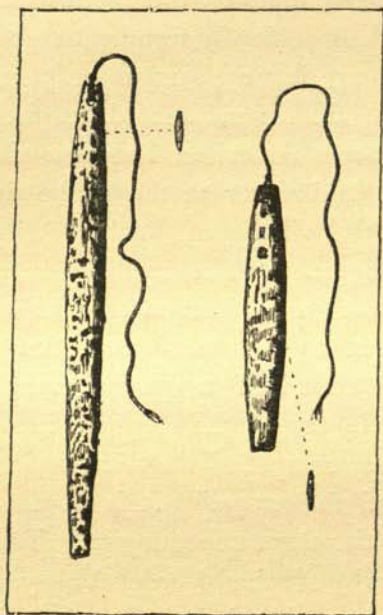


FIG. 39.

Yoruba bull-roarers, for producing the "voice of Oro."

$\frac{1}{2}$ natural size.

prevent boys from using it when they desire calm weather for any purpose."

Mrs. Carey-Hobson also records the use of the *nodiwu* among the Amakosa Kaffirs. (*Journ. Anth. Inst.*, xiv., p. 325.) Prof. E. B. Tylor (*Academy*, April 9, 1881, p. 265) says it is used among the Kaffirs "for

rain-making, and in connection with the rites of initiation to warn women off."

The bull-roarer is found sporadically throughout America. The Eskimo on the north-west coast have one which is ellipsoidal in form with notched edges (Fig. 40, No. 2); it "appears to be purely a child's toy."* There are several records of its occurrence among the North American Indians. Bourket† first met with the bull-roarer at the snake dance of the Tusayan, in the village of Walpi, Arizona, in the month of August. "The medicine-men twirled it rapidly, and with a uniform motion, about the head, and from front to rear, and succeeded in faithfully imitating the sound of a gust of rain-laden wind. As explained by one of the medicine-men, by making this sound they compelled the wind and rain to come to the aid of the crops." It is in use among the Apache, and for the same purpose. The prehistoric "cliff-dwellers" of the Verde Valley, in Central Arizona, also employed it. Bourke also found it among the Rio Grande Pueblo tribes and the Zuñi. Dr. Washington Matthews has described it as existing among the Navajo, and Major J. W. Powell has observed it in use among the Utes of Nevada and Utah. Captain Bourke describes three forms of bull-

* J. MURDOCH, "Ethnological Results of the Point Barrow Expedition," *Ninth Ann. Rep. Bureau of Ethnol.*, 1887-88 (1892), p. 378.

† J. G. BOURKE, "The Medicine-men of the Apache." *Ninth Ann. Rep. Bureau of Ethnol.*, 1887-88 (1893), p. 477.

roarers, all apparently connected in symbolism with the lightning. The first terminates in a triangular point, and the general shape is either that of a long, narrow parallelogram, capped with an equilateral triangle, or else the whole figure is that of a slender isosceles triangle. When the former shape was used, as at the Tusayan snake dance,* the tracing of a snake or lightning in blue or yellow followed down the length of the rhombus and terminated in the small triangle, which did duty as the snake's head. The second form was serrated on both edges to simulate the form of the snake or lightning; it is found among the Navajo and in the old cliff dwellings. The third form, in use among the Apache, is an oblong, 7 or 8 inches in length, and $1\frac{1}{4}$ inches in breadth. The pierced end is rounded to rudely represent a human head. The Apache explained that the lines on the front side of the rhombus were the entrails, and those on the rear side the hair of their wind god. The hair is of several colours, and represents the lightning. Bourke was led to believe that the rhombus (as he terms it) of the Apache was made by the medicine-men from wood, generally pine or fir, which had been struck by lightning on the mountain tops. Such wood is held in the highest estimation among them, and is used for the manufacture of amulets of

* Cf. also J. G. BOURKE, *The Snake Dance of the Moquis of Arizona*, London, 1884, p. 158-9, pl. xiii.

especial efficacy. The Apache name for the rhombus is "sounding wood." (Fig. 40, No. 3.)

The sympathetic American anthropologist, Mr. Cushing, also found a bull-roarer among the Zuñi. He says:—

"I heard one morning a deep, whirring noise. Running out, I saw a procession of three priests of the bow, gorgeous and solemn with sacred embroideries and war paint . . . each distinguished by his badge of degree. The principal priest carried in his arms a wooden idol, ferocious in aspect, yet beautiful with its decorations of shell, turquoise, and brilliant paint. It was nearly hidden by symbolic slats and prayer-sticks most elaborately plumed. He was preceded by a guard-ian with drawn bow and arrows, while another followed, twirling the sounding-slat, which had attracted alike my attention and that of hundreds of the Indians. . . . Slowly they wound their way down the hill, across the river, and off toward the mountain of thunder." *

Schmeltz † describes and figures two bull-roarers in the Rijks Ethnographisch Museum in Leiden, which were obtained by Dr. H. Ten Kate from the Papago and the Pima tribes. They are long and narrow, being respectively $18\frac{1}{4}$ inches and $15\frac{1}{2}$ inches in length; both are painted with simple devices in red. The only information about them is on a label which

* F. H. CUSHING, "My Adventures in Zuñi," *The Century Magazine*, xxvi. (N.S. iv.), 1883, p. 29.

† J. D. E. SCHMELTZ, "Das Schwirrholtz, Versucheiner Monographie," *Verh. des Vereins für naturw. Unterhaltung zu Hamburg*, Bd. ix., 1896, p. 121.

states they produce a buzzing noise and are used to frighten away evil spirits. (Fig. 40, No. 4.)

The next American locality is Central Brazil, where Von den Steinen* met with it in his second Xingu Expedition. One, which was straight at one end and pointed at the other and $23\frac{3}{4}$ inches in length, was found in a flute-house of the Mehinaku; it was red in the middle and black at each end. Two others, which were shaped like a fish, were obtained from the Nahuqua; one was decorated with a snake design (Fig. 40, No. 5), and the other had a fish or bat pattern; they were about 14 inches in length. The Nahuqua showed them in public in the middle of the village how they were used; the women were not driven away. The Bakairi call the bull-roarer "thunder and lightning," or "thunderstorm."

While the Bakairi and other tribes use it only at mask-dances or also as a plaything, on the river St. Lourenço among the Bororo the bull-roarer is employed only at funeral festivities.† They swing it first when all the things which belonged to the deceased are burnt, and while in a pantomime they tell the spirits of those previously deceased, and who are there present, that nothing has been kept back from their dead brother, and that they, the spirits, need not look for anything more in the village. The bull-

* KARL VON DEN STEINEN, *Unter den Naturvölkern Central Brasiliens*, Berlin, 1894, p. 327.

† *l.c.*, p. 497.

roarer is whirled a second time when the bones of the deceased are carried out of the village, and his spirit accompanies them. The underlying idea of all these festivals is the great fear that the dead should return to fetch a living person. The women are not admitted to the ceremonies which have this intention. During these times the women hide themselves in the forest or in their houses; if any woman was present she would die, even if she only saw the bull-roarer. Wallace tells us that among the Uaupés Indians in the Amazon district the women flee at the sound of the flutes on which are played the Juripari or "devil music."

"From the moment the music was first heard not a female, old or young, was to be seen; for it is one of the strangest superstitions of the Uaupés Indians that they consider it dangerous for a woman ever to see one of these instruments, that having done so is punished with death, generally by poison. Even should the view be perfectly accidental, or should there be only a suspicion that the proscribed articles have been seen, no mercy is shown."*

Among the Bororo they fear for the women; among other tribes (and each tribe must be investigated separately) the women are threatened with death. The Bakairi women are threatened if they should enter the flute-house of the men. Thus the saying, "The women must die," may have very different meanings.

* ALFRED R. WALLACE, *A Narrative of Travels on the Amazon and Rio Negro*, 1853, p. 349.

Von den Steinen found it nearly impossible to get a bull-roarer from the Bororo tribe. The fear of its being misapplied was so great that they prayed him not to show even the drawing of one to the women. When he spoke about buying one they were hidden; when he spoke casually about a bull-roarer—as one speaks of bows and arrows—the men were frightened and turned away, clearly showing that they did not want to hear it mentioned. The sentiment is connected with the fear of death. The illustrious German traveller gives the following interesting account of how he obtained some specimens:—

“We only got the bull-roarers from three young lads in the hobble-de-hoy stage, who valued some small red beads as much as the bull-roarer. They made and painted them in the forest. First one came very secretly on a dark and misty night to our room and asked that the door and window-shutters might be closed. Then came the second, and after him the third. Each had a bull-roarer hidden under a cloth. They whispered that we had to hide them very carefully, because women and children would die if they saw them, and they also wished that the men should not hear anything about it (the naughty boy Tobakiu was greatly afraid of his father), because they would become ‘*brabo*’ and get a beating. We were careful to let them see us put the dangerous pieces of wood (Fig. 40, No. 6) right at the bottom of our box.”*

Dr. Paul Ehrenreich mentions† having twice come

* VON DEN STEINEN, *l.c.*, p. 498.

† PAUL EHRENREICH, “Beiträger Zur Völkerkunde Brasiliens,” *Veröffentl. des Kgl. Mus. für Völkerkunde*, Berlin, 1891, pp. 38, 71.

across the bull-roarer on his travels in the interior of Brazil. He says it is not used by the Karaya on the Araguaya, at least he could learn nothing about it, and among the Ipurina of the Rio Purus a little bull-roarer of a fish-form was obtained, but nothing could be gathered as to its use.

The Ethnographical Museum at Leiden has, according to Schmeltz,* a bull-roarer from the small island of Aruba, off Venezuela. It is oval in form, roughly made, and used as a toy. The population of the island is a mixture of Indians and negroes. Schmeltz reminds us that Von den Steinen regards the Caribs as allied to the Nahuquas.

Of the Peruvians we are informed that "their belief was that there was a man in the sky with a sling and a stick, and that in his power were the rain, the hail, the thunder, and all else that appertains to the regions of the air where clouds are formed."†

Mr. W. Skeat, of the Federated Malay States Service, has informed me that he has collected a couple of bull-roarers (*lembing buluh*, "bamboo spear") from a Patani boatman, of the Kuala-Langat District in Sélân-gor. Patani is an Independent Malay State on the East Coast of the Malay Peninsula. The bull-roarers

* SCHMELTZ, *l.c.*, p. 119.

† CLEMENTS R. MARKHAM, "Note on Garcilasso de la Vega," in *Hakluyt Soc.*, vol. xli., quoting Acosta, lib. v. cap. iv.

(Fig. 40, No. 7)* are used for scaring elephants away from the plantations. One informant said "they make a noise like a tiger." This is the first record of the occurrence of the bull-roarer on the mainland of Asia, and its use to frighten elephants is analogous to the use it is put to by the Bushmen of South Africa, as well as by boys in Galicia and Scotland.

Schmeltz† knows of only one true example of the bull-roarer from the Malay Archipelago. It occurs among Toba-Batak of Sumatra and is a plano-convex, narrow, oblong piece of wood about $4\frac{1}{2}$ inches in length. (Fig. 40, No. 8). It is only a plaything for small children. Another child's toy from Java, which is also in the Royal Ethnographical Museum at Leiden, has some resemblances to a bull-roarer, but it is so specialized that we can pass it by, as it may have quite another origin.

It is also entirely wanting, so far as we know, from Polynesia, with the exception of New Zealand. It is worth bearing in mind that these islands were almost certainly inhabited by Melanesians before the Maori invasion, and the bull-roarer may belong to the older population. A highly decorated specimen occurs in the British Museum, it was first figured and noted by Lang.‡ We have no information as to its use.

* There should have been a tang at the upper end of this figure; the specimen is 11 inches long.

† SCHMELTZ, *l.c.*, p. 103.

‡ LANG, *l.c.*, p. 35.

When we turn to the black races of Oceania we find a very different state of affairs. Alike among the noisy, excitable, frizzly-haired natives of the Melanesian Archipelago, or of the great island of New Guinea, and the taciturn, apathetic, curly-haired black fellows of Australia, do we find it playing a very important part in the social life of the people.

Dr. Codrington, the erudite missionary of Melanesia, has recorded a bull-roarer in connection with the *Matambala* mysteries in Florida, one of the Solomon Islands.* In admission to these mysteries there was no limit of age and no time of life more appropriate than another, even sucklings were made *Matambala*; for the latter the men would go into the villages and beg milk from the women, since the infants could not come out of the sacred precincts and the women could not go in. During the three months of the ceremony the *Matambala*, under cover of the terror of their pretended association with ghosts, were playing tricks and robbing all the country round. From time to time they sacrificed to Siko. More than once they made their appearance in the villages; this they did at night-time, taking with them *buro* (bull-roarers) and *seesee* (bundles of coco-nut fronds to beat over a stick). When they approached a village they beat the *seesee* and whirled the *buro*; all the women in the

* R. H. CODRINGTON, *The Melanesians: Studies in their Anthropology and Folk-lore*, Oxford, 1891, pp. 98, 342.

village shut fast their houses and were much afraid, and gave food to the men through small holes in the walls of their houses. The downfall of this superstition and imposture, says Dr. Codrington, has been complete. No Matambala celebration has taken place for years; all the young people know how the thing was done, the sacred precincts were explored, bull-roarers became the playthings of the boys, and the old men sat and wept over the profanation and their loss of power and privilege.

It is only in Florida that any superstitious character belongs to the bull-roarer. There is no mystery about it when it is used in the Banks Islands to drive away a ghost, as in Mota, where it is called *nanamatea*, "death-maker"; or to make a moaning sound, as in Merlav, where it is called *worung-tamb*, "a wailer," and used the night after death. It is often a common plaything; in Vanua Lava they call it *mala*, "pig," from the noise it makes; in Maewo it is *tal-viv*, "a whirring string"; in Araga it is merely *tavire bua*, "a bit of bamboo."

The bull-roarer is too well known in the Banks Islands to be used in mysteries, and so another apparatus is employed in the cult of the Great *Tamate* (Great "Ghost"), by which the peculiar, and certainly very impressive, sound is made, which is believed by the outsiders to be the cry or voice of the ghosts. This is a flat, smooth stone, on which

the butt-end of the stalk of a fan of palm is rubbed. The vibration of the fan produces an extraordinary sound, which can be modulated in strength and tone at the will of the performer.*

In New Guinea the bull-roarer is known at one or two places in Kaiser Wilhelms-Land. Krause† obtained one from Finsch Hafen about sixteen inches in length, and decorated with an insect,‡ and Dr. O. Schellong§ says they play a great part in the circumcision feast in the same district. They serve to warn off the women, and are not allowed to be seen by them. We thus get an explanation of some objects collected by Finsch|| from Friedrich-Wilhelmshafen. At Bilia they were wrapped up carefully in tapa, and kept in the assembly house; the natives seemed to regard them with a tabu-like fear, and nobody was allowed to look at them.

We have more information regarding the bull-roarer in British New Guinea, where it occurs in Torres Straits, and along the northern shore of the Papuan Gulf. So far as our present knowledge goes it is associated with mask-dances, and is employed

* CODRINGTON, *l.c.*, p. 80.

† E. KRAUSE, *Zeitschr. für Ethnol.* xx., 1888; *Verhandl.*, p. 267.

‡ Cf. A. C. HADDON, *Decorative Art of British New Guinea*, p. 103.

§ O. SCHELLONG, "Das Barlum-Fest der Gegend Finschhafens," *Internat. Arch. für Ethnogr.*, ii., 1889, p. 145.

|| O. FINSCH, *Ethnologischer Atlas*, Leipzig, 1888, taf. v. figs. 5, 6; "Ethnologische Erfahrungen," etc. *Annalen des K.K. Nat. Hofmuseums*, Wien, 1891, p. 65 [203].

only by the peoples* whom Mr. Ray and myself† term "Papuan," as in distinction to the Melanesian immigrants of the South-Eastern Peninsula.

The energetic and enthusiastic pioneer missionary of British New Guinea, the Rev. James Chalmers, or "Tamate," as he likes to be called by his black and his white friends, has described the initiation ceremony among the Toaripi (Motu-Motu). At about the age of seventeen or eighteen the boys enter the Eramo (sacred house); they leave off the sporran worn by the boys, and adopt the string worn by the men; their head is shaved, and they then remain many months until the hair has grown long again. There is a tabu on certain kinds of food. "Not until after they have left the Eramo is the Roaring Bull [bull-roarer, *tiparu*] seen"; nor until then can an initiate "wear a mask or join in the dances and drum-beatings of the tribe, and only then is he considered a man. Not until he has descended from the Eramo does he know a woman. All singing, dancing, and drum-beating are considered sacred and never uselessly done."‡

Mr. Chalmers has recently given to the museum

* A. C. HADDON, *Decor. Art*, p. 254; and *Evolution in Art*, 1895, p. 62.

† S. H. RAY and A. C. HADDON, "A Study of the Languages of Torres Straits," Part i., *Proc. Ry. Irish Acad.* (3) ii., 1893, p. 463; Part ii. vol. iv., 1896, p. 119 (*cf.* p. 370).

‡ J. CHALMERS, *Report Austral. Assoc. Advanc. Sci.*, ii., 1890, p. 313; *cf.* also *Pioneering in New Guinea*, 1887, p. 86.

of the London Missionary Society two bull-roarers, with the following description :—" *Tiparu*, only seen by a young man after initiation into manhood, and then pigs are killed, and a large feast prepared. All women and young people leave the village lest they should hear it and die. Had great difficulty in getting them." The larger of these two measures 20 inches by $5\frac{1}{2}$ inches, and is carved on both sides with scrolls, which are, as usual, painted red, black, and white. The second one is $11\frac{1}{2}$ inches by $1\frac{3}{4}$ inch; but instead of being ellipsoidal, it is practically an elongated isosceles triangle with a pointed base—one side has a slightly carved tooth-pattern along the margin. (Fig. 40, Nos. 10, 11.)

In connection with the same ceremonies at which the masks are employed, certain flat, or slightly biconvex, ellipsoidal wooden objects are used, which are generally prolonged at one end into a handle, and are perforated at the other. They are often adorned at the side with vegetable fibre. Their shape bears a close resemblance to that of a bull-roarer, and I have ventured to suggest* that they may have arisen from this implement, which we have seen is used in this district during the initiation ceremonies. An objection to this view might be urged from the circumstance that among those people who employ the bull-roarer during initiation cere-

* A. C. HADDON, *Dec. Art New Guinea*, p. 102.

monies, the implement is so sacred that it may not be exhibited to any woman or uninitiate. But these objects are not actual bull-roarers, and even if they are modelled upon the bull-roarers, their relatively large size and their decoration alter their character, and it is very improbable that any initiate would inform the uninstructed that there was any resemblance between the two objects. These ceremonial tablets, as I have termed them, vary from about 20 inches to 60 inches in length, and, so far as I know, without exception they bear delineations of the human form or face.

Very similar to these ceremonial tablets are some oval wooden slabs that Mr. Chalmers has recently sent to this country from the mouth of the Fly River, on which are carved conventionalized human faces, associated with simple patterns; some he describes as "*gope-gope*, charms hung in new houses for good luck . . . *gope*, house charm . . . *gope*, figure-head of canoe, gives good passage, and is thought a wonderful charm." I suspect these, too, are in reality bull-roarer derivatives.

Mr. Chalmers is also our authority for the existence of initiation ceremonies in this district at which the bull-roarer, *burumamaramu*, is exhibited. He says: "When used all women and children leave the village and go into the bush. The old men swing it and show it to the young men when the yams are ready

for digging (May and June)." The name evidently means "the mother of yams."* These bull-roarers are decorated with incised or carved designs. At the same occasion a wooden female image (*uvio-moguru*, *urumuruburu*, &c.) is given to the lads to be worn by them, but it must not be seen by women or children.

I found that in the island of Mabuiag, in Torres Straits, the large carved and painted bull-roarers (*bigu*) (Fig. 40, No. 12) were formerly suspended round certain platforms that were connected with the turtle fishery. A small bull-roarer (*wainis*) was also associated with this cult, but they were kept in the bush. Women were allowed to see it. "It was half-play," they said. When the men went out to catch the floating turtle they took a *bigu* from the platform and swung it over the canoe preparatory to starting. On the approach of the successful canoes the man who had stationed himself on a hill would whirl a *wainis*, and the women knew that the fishers had been lucky. At Moa a man would raise the wind by painting himself black all over and whirling a bull-roarer.†

In the autumn of 1888 I visited Muralug (Prince of Wales Island), in Torres Straits. The son of the

* S. H. RAY and A. C. HADDON, "Languages of Torres Straits," ii., *Proc. Roy. Irish Acad.* (3), iv., 1897, p. 309. (*buruma*, a variety of yam; *maramu*, mother).

† A. C. HADDON, "The Ethnography of the Western Tribe of Torres Straits," *Journ. Anth. Inst.*, xix., 1890, pp. 406, 427, 432.

chief of that island was a friend of mine, and when I went to his father's village I determined to see whether I could discover if these people, who are Papuans, and not Australians, had a knowledge of the bull-roarer.

So I took the old man and his son apart, and was careful not only to see that nobody was close by, but to speak in a low tone of voice. As I could not speak their language, our means of communication was the jargon English which is spoken all over the Pacific.

I said to him, "You make him boy man?" (That is, "Do you have initiation ceremonies in which boys are made into men?") "Yes," he replied, "we make him boy man." "You got thing, time you make him boy man?" At first the old chief would say nothing, and looked stolidly ignorant, but I persisted, and whirled my arm and made a whirring noise, and said, "I savvy that thing. You got him?" This was too much for him; his surprise that any white man knew anything about it was so evident that he was obliged to admit that they had the implement. "What name you call him?" The old boy looked cautiously all around, and after satisfying himself that no one could overhear him, he whispered, "*Waness*." After a considerable amount of coaxing he promised to make one for me, evidently being satisfied in his own mind that I was an initiate of some kind or other. The next morning he took me and his son into the bush, and

took precautions that he was not followed. When some distance off he produced a bull-roarer, and showed me how to swing it. Then in a secret and confidential manner he gave it to me, making me promise not to show it to any woman. I naturally took this to mean any native woman, and I did not. I have given this specimen (Fig. 40, No. 13) to the British Museum. Its form, like that in most countries, was a long oval, pointed at both ends, and with bevelled edges. One end had a short bar-like projection to prevent the string from slipping off; the latter was about a yard in length, and its other end was attached to a stick. It was whirled round and round over the head. I was informed that the *waness* was usually ornamented with a central white band, a red band being painted a short distance above and below it.

A few weeks afterwards I was in Christianized Mer (Murray Island)—a small island about 120 miles from Muralug—and to my great surprise I saw a number of small boys playing with similar bull-roarers. These boys were scholars in the Mission School, and had been brought from Saibai, a low island near the coast of New Guinea, at the other end of the Straits.

In one island a bull-roarer was too sacred to be shown to a woman; in another it was a plaything!

All over Australia the bull-roarer is regarded with religious awe, and it is first shown to lads at the

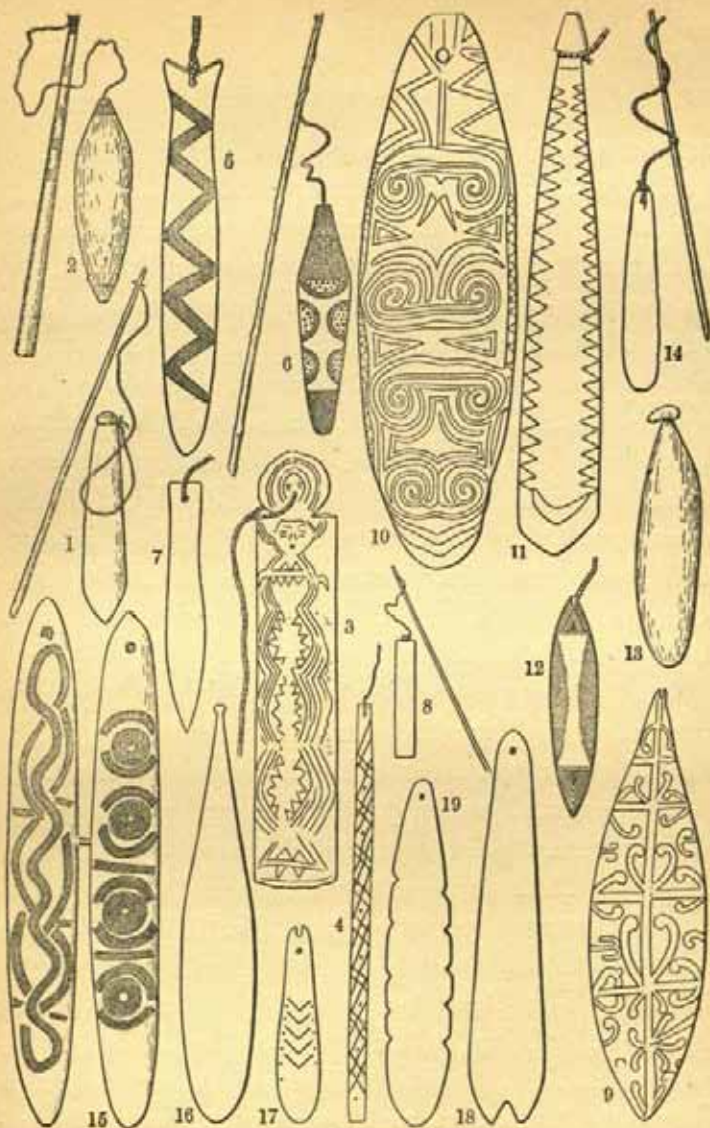


FIG. 40. COMPARATIVE SERIES OF BULL-ROAVERS.

1. Bushman (after Ratzel); 2. Eskimo (after Murdoch), $7\frac{1}{2} \times 2$; 3. Apache, North America (after Bonker), $8 \times 1\frac{1}{2}$; 4. Pima, North America (after Schmetz), $13\frac{1}{2} \times 1$; 5. Nahuqui, Brazil (after V. d. Steinen), 13×2 ; 6. Bororo, Brazil (after V. d. Steinen), $15 \times 3\frac{1}{2}$; 7. Patani Malay, E. coast of Malay Peninsula (original, from a description by W. Skeat); 8. Sumatra (after Schmetz), $4\frac{1}{2} \times 1$; 9. New Zealand (original), $13\frac{1}{2} \times 4\frac{1}{2}$; 10, 11. Toaripi, British New Guinea (original), $20 \times 1\frac{1}{2}$, $11\frac{1}{2} \times 1\frac{1}{2}$; 12. Mahuag, Torres Straits, $16 \times 3\frac{1}{2}$; 13. Muralug, Torres Straits (original), $6\frac{1}{2} \times 1\frac{1}{2}$; 14. Mer, Torres Straits (original), 5×1 ; 15. South Australia (after Etheridge), $14 \times 1\frac{1}{2}$, both sides of the same specimen are shown; 16. Wiradthuri Tribes, N.S.W. (after Matthews), $13\frac{1}{2} \times 2\frac{1}{2}$; 17. Clarence River Tribe, N.S.W. (after Matthews), 5×1 ; 18. S.E. Coast N.S.W. (after Matthews), $13 \times 2\frac{1}{2}$; 19. Kamilaroi Tribe, Weir River, Queensland (after Matthews), $11\frac{1}{2} \times 1\frac{1}{2}$.

ceremony during which they are initiated into manhood. With us manhood is merely a question of age, with these people it is a state of grace; unless a lad has been initiated he counts as nobody; he has no tribal rights, nor can he perform any ceremony. No woman is allowed to see the bull-roarer; if shown by a man to a woman or uninitiate the punishment to both is death. I was informed that the death penalty was similarly inflicted among the eastern tribe of Torres Straits if the names were divulged of the sacred masks which were worn during the initiation ceremonies, and if a woman identified the disguised chief performers of one of the ceremonies, "she died that night."*

In some parts of Australia a deluge myth is associated with the bull-roarer, and the lads are told that if ever a woman is allowed to see one the earth will open, and water gush forth and submerge it. The old men point spears at the boys' eyes, saying, "If you tell this to any woman you will die; you will see the ground broken up and like the sea; if you tell this to any woman or to any child you will be killed." The Rev. Mr. Fison gives the following tradition: "Some children of the Kurnai, in playing about, found a *türndün* (bull-roarer), which they took home to the camp and showed the women. Im-

* A. C. HADDON, "Manners and Customs of the Torres Straits Islanders," *Journ. Royal Inst. of Great Britain*, 1890.

mediately the earth crumbled away, and it was all water, and the Kurnai were drowned."

So much has been written of late concerning the initiation ceremonies in Australia, that it is impossible for me to enter into the subject at any length. Mathews,* who has recently published some very interesting observations on the *Bora*, or initiation ceremonies of the Kamilaroi tribe, records that at the main camp, during the early part of nearly every night, one of the masters of the ceremonies would go alone into the bush a short distance from the camp, and for about two hours would sound a wooden instrument which these blacks called *murrawan*, which is supposed to represent the voice of Durrumoolan, their native name for the evil spirit, who rules in the night. During the time the instrument referred to was being sounded in the adjacent forest, the men of the tribes would dance and yell, and make hideous noises, and all the gins would sing and beat time, those of each tribe singing their own peculiar song. Howitt† says:—

"*Tharamūlūn*‡ was not everywhere thought to be a malevolent being, but he was dreaded as one who could severely punish the trespasses committed against those tribal ordinances and customs whose first institution is ascribed to

* R. H. MATHEWS, "The Bora, or Initiation Ceremonies of the Kamilaroi Tribe," *Journ. Anth. Inst.*, xxiv., 1895, p. 419.

† A. W. HOWITT, "On some Australian Beliefs," *Journ. Anth. Inst.*, xiii., 1883, p. 192.

‡ Also called *Thrāmūlūn* or *Daramūlūn*.

him. He, it is said, taught the Murring all the arts they knew; he instituted the ceremonies of Initiation of Youth; he made the original *mādjī* (the *turndun*, or bull-roarer, of the Kurnai); ordered the animal names to be assumed by men; and directed what rules should be observed as to the food permitted or forbidden to certain persons. It was taught to the Murring youths at their initiation . . . that *Tharamūlūn* himself watched the youths from the sky, prompt to punish, by sickness or death, the breach of his ordinances. These prohibitions were only relaxed as the youths proved themselves worthy, and in some cases appear to have been perpetual.

"The knowledge of *Tharamūlūn*, and his attributes and powers, was only communicated to the youths at their initiation, and was regarded as something eminently secret and not on any account to be divulged to women or children. It is said that the women among the Ngarego and Wolgal knew only that a great being lived beyond the sky, and that he was spoken of by them as *Papang* (Father). . . . The old men strenuously maintained that the knowledge of the name of *Tharamūlūn* was imparted to themselves only at their initiation by the old men. This name is to them so sacred that even in speaking to me of it, when no one else was present but ourselves, the old men have done so in almost whispers, and have used elliptical expressions to avoid the word itself, such as 'He,' 'the man,' or 'the name I told you of.' I believe that the dread of offending an unseen, powerful, possibly present, spirit, lies much at the root of the disinclination to utter the name of *Tharamūlūn*. One old Theddora woman (the last of her tribe) said, when I asked her who was *Tharamūlūn*: 'He lives up there (pointing to the sky); I only know that; and also that when boys are made young men he comes down to frighten them. I once heard him coming with a noise like thunder.'"

In describing in detail the initiation ceremonies of the Coast Murring tribe, Howitt says* :—

"The *Mūdji* is held to have been first made and used by *Daramūlūn*, when in the beginning of things he instituted these ceremonies, and constituted the aboriginal society as it exists. The noise made by it is the voice of *Daramūlūn*, calling together the initiated; and, moreover, it represents the muttering of thunder, which is said to be his voice 'calling to the rain to fall and make the grass grow up green.' These are the very words used by Umbara, the minstrel and improvisatore of his tribe."

In a later paper, Howitt states that "*Showing the Grandfather*" is the cryptic phrase used to describe the central mystery of the *Jeraeil*,† or initiation ceremonies of the Kurnai tribe. In reality it means the exhibition of the *Tundun*, and the revelation to them of the ancestral beliefs. The Kurnai have two bull-roarers, a larger one called the *Tundun* or "the man," and a smaller one called *Rukut Tundun*, "the woman" or "wife of Tundun." The larger one is also called "Grandfather," *Weintwin* or *Mūk-brōgan*.‡ In this the Kurnai differ from the Murring, who have only one bull-roarer, but they agree with several other Australian tribes. Where there is only one the women are totally excluded.

* A. W. HOWITT, "On some Australian Ceremonies of Initiation," *Journ. Anth. Inst.*, xiii., 1884, p. 446.

† A. W. HOWITT, "The Jeraeil, or Initiation Ceremonies of the Kurnai Tribe," *Journ. Anth. Inst.*, xiv., 1885, pp. 312, 315.

‡ *Weintwin* = father's father, or father's father's brother. All those initiated at the same Jeraeil are *Brogan*, or "Comrade" to each other. *Mūk-Brogan* is the "Chief Comrade."

The women and the children are always told that, at the secret parts of the Jeraeil, Tundun himself comes down to "make the boys into men." The hideous sounds which the uninitiated may chance to hear from a distance they are told is Tundun's voice, and they are warned not to leave their camp while he is about, lest he should kill them with his spears. Howitt describes how the newly-initiated youths thoroughly enter into the fun of frightening the women, and, having got over their awe of the bull-roarers, they make an outrageous noise with them. It sometimes happens that, during the nocturnal perambulation, one of the bull-roarers becomes detached from its string, and is thus lost. If, perchance, it is afterwards picked up by a woman or a child, their curiosity is satisfied by the statement that it is a "paddle belonging to Tundun," which he is supposed to have dropped in returning home. The shape of the bull-roarer is much like that of the little bark paddle, which the Kurnai use when sitting down in their canoes.

In his second paper on the Bora ceremony,* Mathews refers several times to the bull-roarers:—

"Towards the close of the rites two men with bull-roarers went out into some clear ground in front of the novices, and commenced loudly sounding these instruments. The boys were now directed to look at the two men, and were told

* *Journ. Anth. Inst.*, xxv., 1896, p. 336.

that all similar noises that they had ever heard were made in this way. Several of the Koorungal then walked in front of the boys, with uplifted tomahawks in their hands, and told them that if they ever divulged this, or any of the other performances which they had seen in the bush to the women or the uninitiated, they would be killed. The *murruwans* were then given into the hands of the novices, and they were invited to inspect them."

The bull roarer, or *yuntha*, according to Mr. S. Gason,* is one of the most important secrets of the Diëri Tribe of Central Australia, and the knowledge of it is kept inviolate from the women. The belief is, that if the women were to see a *yuntha* which had been used at the ceremonies, and know the secrets of it, the Diëri Tribe would ever afterwards be without snakes, lizards, and other such food. When the *yuntha* is given to the youth, he is instructed that he must twirl it round his head when he is out hunting. The Diëri think that when the *yuntha* is handed to the young *Wilyaru* he becomes inspired by Muramura. The *yuntha* is from 6 to 9 inches long, $\frac{1}{16}$ inch thick, and 2 to 2½ inches wide; it has notches at each side, near one end.

Among the Arunta tribe of the McDonnell Ranges, in Central Australia, the natives not only employ the small bull-roarer, *irula*, in the usual way, but the lad on whom circumcision has been performed "is

* A. W. HOWITT, "The Diëri and other kindred Tribes of Central Australia," *Journ. Anth. Inst.*, xx., 1890, p. 83.

furnished with a bundle of large *irula* (not used for making a humming noise), which he carries with him, and which are bestowed in order to promote speedy recovery. These sticks belong to the class of objects known as *Churiña*." . . . "The sacred stones (*churiña*) of the tribe are flat stones of various sizes, of soft material, such as micaceous rock, and generally engraved in various ways. These stones are greatly valued by the natives; they are handed down from generation to generation, and the women are never allowed to see them . . . under penalty of death. . . . The humming-stick (*irula*) also belongs to the *churiña* class. . . . The marks on the *irula* are evidently copied from the marks on the stone *churiña*. . . . The *churiña* may be described as symbolic of the totem."*

Other references to bull-roarers and their uses will be found in Dr. Stirling's account of the Anthropological portion of the Horn Expedition;† in two papers by Hardman,‡ who says, "The whirling-sticks, *mero-mero*, used to drown the shrieks of the victim,

* F. J. GILLEN, "Notes on some Manners and Customs of the Aborigines of the McDonnell Ranges, belonging to the Arunta Tribe," *Report on the Work of the Horn Scientific Expedition to Central Australia*, Pt. iv., *Anthropology*, 1896, pp. 172, 179.

† *I.c.*, p. 76.

‡ E. T. HARDMAN, "Notes on a Collection of Native Weapons and Implements from tropical Western Australia (Kimberley District), *Proc. Roy. Irish Acad.* (3), I., 1887, p. 68; "Notes on some Habits and Customs of the Natives of the Kimberley District, Western Australia," *I.c.*, p. 73.

as well as the flint or shell-knives used in the operation, are considered sacred, and are not to be looked upon by women under pain of death." Probably Hardman was repeating only hearsay evidence. Some observers who have witnessed the ceremony deny that the lads shriek. A recent paper by Mr. R. Etheridge,* the Curator of the Australian Museum in Sydney, and papers by E. Palmer† and R. H. Mathews‡ may be consulted with profit; the latter states that the large and small bull-roarers (*mudthega* and *moonibear*) of the Wiradthuri tribe, after they are shown and explained to the novices, are destroyed by splitting them in pieces, and driving them into the ground out of sight, or they are burnt (p. 311). The most recently published paper is one by Mathews,§ which gives a useful synopsis of Australian bull-roarers. (Fig. 40, Nos. 16-19.)

More than one account informs us that a bull-roarer is one of the credentials that a messenger carries with him when he is sent to summon the class or the tribes to an initiation ceremony.

* R. ETHERIDGE, Junior, "On Circular and Spiral Incised Ornaments on Australian Aboriginal Implements and Weapons," *Records of the Australian Museum*, iii., 1897, p. 1.

† E. PALMER, "Notes on some Australian Tribes," *Journ. Anth. Inst.*, xiii., p. 295.

‡ R. H. MATHEWS, "The Burbung of the Wiradthuri Tribes," *Journ. Anth. Inst.*, xxv., 1896, pp. 295 *et seq.*

§ R. H. MATHEWS, "Bull-roarers used by Australian Aborigines," *Journ. Anth. Inst.*, xxvii., 1897, p. 52.

Having briefly surveyed most of the recorded accounts of the bull-roarer in various parts of the world, it is now time to see what may be learnt from these facts.

The distribution of this implement is very wide, by no means continuous, to borrow an expression from the nomenclature of the study of the geographical distribution of animals.

I have drawn up the following table in order that we may see at a glance the various purposes for which the bull-roarer is employed, and the different places where it is so used. I have marked with a \times those places where that particular use is an universal practice (or very nearly so); the *I* means that some tribes only use it for that purpose, and a *?* indicates that I believe this to be, or to have been, its use.

The distribution of the bull-roarer seems to preclude the view that it has had a single origin and been carried by conquest, trade, or migration, in the usual way. It is impossible to say whether it formed part of the religious equipment of man in his first wanderings over the earth. The former view does not appear to be at all probable, it is impossible to prove the latter supposition.

The implement itself is so simple that there is no reason why it should not have been independently invented in many places and at diverse times. On

the other hand, it is usually regarded as very sacred and as being either a god itself, as representing a god, or as having been taught to men by a god. Where this is the case there is every reason to believe that its use is very ancient. So that it is probable that in certain areas it was early discovered and has since been transmitted to the descendants, and perhaps to the neighbours, of the original inventors.

For example, in America it may belong to the oldest stock, and have accompanied the peoples in their extension over that continent, and here and there it may have died out. It is conceivable that it was employed in Africa originally by the Bushmen, and possibly other of the African pigmy folk; its spread among the Zulus from the Bushmen is not an impossibility, for we often find, as I mention in the chapter on well-worship, that a conquering race may have recourse to the magical practices of the indigenous population, especially in the matters of agriculture and for the control of the elements. The bull-roarer may have arisen among the negroes of the West Coast, or have been adopted by them from another race.

It is, however, very dangerous to generalise from such imperfect data as we possess at present, and doubtless the bull-roarer will be found to be more prevalent than our records show. It is, as Lang

remarks, an instrument easily invented by savages, and easily adopted into the ritual of savage mysteries.

The peculiar, unearthly noise made by the bull-roarer at once marked it out as something mysterious. According to the size and form or the celerity of the whirling, so does the sound vary. To men who *feel* the world around them, whose nature is permeated with the kinship of things animate and inanimate, and who perceive no real distinction between life and not-life or between different kinds of beings—to such men the deep whirring sound, the buzzing, or the shriller whizzing of the bull-roarer, awakens strange sensations, which they try to express and formulate. In harmony with the conceptions of all primitive folk, they would argue that as the sounds resemble those of a mighty rushing wind, or of wind-driven rain, there must be some connection—some heavenly correspondence, as the mystic Swedenborg expressed it—between them. Professor Tylor has termed this savage conception “sympathetic magic.” This, I believe, is the explanation of the widely-spread connection between the bull-roarer and the wind and the rain, the thunder and the lightning.

The wind may be raised to enable canoes to go out fishing, and so the bull-roarer insensibly may have come in some instances to be regarded as a fishing charm, and to bring good fortune not to the fishing alone, but good luck generally.

The same line of thought is applicable to its function of producing the rain, which made the grass green, and the yams to grow.

A time arrives when men argue thus, What power is it that brings good fortune and abundant crops but that of a divine person? That the bull-roarer should then be accredited as a god is by no means to be wondered at. Indeed, it would be illogical not to do so, starting from our premises; and savages are not illogical or irrational beings, though their arguments may lead them to conclusions that seem strange to us.

In its deification the bull-roarer reaches its apotheosis, its highest status. Whilst it was being translated from a magical instrument to a divine person, or the symbol of divinity, we may readily conceive that it was removed from the possibility of contamination by women. From being tabu it became sacrosanct, and it took its place among the mysteries; and well it might. The idea of contamination or enervation by women has been several times discussed by anthropologists,* and so the holy implements and the holy ceremonies are kept out of possible danger by rendering it profanation for women to have anything

* A. E. CRAWLEY, "Sexual Taboo: a Study in the Relations of the Sexes," *Journ. Anth. Inst.*, xxiv., 1894-95, pp. 116, 219, 439. J. G. FRAZER, *The Golden Bough*, i., 1890, pp. 170, 171. W. ROBERTSON SMITH, *The Religion of the Semites*, 1889, pp. 435, 462. E. WESTERMARCK, *The History of Human Marriage*, 1891, pp. 151-156, 541.

to do with them. No doubt selfish aims entered into this restriction, but selfish aims are not unknown among higher forms of religion.

The initiation ceremonies of the lads are immensely important, as they mark the appreciation of the greatest facts of true religion as we understand it—the brotherhood of man and the communion of man with his God. I use this term in its highest significance, for the mystical union of the Church with Christ is a conception that is taught by so-called savages in their initiation ceremonies. Brotherhood has reference only to those of the same communion, to those who have passed through the same ceremonies. Even in the nineteenth century many of us find it difficult to extend this conception. I cannot now enter into the deeper significance of these initiation ceremonies, but there is nothing to wonder at in the reverence paid to the symbol of the "Grandfather."

"By symbolism," writes Count Goblet d'Alviella,* "the simplest, the commonest objects are transformed, idealized, and acquire a new and, so to say, an illimitable value." In the Eleusinian mysteries, the author of the *Philosophoumena* relates that, at the initiation to the higher degree, "there was exhibited as the great, the admirable, the most perfect object of mystic contemplation, an ear of corn that had been reaped in silence; and two crossed lines suffice to

* GOBLET D'ALVIELLA, *The Migration of Symbols*, 1894 (Eng. Trans.).

recall to millions of Christians the redemption of the world by the voluntary sacrifice of a god."

"It is sentiment, and above all religious sentiment, that resorts largely to symbolism, in order to place itself in more intimate communication with the being, or abstraction, it desires to approach. To that end men are everywhere seen either choosing natural or artificial objects to remind them of the Great Hidden One, or themselves imitating, in a systematic manner, the acts and deeds they attribute to Him—which is a way of participating in His life."

It is the fate of religious symbols to lose their pristine significance, and this has in places overtaken the bull-roarer, so that it has in various places degenerated into a child's plaything. Numerous analogous degenerations of symbols will be found in a study of decorative art.

Dr. Codrington has revealed among the Melanese not only sacred secret societies, which doubtless had their origin in a clan system similar to that of Australia, but various stages in the disintegration of those societies, which eventually come to be little more than clubs. Some of these secret societies take upon themselves judicial or predatory functions, and for law and order, or for purely selfish aims, they terrorize non-members and especially the women. The bull-roarer, as I have already indicated, is used for these baser ends.

The weird sound of the whirling bull-roarer is suggestive of unseen forces, and so it naturally becomes associated in men's minds with spirits or ghosts. It may thus come to be a means of communication with the spirits, a use to which it is put in West Africa and Melanesia.

There is one collateral use of the bull-roarer which is of interest. I have quoted Mrs. Gomme's and Figura's descriptions of its effects on cattle. The poor animals evidently mistake the noise for the buzzing of the gad-fly or bot-fly, and instinctively they take to flight. I do not know whether the name "bull-roarer" has anything to do with this; but I suspect that this is the explanation of the statements that the Bushmen use it as a clapper for driving game and as a charm in hunting. It certainly would prove a useful instrument if these little hunters could by its means drive their game so crazy that they would not know which way to turn, and it would also prove very serviceable in their raids on the cattle of the Zulus.

Most likely we shall never know for certain whether the early savages of Northern Europe possessed the bull-roarer; but there is every probability in favour of the view that if such was the case, it had to them a magical and mystical significance, as we have seen it has amongst other primitive folk.

The evidence that Andrew Lang has brought for-

ward supports this conclusion. Even in the most cultured period of Greek civilization there were certain sacred mysteries, during the celebration of which the initiates danced, probably in a nude condition, as we are told their bodies were daubed with clay, while they whirled the bull-roarer. The parallelism with the initiation ceremonies of the Australians is complete. It is obvious these and many other elements in the religious practices and beliefs of the Greeks were survivals of savagery. The religion of the fathers is long conserved as ceremonial practice by the piety of the children.

This insignificant toy is perhaps the most ancient, widely-spread, and sacred religious symbol in the world.

CHAPTER XI.

THE SINGING GAMES OF CHILDREN.

IN country places, or even in our towns, groups of boys and girls, or more frequently of girls only, may be seen dancing in a ring, walking in rows, or performing certain actions and singing all the while. These singing games are now dying out, but in some places they are being replaced by other singing games of a purely artificial character, which are taught in school. The latter have no interest for us, but it will be found that many of the former illustrate curious phases in the history of man.

In the last chapter, when speaking of the ceremonies in which the bull-roarer was employed, I pointed out that dancing is an important element in all the ceremonies of savages. The dancing varies much in character; in no case does it resemble the modern "round" or "fast" dances, but there is a close similarity between the old-fashioned "square" dances and the dances of savages. One may say without hesitancy that Sir Roger de Coverley and other country dances, as well as the essential figures

of the quadrilles and lancers, are survivals of ancient dances, the two latter having been greatly modified by professional dancers.

In a lecture before the Cambridge Antiquarian Society in March, 1897, Sir E. Clarke pointed out that it has been alleged in various quarters that our English country dance is derived from the French *contredanse*. John Wilson Croker wrote, "Our country dances are a corruption in name and a simplification of figure of the French *contredanse*." De Quincey, in his *Life and Manners*, Dr. Busby, in his *Dictionary of Music*, and Archbishop Trench, in *English: Past and Present*, adopted the same view. On the other hand, Weaver wrote in his *History of Dancing* (1712), "Country dances are a dancing the peculiar growth of this nation, tho' now transplanted into almost all the Courts of Europe." Feuillet, in a little book published in Paris in 1706, entitled *Recueil de Contredanses*, says, "Les Anglais en sont les premiers inventeurs." Nearly all the dances in the volume are English. For instance, the famous "Green Sleeves" appears as *Les Manches Vertes*, and nearly all the versions correspond with those in John Playford's *Dancing Master* of 1686 (7th edition). Littré, in his classical *Dictionnaire de la Langue Française*, admits that the *contredanse* is a kind of old-fashioned English dance imported into France under the Regency between about 1723 and 1745.

Clarke says, "the *contredanse* was, in fact, first introduced to Paris in 1745, when it was given in a ballet entitled "Des Fêtes de Polymnie," by Rameau. Its success was so great that it was afterwards employed in all the future *divertissements*. It is clear, therefore, that the French borrowed the country dance from us. Eventually they turned it into the quadrille, which was imported into England about eighty years ago, and made a great sensation when first danced at "Almack's" by the famous Lady Jersey and her *entourage* in 1815."*

The following extract from Heywood's "A Woman Kild with Kindness" (1607)[†] will illustrate the variety of the dances that were formerly indulged in:—

"*Enter NICKE and IENKIN, IACKE SLIME, ROGER BRICKBAT, with Country Wenches, and two or three Musitians.*

SLIME. Come, what shall it be? *Rogero?*

IEN. *Rogero*, no; we will dance, *The Beginning of the World.*

SISLY. I loue no dance so well as *John*, come *kisse mee now.*

NIC. I that haue ere now deseru'd a cushion, call for the *Cushion Dance.*

ROGER. For my part I like nothing so wel as *Tom Tyler.*

IENK. No, wee'l haue the *Hunting of the Fox.*

SLIME. *The Hay, the Hay*, there's nothing like *the Hay.*

NIC. I haue saide, I do say, and I will say againe.

* Cf. also MRS. LILLY GROVE (Mrs. J. G. Frazer), *Dancing*, in *The Badminton Library*, 1895, p. 280.

† *Thomas Heywood's Dramatic Works*, vol. ii., pp. 96-98. Ed. Pearson, 1874. (I have uniformly put all the names of the dances into italics.)

IENK. Euery man agree to haue it as Nicke says.

ALL. Content.

NIC. It hath bene, it now is, and it shall be.

SISLY. What, Master Nicholas, what?

NIC. *Put on your smocke a Monday.*

IEN. So the dance will come cleanly off: come, for God's sake agree to something; if you like not that, put it to the Musitians, or let me speake for all, and wee'l haue *Sellenger's Round*.

ALL. That, that, that."

In the fine old song, "Come, Lassies and Lads," we find the same love of dancing:—

"You lasses and lads take leave of your dads,
And away to the May-pole hie,
There every he has got him a she,
And the minstrel's standing by:
For Willy has got his Gill, and Johnny has his Joan,
To jig it, jig it, jig it, jig it, jig it up and down.

"'Begin,' says Hal,—'Aye, aye,' says Mall,
'We'll lead up *Packington's Pound*;
'No, no,' says Noll, and so says Doll,
'We'll first have *Sellenger's Round*.
Then every man began to foot it round about,
And every girl did jet it, jet it, jet it in and out.

"Then after an hour they went to a bow'r,
And played for ale and cakes,
And kisses too, until they were due—
The lasses held the stakes.
The girls did then begin to quarrel with the men,
And bade them take their kisses back,
And give them their own again.

"Now there they did stay the whole of the day,
 And tired the fiddler quite
 With dancing and play, without any pay,
 From morning until night.
 They told the fiddler then, they'd pay him for his play,
 And each a twopence, twopence, twopence,
 Gave him, and went away."

One of the most favourite games of young men and maidens in the Middle Ages was that known as "Barley Break," or "The Last Couple in Hell."

"THE spring clade all in gladness
 Doth laugh at winter's sadness,
 And to the bagpipes round
 The maids tread out their ground.

"Fy, then, why are we musing,
 Youth's sweet delight refusing?
 Say, dainty nymph, and speak,
 Shall we play Barley Break?"—OLD SONG.

It appears from Sir Philip Sidney's description in the *Arcadia* that the game was played by three couples, each of a youth and a maid, one couple standing at each end of the area and the third remaining in the centre. The oblong playing-ground was divided transversely into three plots, of which the central one was called "hell." The mating was determined by lot, and the last pair mated were obliged to take the central plot or "hell," and saluted each other by a kiss. This pair were required to pursue with joined hands, while the others were at liberty to

separate. Any maid caught replaced the maid and any youth, the youth of the central couple.

"She went abroad, thereby,
At Barley-brake her sweet, swift foot to try . . .
A field they goe, where manie lookers be . . .
Then couples three be streight allotted there,
They of both ends the middle two doe flie,
The two that in mid-place, Hell called were,
Must striue with waiting foot, and watching eye
To catch of them, and them to hell to beare,
That they, as well as they, Hell may supplye :
Like some which seek to salue their blotted name
With others blot, till all doe taste of shame.

"There may you see, soone as the middle two
Doe coupled towards either couple make,
They false and fearfull, doe their hands undoe,
Brother his brother, friend doth friend forsake,
Heeding himselfe, cares not how fellow doe,
But of a stranger mutuall helpe doth take :
As periur'd cowards in aduersitie
With sight of feare from friends to fremb'd doe flie."*

Whatever may have been the origin of this now obsolete game, it was played in the seventeenth century for purely exhilarating amusement for both sexes, in the same way as lawn tennis was until very recently.

In looking through a large collection of the singing games of children, it will be obvious, as Mr. Newell,

* SIR PHILIP SIDNEY, *The Countess of Pembroke's Arcadia*. (Now the sixth time pvblished.) London : 1623 ; lib. i., p. 87, "Song of Lamon."

the well-known American folk-lorist, points out, that many were not composed by children. "They were formerly played, as in many countries they are still played, by persons of marriageable age, or even by mature men and women. The truth is that in past centuries all the world, judged by our present standard, seems to have been a little childish. The maids of honour of Queen Elizabeth's day, if we may credit the poets, were devoted to the game of tag, and conceived it a waste of time to pass in idleness hours which might be employed in that pleasure, with which Diana and her nymphs were supposed to amuse themselves."*

Court dames and cottage damsels alike played these singing games in the breezy days of Good Queen Bess. How the puritanical glacier of a later time swept away the richness of life and left bare the naked rock-bed of stern reality, we of the present generation know only too well.

Those unconscious keepers of archaic archives—our village children—have retained some of the romping games of the "grown ups" of "Merrie England"; but also in some of the singing games, played by the road-side, can we trace degenerate and fragmentary survivals of the social life, ceremonies, and religious practices of our savage ancestors.

* W. W. NEWELL, *Games and Songs of American Children*, New York, 1884, p. 5.

This is not the place to enter into a disquisition on dancing, much as I should like to, for the subject is one of peculiar interest and of deep significance. Many valuable contributions to the subject have been made by Mrs. J. G. Frazer,* Herbert Spencer,† and others, amongst whom I would specially mention Grosse,‡ who has eloquently argued that dancing has been no mere pastime, "La joie de vivre, ohé, ohé," not even solely a magical pantomime, but that it has had a civilizing effect by making numbers of people meet in amity and move rhythmically in accord. On this co-ordinating effect of the tribal dance Grosse lays great stress, and believes that it has been one of the chief factors in the elevation of man. With Herbert Spencer, he delves yet deeper and sees in the vigorous rhythmical movements the *rationale* of dancing.

I do not intend making an analysis or a classification of the singing games of children, but will content myself with taking a few that have interested me. The first two, "The Farmer's Den" and "When I was a Naughty Girl," appear to be simple amusements with nothing special at the back of them.

In a few instances I have given, or merely alluded to, games which in some cases are evidently versions

* MRS. LILLY GROVE, *The Badminton Library: Dancing*, 1895.

† HERBERT SPENCER, "Professional Institutions: iii., Dancer and Musician," *The Contemporary Review*, lxxviii., 1895, p. 114.

‡ E. GROSSE, *Die Anfänge der Kunst*, 1894.

of the same game, while in others they are similar games which have apparently had an independent origin. We are here brought face to face with a crucial question in folk-löre. Broadly speaking, students of folk-löre range themselves into two camps: the adherents of one school seek to explain all similarities of custom or tale by borrowing or transmission; the followers of what is sometimes called the anthropological school are impressed with the essential solidarity of mankind, and argue that under similar conditions men of a given plane of culture will do, think, and say very much alike. There is no need to take either extreme. Every instance must be studied independently, and all the available evidence must be collected and weighed impartially from both points of view before a reliable conclusion can be arrived at. The similarity in two or more widely-separated districts of a complex custom or tale, is very good evidence in favour of borrowing, but in a simple case the matter is by no means easy to decide.

As an example of the distribution of two singing games which are so similar that they must have had a common origin, I will take the following. The first version was collected by my elder daughter at Auchencairn in Kirkcudbrightshire; the second was given to me as coming from Basel. It is a far cry from south-west Scotland to Switzerland, and the

explanation appears to be that it is an ancient Teutonic game :—

THE FARMER'S DEN.

The players dance in a ring, singing, round one child, who stands in the centre of the circle.

"The farmer's in his den, the farmer's in his den,
For it's oh ! my dearie, the farmer's in his den.

For the farmer takes a wife, for the farmer takes a wife,
For it's oh ! my dearie, the farmer takes a wife."

(The child then chooses a "wife" from the circle, who then goes into the ring along with the "farmer." The remainder again dance round singing) :—

"For the wife takes a child, for the wife takes a child,
For it's oh ! my dearie, the wife takes a child."

(The "wife" then chooses a "child" from the circle, and so on, as before.)

"For the child takes a nurse, for the child takes a nurse,
For it's oh ! my dearie, the child takes a nurse."

(Selection as before.)

"For the nurse takes a dog, for the nurse takes a dog,
For it's oh ! my dearie, the nurse takes a dog."

(Then they all join in singing) :—

"For we all clap the dog, for we all clap the dog,
For it's oh ! my dearie, we all clap the dog."

(And while they are singing they pat the "dog's" back.)

The Swiss game is as follows :

The children are divided into two parties and stand opposite one another. One party, advancing, sings :—

“Once a peasant drove into the forest, Hurrah Viktoria !
Once a peasant drove into the forest.”

(And retreat when singing the last line.)

(The other side advances singing) :—

“The peasant took a wife, Hurrah Viktoria !
The peasant took a wife.

The woman took a child, Hurrah Viktoria !
The woman took a child.

The child took a nurse, Hurrah Viktoria !
The child took a nurse.

The nurse took a man-servant, Hurrah Viktoria !
The nurse took a man-servant.

The man-servant took a dog, Hurrah Viktoria !
The man-servant took a dog.

The dog took a sausage, Hurrah Viktoria !
The dog took a sausage.

The peasant separated from his wife, Hurrah Viktoria !
The woman separated from the child,
The child separated from the nurse.”

And so on ; when saying the word “separated” the second party chooses a child for the first one, until only one child is left, who is the “sausage.” They all form a circle round her, dancing and clapping their hands, and singing :

“The sausage is left alone, Hurrah Viktoria !”

The Scottish version is evidently an abbreviated one. It looks, too, as if the Swiss game should commence with one child (the "peasant"), facing a row, and that at each stanza a child should pass from the latter to the former, until the break comes in the song when the action is reversed; finally the "sausage" alone remains.

What appears to be merely an imitative child's singing game is the one known as "When I was a Naughty Girl."

The following is a version I have collected near Cambridge, and as the ring of children marched round, following one another in a circle, they imitated the actions suggested by the words. It was a pretty little comedy to see them walking demurely when they were good girls, or shrugging their shoulders and wriggling their bodies when they were naughty, walking arm in arm when they were courting, and later dangling an imaginary baby.

"When I was a naughty girl, a naughty girl, a naughty girl,
When I was a naughty girl, and this way went I."

(Pantomime: shrugging shoulders.)

"When I was a good girl, a good girl, a good girl,
When I was a good girl, and this way went I."

(Pantomime: folding arms and walking soberly.)

"When I was a teacher, a teacher, a teacher,
When I was a teacher, and this way went I."

(Pantomime: beating time or action of whacking.)

"When I went a courting, a courting, a courting,
When I went a courting, and this way went I."

(Pantomime: walking arm in arm in pairs.)

"When I had a baby, a baby, a baby,
When I had a baby, and this way went I."

(Pantomime: doubling up apron and dandling it.)

"When my baby died, baby died, baby died,
When my baby died, how I did cry."

(Pantomime: crying.)

"When my father beat me, father beat me, father beat me,
When my father beat me, and this way went he."

(Pantomime: hitting one another on backs.)

"When my father died, father died, father died,
When my father died, how I did laugh."

(Pantomime: laughing.)

Mr. Newell* says that this game is closely paralleled in France and Italy, and even on the extreme limits of European Russia; but wherever there are children, there will they imitate the doings of their elders, and while in some games we may lay stress upon their geographical distribution, in others this probably is of no moment.

Probably an analogous singing pantomime is the following, which was given to me by a German girl. The children form a ring, and as they sing they make appropriate gestures.

"Would you know how the peasant,
Would you know how the peasant,
Sows his oats?"

* *L.c.*, p. 88.

Look ! like this the peasant,
Look ! like this the peasant,
Sows his oats in the field."

The double rhymes are repeated for—

Reaping oats,
Threshing oats,
And winnowing oats.

At first sight this game appears to be similar to a common English rhyming game known as "Oats, Beans, and Barley"; but a further study of the latter rather leads one to the supposition that it had originally a magical significance.

I have seen the following game played by the children of Girton, a village near Cambridge, and I would like to take this opportunity of thanking Mrs. Lawrence, of the Rectory, for the help she has given me in collecting the games of that village.

The girls who played it walked round in a circle, and they made appropriate gestures while singing the second verse in illustration of the words of the song. After all had given one stamp of the feet and a clap of the hands, and had turned round, they formed a ring during the singing of the third verse; two enter this and kiss one another kneeling, while the encircling chorus sing the last verse.

"Oats and beans and barley grow,
You or I or anyone know,
You or I or anyone know
Where oats and beans and barley grow.*

* This verse evidently means that no one knows how the corn grows.

"First the farmer sows his seed,
Stands awhile and takes his heed (or ease),*
Stamps his foot and claps his hand,
And turns around to view the land.

"Waiting for a partner,
Open the ring,
And take one in,
Waiting for a partner.

"Now you 're married you must obey,
You must be true to all you say,
You must be kind and very good,
And help your wife to chop the wood."

Mr. Newell has collected several examples from the United States.

"In the early part of the century," he informs us, "the essential stanza went thus in New Hampshire:—

"'Thus my father sows his seed,
Stands erect and takes his ease,
Stamps his foot, and claps his hands,
Whirls about, and thus he stands.'

"The Swedish quatrain is nearly the same:—

"'I had a father, he sowed this way,
And when he had done, he stood this way;
He stamped with his foot, he clapped with his hand,
He turned about, he was so glad.'

* The one rhymes and the other does not, but the children incline to "ease."

"The French rhyme, by its exact correspondence, proves the great antiquity of the formula:—

" Qui veut ouir, qui veut savoir,
 Comment on sème l'aveine ?
 Mon père la sèmail ainsi,
 Puis il se reposait à demi ;
 Frappe du pied, puis de la main,
 Un petit tour pour ton voisin ;
 Aveine, aveine, aveine,
 Que le Bon Dieu t'amène ! "

Fauriel, in his history of Provençal literature, alludes to this song, and considers it to be derived from, and to represent, choral dances of the Greek rustics of Massil (Marseilles). He says (I again quote from Newell, p. 83):—

"The words of the song described an action, a succession of different situations, which the dancers reproduced by their gestures. The song was divided into many stanzas, and terminated by a refrain alike for all. The dancers acted or gesticulated only to imitate the action or situation described in each stanza; at the refrain they took each other by the hand and danced a round, with a movement more or less lively. There are everywhere popular dances derived from these, which more or less resemble them. . . . I remember to have seen in Provence some of these dances, of which the theme seems to be very ancient—one, among the rest, imitating successively the habitual actions of a poor labourer, working in his field, sowing his wheat or oats, mowing, and so on to the end. Each of the numerous couplets of the song was sung with a slow and dragging motion, as if to imitate the fatigue and the sullen air of the poor labourer; and the refrain was of a very lively movement, the dancers then giving way to all their gaiety."

The French, Italian, and Spanish versions of this game also represent a series of actions, sowing, reaping, &c., of which our rhyme has retained only one stanza.

We must always keep apart in our minds games which have filtered down from adults to children, and those which the latter may be supposed to have invented themselves. At first sight one would have imagined that "Oats, peas, beans, and barley grows," as played on English village greens or by children in the United States, was merely an imitative game, analogous to "keeping house," playing with dolls, playing at soldiers, and the like; but we find "it is properly a dance rather of young people than of children." We know it was an ancient dance, as "it was played by Froissart (born 1337) and by Rabelais (born 1483); while the general resemblance of the song in the countries of Sweden, Germany, British Islands, France, Spain, Italy, and Sicily proves that in the five centuries through which we thus trace it, even the words have undergone little change."

It is not impossible that it was merely a game of playing at work indulged in by young people, but another explanation has been suggested by Newell* which has much to recommend it. He says:—

"The lines of the French refrain,

'Oats, oats, oats,

May the good God prosper you!'

* *Id.*, p. 81.

and the general form of the dance suggest that the song may probably have had a religious symbolic meaning, and formed part of rustic festivities designed to promote the fertility of the fields, an object which undoubtedly formed the original purpose of the May festival. . . . That such a song, danced in sowing time, and representing the progress and abundance of the crop, should be supposed to bring a blessing on the labours of the year, is quite in conformity with what we know of popular belief, ancient and modern."

Another game, called "Threading the Needle," affords us, according to Newell, a further illustration of this belief.

It is played in America and England by a chain of children passing under the arch formed by the uplifted joined hands of two other children, till one of the chain is caught by the dropping of the arms. The child then makes a choice of some alternative, which decides to which of the two children who make the arch she is to attach herself. When all are caught there is a "tug-of-war."

Mr. Newell informs us that the name "Threading the Needle" is still applied, in a district of Central France, to a dance in which many hundred persons take part, in which from time to time the pair who form the head of the row raise their arms to allow the line to pass through, coiling and winding like a great serpent. When a French savant asked the peasants of La Châtre why they performed this dance, the answer was, "To make the hemp grow."

This apparently inconsequent reply of the French peasant, who, judging from the locality, may very well have belonged to the non-Aryan, dark, round-headed race of Central France, is very significant, and takes us back to an attitude of mind that is difficult for us to realize, but which is still exemplified by many living savage peoples.

I have myself seen,* at the beginning of the rainy season in Torres Straits, a dance performed by natives whose heads were enveloped in large masks, which consisted of imitations of a human face resting on a crocodile's head and surmounted by a large figure of a saw-fish. It was called the "Saw-fish Dance," and was designed to bring good luck in the approaching fishing season. I have also seen these natives in their dances represent the actions of ordinary life, but sometimes in a slightly conventionalized manner, such as planting yams, picking up pearl-shell from the bottom of the sea, stamping out a fire, &c.

It is now recognized by anthropologists that ceremonies which are performed in connection with agriculture, fishing, hunting, and the like, are mainly magical rites, or rather magical pantomimes. The conventional realism (if the phrase may be permitted) of these performances ensures the success of the undertaking, mainly by the supposed sympathy between the mimetic action and the real operation.

* A. C. HADDON, "The Secular and Ceremonial Dances of Torres Straits," *Internat. Arch. für Ethnogr.*, vi., 1893, p. 131.

CHAPTER XII.

"LONDON BRIDGE": FOUNDATION SACRIFICE.

" **L**ONDON BRIDGE is broken down,
London Bridge is broken down,
London Bridge is broken down,
My fair lady.

" Build it up with bricks and mortar,
Build it up with bricks and mortar,
Build it up with bricks and mortar,
My fair lady.

" Bricks and mortar will mould away, (repeat three times)
My fair lady.

" Build it up with penny loaves, (repeat three times)
My fair lady.

" Penny loaves will be stolen away, (repeat three times)
My fair lady.

" Build it up with gold and silver, (repeat three times)
My fair lady.

" Gold and silver will be stolen away, (repeat three times)
My fair lady.

" Send a man to watch all night, (repeat three times)
My fair lady.

" Suppose the man should fall asleep, (repeat three times)
My fair lady.

"Set a dog to bark all night, (repeat three times)
My fair lady.

"Give him nuts to crack all night, (repeat three times)
My fair lady.

"Suppose the nuts should all be bad, (repeat three times)
My fair lady.

"Set a horse to gallop all night, (repeat three times)
My fair lady."

These are the words of a singing game, which I saw played by a group of girls at the village of Barrington, near Cambridge. Variants of this game occur all over the country; and in Ireland it is recorded from Belfast and Cork.

A few of these variants only can be noted, and these very shortly. In Belfast the rhyme begins:—

"London Bridge is broken down,
Grant said little bee; *
London Bridge is broken down
Where I'd be."

A common London version runs thus:—

"London Bridge is broken down,
Dance o'er my lady lee;
London Bridge is broken down
With a gay lady.

"How shall we build it up again?
Dance o'er my lady lee;
How shall we build it up again?
With a gay lady.

* Another informant gives the refrain, "Grand says the little Dee."

"Silver and gold will be stole away,
Etc., etc., etc.,

"Build it up with iron and steel,
Etc., etc., etc.

"Iron and steel will bend and bow,
Etc., etc., etc.

"Build it up with wood and clay,
Etc., etc., etc.

"Wood and clay will wash away,
Etc., etc., etc.

"Build it up with stone so strong,
Dance o'er my lady lee.
Huzza ! 't will last for ages long,
With a gay lady."

In some versions the watchman is replaced by a prisoner ; after the "penny loaves" verse we find in Hampshire—

"What have this poor prisoner done,
Prisoner done, prisoner done
What have this poor prisoner done?
My fair lady.

"Stole my watch, and lost my key,
Lost my key, lost my key,
Stole my watch, and lost my key,
My fair lady.

"Off to prison you must go,
You must go, you must go,
Off to prison you must go,
My fair lady."

In one Kent variant we find :—

“What has this poor prisoner done?
Stole my watch and broke my chain.
How many pounds will set him free?
Three hundred pounds will set him free.
The half of that I have not got.
Then off to prison he must go.”

The game is variously played. It is now generally played like “Oranges and Lemons,” only there is now no “tug-of-war” at the end. Often two children join hands to form an arch, the remainder form a long line by holding to each other’s dresses or waists, and run under. Those who are running under sing the first verse; the two who form the arch sing the second and alternate verses. At the words, “What has this poor prisoner done?” the girls who form the arch catch one of the line (generally the last one). When the last verse is sung the prisoner is taken a little distance away, and the game begins again.

At Barrington the children formed two parallel advancing and retreating lines, and finished by all dancing round in a circle. The same occurs in Berkshire.

Mrs. Gomme in her *Traditional Games of England, Scotland, and Ireland* analyses this game in a masterly manner, and shows that “the special feature of the rhymes is that considerable difficulty occurs in the building of the bridge by *ordinary* means, but without

exactly suggesting that extraordinary means are to be adopted." The London version alone faithfully reflects an actual building episode. The game then diverges into two groups, that with a watchman and that with a prisoner.

The watchman incident approaches nearer to modern facts, and is therefore probably a comparatively recent modification, since the prisoner, as we shall see, is an unexplained factor. A watchman children can understand, and then the game is occasionally prolonged in the endeavour to keep him awake and alive to his duties; this comes out clearly in a Berkshire version:—

"We'll set a man to watch at night.
 Suppose the man should fall asleep?
 Give him a pipe of tobacco to smoke.
 Suppose the pipe should fall and break?
 We'll give him a bag of nuts to crack.
 Suppose the nuts were rotten and bad?
 We'll give him a horse to gallop around."

And the children dance round in a ring in imitation of the horse.

The prisoner incident is, according to Mrs. Gomme, more common than the watchman. In only one case (Shropshire) is the prisoner ransomed, in the others he is sent to prison.

What does this sudden appearance of a prisoner indicate?

The two following modern Greek songs very vividly supply the answer:—

“THE STOICHEION OF THE BRIDGE.

(*Peloponnesos.*)

“A bridge across the Tricha broad, with sixty-two wide arches.
 All day long do they build the bridge: by night it falls to pieces.
 And sadly weep the 'prentices, and sorely grieve the masons.
 A little birdie went and perched upon the arch i' th' middle;
 She sang not as a birdie sings, nor was her note the swallow's:
 'Without a human Stoicheion the bridge can ne'er be founded.
 It neither must an idiot be, a madman, nor a pauper,
 But Ghiórgghi's wife it needs must be, Ghiórgghi's, the master
 mason.'
 Then hasten all the 'prentices, and off they set to fetch her.
 'Thine hour be happy, Ghiórgghiana!' 'My boys, I'm glad to
 see you!'
 'Unbind and swaddle fresh thy babe, and of thy milk now give
 him;
 Thy husband, Ghiórgghi, he is sick, and thou with us must hasten.'
 As they were going on the road, and on the road did journey,
 'Three sisters once were we [she cried] and Stoicheia we'll all
 be!
 Of Kórphos one's a Stoicheion; the other of Zitouni;
 And I, the third and fairest one, o' th' bridge across the Tricha.
 And as my eyes are streaming now, may wayfarers stream over!'"

Here the human sacrifice must be provided by the master mason; in the following song the victim is selected by a method of casting lots. In Legrand's *New Greek Dictionary*, *stoicheion* is defined, amongst other meanings, as the genius or spirit of a place. In this instance the idea appears to be that to enable the

bridge to last it must be endowed with a living spirit.

"THE BRIDGE OF ADANA.

(*Kappadocia.*)

"All day long did they build the piers; by night they fell in ruins.
'Come now and let us branches cut! come now will we chop faggots;
Let us give up one soul of us that firm the bridge be builded.'
They sat them down, and chopped away, the two-and-forty masons,
Then fell from Yianni's hand his axe, unfortunate Yiannáki!
'Yiannáki, go, thy goodwife fetch, if thou thy head wouldst keep
thee!'

'If I should now my goodwife give, I yet can find another;
But if I my own head give up, I while I'm young shall leave her!'"

So they fetch the poor wife, who is "vigilant and quick at bath and washing." The husband drops his ring down the excavations and induces his wife to fetch it up.

"Then down goes she, and down goes she, steps forty-two descends she,
And fall upon her as she goes of stones a thousand *litras*,
And throw they down upon her, too, of earth a thousand spadefuls."

In her dying lament she exclaims:—

"'Hear thou my words, Yiannáki mine, let not the world rejoice thee;
Three only sisters once were we, we were three sisters only;
The one did build the Danube's bridge, the second the Euphrates',
And I, I too, the murdered one, the bridge build of Adana.'"

Miss Lucy M. J. Garnett, in her *Greek Folk Poesy*, from which book these two songs are taken, points out that numerous stories of foundation-sacrifices are

told in Celtic countries. In Adamnan's *Life of Columba** we read:—

"Columkille said, then, to his people, 'It would be well for us that our roots should pass into the earth here.' And he said to them, 'It is permitted to you that some of you go under the earth of this island to consecrate it.' Odhran arose quickly, and thus spake: 'If you accept me,' said he, 'I am ready for that.' 'O Odhran,' said Columkille, 'you shall receive the reward of this: no request shall be granted to any one at my tomb unless he first ask of thee.' Odhran then went to heaven. He (Columkille) founded the church of Hy then."

What strange methods the missionaries had in those days!

There are many traditions still current in the Highlands regarding such sacrifices. One of these relates that when the workmen had assembled to lay the foundations of Tigh-an-Torr, in western Ross-shire, they caught the first person who chanced to pass and buried him under the foundation-stone. On laying the foundations of Redcastle, a red-haired girl was buried alive under the stone.

As there is so much evidence of this ghastly custom in the British Islands, there is no need for us to seek for further confirmation in European practice. One instance will suffice. So late as 1843, in Germany, when a new bridge was built at Halle, a notion was

* *The Life of St. Columba, Founder of Hy; written by Adamnan, ninth Abbot of that Monastery.* Ed. by W. REEVES, Dublin, 1857, p. 203.

abroad among the people that a child was wanted to be built into the foundation. In Africa and the far East we find precisely the same custom; but somehow we rather expect that sort of thing to be done by barbarians and savages, forgetting all the while that it was not so very long ago when our own ancestors did the very same.

"So recently as 1872 there was a scare in Calcutta when Hooghly Bridge was being constructed. The natives then got hold of the idea that the Mother Ganges, indignant at being bridged, had at last consented to submit to the insult on condition that each pier of the structure was founded on a layer of children's heads. Formerly, in Siam, when a new city gate was being erected, it was customary for a number of officers to lie in wait and seize the first four or eight persons who happened to pass by, and who were then buried alive under the gate-posts to serve as guardian angels; and there is a tradition about London Bridge itself, that the stones were bespattered with the blood of little children. Fitzstephen, in his well-known account of London of the twelfth century, mentions that when the Tower was built the mortar was tempered with the blood of beasts."*

The substitution of animal for human sacrifice is too well recognized in comparative religion to need substantiating; for example, a chicken sometimes replaces a girl as a foundation sacrifice in Borneo.

It seems that Professor Léon Pineau read a paper

* A. B. GOMME, *Traditional Games*, pp. 346-7; further illustrations of this custom will be found in G. L. GOMME, *Early Village Life*, p. 29, and E. B. TYLOR, *Primitive Culture*, I, pp. 104-108.

before a Congress in Paris in the spring of 1897 on one of the most popular of French "*rondes*," which commences thus in some localities :—

"Sur le pont de Nantes,
Sur le pont de Nantes,
Un bal est affiché"

elsewhere it runs :—

"Sur le pont du Nord,
Sur le pont du Nord,
Un bal y est donné."

Of this there are many variants, but the theme is the same in all. M. Pineau argued that this was related to "a ritual dance on the occasion of a human sacrifice to the divinities of the water," and attributed this traditional song to a Celtic origin. A critic * suggests that this was more probably a Gothic rather than a Celtic song.

Newell† has also studied this game, and he has collected some foreign contemporary and mediæval games which he thinks are variants. He describes the American version of the game as follows :—

"Two players, by their uplifted hands, form an arch, representing the bridge, under which passes the train of children, each clinging to the garments of the predecessor, and hurrying to get safely by. The last of the train is caught by the lowered arms of the guardians of the bridge, and asked, 'Will you have a diamond necklace, or a gold

* S. B., "A propos d'une Ronde enfantine," *La Science Sociale*, xxiii., 1897, p. 109.

† *Ic.*, p. 204.

pin?' 'a rose, or a cabbage?' or some equivalent question. The keepers have already privately agreed which of the two each of these objects shall represent, and according to the prisoner's choice he is placed behind one or the other. When all are caught, the game ends with a 'Tug-of-war,' the two sides pulling against each other, and the child who lets go and breaks the line is pointed at and divided."

In Suabia, the two keepers of the "Golden Bridge" are called respectively the "Devil" and the "Angel," and the object is to decide who shall be devils and who angels.

In France the game is known as "Heaven and Hell." The children who have made a good choice after the selection is finished pursue the devils, making the signs of horns with fingers extended from the forehead.

In Italy the name of the sport is "Open the Gates." The gates are those of the Inferno and of Paradise; St. Peter is the keeper of one, St. Paul of the other. The children choose between wine and water; but when the destiny of the last child is decided, the two girls who represent the keepers of the bridge break their arch of lifted hands, and move in different directions, followed by their subjects, "while the cries and shrieks of the players condemned to the Inferno contrast with the pathetic songs and sweet cadences of those destined to the happiness of Paradise."

The game is mentioned by Rabelais (about A.D. 1533), under the name of the "Fallen Bridge."

In German versions the keepers are called "Devil and Angel," "King and Emperor," or "Sun and Moon."

In this latter form the game has been one of the few kept up by the Germans of Pennsylvania, who call it the "Bridge of Holland" (*Die Holländisch Brück*).

As to the origin of this remarkable game, our citations have already made it clear that one of its features consists in a representation of the antagonism of celestial and infernal powers, and the final decision by which each soul is assigned a place on the one side or the other.

It was universally believed in the Middle Ages that the soul, separated from the body, had to cross a dangerous bridge, and subsequently undergo a literal weighing in the balance, according to the result of which its destiny was decided. It is in the nature of things that children conversant with these ideas should have dramatised them in their sports. We see no reason with the German writers to go back to ancient northern mythology; nor do we find any ground for believing that our game is more likely to be of Teutonic than Romance descent.

An Irish domestic from Waterford gives the following account of the game.

An actual bridge was built up with sticks and boards, and surrounded by the ring of players, dressed in costume; without stood the devil. Little girls in variously coloured dresses represented the angels.

The repeated fall and rebuilding of the bridge was acted out, as described in the verses of the song. This fall was ascribed to the malice of the devil, who ruined it *during the night* (watching it, said the narrator, from the top of an ash-tree during the day).

The imprisonment of the child enclosed by the arms of the leaders was acted in a noteworthy fashion. A chain was taken and wrapped round the child in the form of a serpent (for the devil *is* a serpent, said the reciter); the captive was taken to a hut (representing apparently the entrance to the Inferno) built by the sea. Meantime, the rest of the train called on their leader for help; but he answered, "The devil has five feet, and thirteen eyes, and is stronger than I!" The performance lasted five hours, and the name of the edifice was the Devil's Bridge.

In this Irish game tests were employed to determine whether the captive should belong to the devil or not. One of these was the ability to walk on a straight line drawn on the ground.

Newell sums up his conclusions as follows:—

"We suspect, however, that that part of the sport which relates to the warfare of good and evil powers does not belong to the original idea, but that a still more primitive game has taken on an ending which was common to many amusements in the Middle Ages. The central point of the whole is the repeated downfall of the structure. Now there is a distinct mythological reason for such a representation. In early times no edifice was so important as a bridge, which renders intercourse possible between districts heretofore separated. Hence the sanctity attributed in mediæval times to the architects of bridges. The devil, or (in more ancient guise) the elemental spirit of the land, who detests any interference with the solitude he loves, has an especial antipathy to bridges. His repeated and successful attempts to interfere with such a structure, until he is bought off with an offering like that of Iphigenia, are recorded in legends which attach to numerous bridges in Europe. It is on such supernatural opposition that the English form of the game appears to turn. The structure, which is erected in the daytime, is ruined at night; every form of material—wood, stone, and gold, is tried in vain; the vigilance of the watchman, or of the cock and the dog—guardian animals of the darkness—is insufficient to protect the edifice from the attack of the offended spirits.

"The child arrested seems to be originally regarded as the price paid for allowing the structure to stand. In times when all men's thoughts were concerned about the final judgment, a different turn was given to the sport—namely, whether the prisoner should belong to the devils or to the angels, who wage perpetual warfare, and dispute with each other the possession of departed souls. Finally, in quite recent days, religious allusions were excluded, and the captive, now accused of mere theft, was sentenced to be locked up, not in the Inferno, but in a commonplace jail." (p. 211.)

This mystical explanation of Mr. Newell's is extremely ingenious, but there does not appear to be any good evidence to connect the foreign games, which look rather like degraded "miracle plays," with the English London Bridge game; further, as Mrs. Gomme acutely points out, the tug-of-war incident does not come into the English game.

CHAPTER XIII.

"DRAW A PAIL OF WATER": WATER WORSHIP

THIS game is usually played by eight girls, two of whom face one another and stretch out their arms towards each other and join hands. Two others do the same, the four girls thus make a cross with their arms. They see-saw backwards and forwards, and sing a song, the following version of which is taken from Halliwell's *Nursery Rhymes, Games*, cclxxxvii. :—

"Draw a pail of water
For my lady's daughter :
My father 's a king and my mother 's a queen ;
My two little sisters are dressed in green,
Stamping grass and parsley,
Marigold leaves and daisies.
One rush, two rush,
Pray thee, fine lady, come under my bush."

One girl gets inside the enclosing arms, and they repeat the song until all four have "popped under," when they "jog" up and down till they fall on the ground.

Sometimes only two girls join hands, or the four

may form a square with their extended arms, which they sway backwards and forwards singing the lines. Two arms are then raised, and one girl comes under; this is repeated till all four girls have entered the square, then their arms encircle each other's waists, and they dance round.

Halliwell* describes a different action to any of these. A string of children, hand in hand, stand in a row. A child stands in front of them as leader; two other children form an arch, holding both of the hands of the other. The string of children pass under the arch, the last of whom is taken captive by the two holding hands. The verses are repeated until all are taken.

A Belfast version of the song, collected by Mr. W. H. Patterson,† is as follows :—

"Sift the lady's oaten meal, sift it into flour,
Put it in a chest of drawers and let it lie an hour.
One of my rush,
Two of my rush,
Please, young lady, come under my bush.
My bush is too high, my bush is too low;
Please, young lady, come under my bough.
Stir up the dumpling, stir up the dumpling."

It would be tedious to enumerate the many variants of the song, but the following is a plausible restoration

* *Nursery Rhymes*, p. 63.

† A. B. GOMME, *Tradit. Games*, i., p. 103.

compounded out of fifteen versions by Mrs. Gomme in her *Traditional Games* :—

“DRAW a pail of water
 For a lady's daughter ;
 Her father's a king, her mother's a queen,
 Her two little sisters are dressed in green ;
 Stamping grass and parsley,
 Marigold leaves and daisies :
 Sift the lady's oatmeal, sift it into flour,
 Put it in a chestnut tree, let it lie an hour :
 Give a silver pin and a gold ring.
 One and a hush ! two and a rush !
 Pray, young lady, pop under a bush :
 My bush is too high, my bush is too low ;
 Please, young lady, come under my bough.

A see-sawing movement in the game probably represents the raising of water from a well. The incidents may be grouped as follows :—

- (1) Drawing water from a well.
- (2) For a devotee at the well.
- (3) Collecting flowers for dressing the well.
- (4) Making a cake for presentation.
- (5) Gifts to the well (according to some versions, a silver pin, gold ring, and probably a garter).
- (6) Command of silence.
- (7) The presence of the devotee at the sacred bush.

It can be by no mere chance that all of these are incidents of primitive well-worship.

The "dressing" or adorning of wells by means of garlands occurred at Bonchurch, in the Isle of Wight, where on St. Boniface's Day the well was decorated with chaplets of flowers.* It is, however, rare in England, except in the Western Counties, North Lancashire, and Westmoreland, and especially on the borders.† Derbyshire, Staffordshire, Worcestershire, and Shropshire comprise the main region of garland-dressing, and the practice has frequently been described. Mr. Gomme points out that in Worcestershire and Staffordshire the custom is simple; in Derbyshire and Shropshire other practices occur in connection with the well-dressing. Garland-dressing, though found in the eastern part of the latter county, is almost entirely absent from the western, where wishing and healing wells are found.‡ On the hillside at Rorrington Green, in the parish of Chirbury, is a Halliwell, or Holy Well, at which a wake was celebrated on Ascension Day. The well was adorned with a bower of green boughs, rushes, and flowers, and a Maypole was set up. The people "used to walk round the hill with fife and drum and fiddle, dancing and frolicking as they went." They threw pins into the well to bring good luck and to preserve them from being bewitched, and they also

* TOMKINS, *History of the Isle of Wight*, ii., p. 121.

† HENDERSON, *Folk-lore of the Northern Counties*, p. 2.

‡ MISS C. S. BURNE, *Shropshire Folk-lore*, p. 414.

drank some of the water. Cakes were also eaten; they were round, flat buns, from three to four inches across, sweetened, spiced, and marked with a cross, and they were supposed to bring good luck if kept. The wake is said to have been discontinued about the year 1832 or 1834.*

At the village of Girton, near Cambridge, a game which is evidently the same is called "A Lump of Sugar."

"Grind your mother's flour,
Three sacks an hour,
One in a rush,
Two in a crush,
Pray, old lady, creep under the bush."

Mrs. Lawrence describes the game as follows:—The girls form into sets of four, those facing one another join hands and sway backwards and forwards while singing. At "Pray old lady," &c., the right and left arms of one couple are raised over the head of one of the opposite couple and dropped behind her back, thus enclosing her in a ring. This is repeated till all are, so to speak, inside the ring. They then jump round shouting, "A lump of sugar," till they are tired.

The association of sugar with this game puzzled me very much, till I came across the following four examples of drinking sugar-water at holy wells. The use of oatmeal in the first custom coincides with the

* *I.c.*, p. 434.

versions, "Sift the lady's oaten meal, sift it into flour" (Belfast), and "Sieve my lady's oatmeal, grind my lady's flour" (Halliwell, No. cclxxxviii.)

Country folk still resort to "Our Lady's Well," at Belper in Derbyshire, bringing not only vessels from which to drink the water, but "noggins" in which to carry back a supply for home drinking. Afflicted persons have been seen bathing their limbs in the cold running water, and heard to say they were benefited by repeated applications. Belper children used to carry—at any time when they thought fit, and could get permission from their mothers—a mug or porringer, and a paper containing oatmeal and sugar, to the Lady Well, and there drink the mixture of meal, sugar, and water. This was the chief item of the afternoon's outing.*

"Sugar-cupping is another custom which survives here. On Easter Day young people and children go to the Dropping Well, near Tideswell [also in Derbyshire], with a cup in one pocket and a quarter of a pound of sugar (? honey) in the other, and having caught in their cups as much water as they wished from the droppings of the Tor-spring, they dissolved the sugar in it."†

The Eas Well at Baschurch, in Shropshire, was frequented till a quarter of a century ago by young

* R. C. HOPE, *The Legendary Lore of the Holy Wells of England*, 1893, p. 53.

† GLOVER, *History of Derbyshire*, I., p. 307, quoted from Hope, *l.c.*, p. 60.

people, who went there on Palm Sunday to drink sugar and water and eat cakes. A clergyman who was present in 1830, speaks of seeing little boys scrambling for the lumps of sugar which escaped from the glasses and floated down the brook which flows from the spring into the river.*

It is customary for the younger folk to assemble on Sunday evenings and drink the water of St. Helen's Well (at Eshton, in Yorkshire) mixed with sugar. The ceremony appears now to have died out. It was in vogue late in the last century.†

Great concourses of people from all parts used to assemble at "Our Lady's Wells" or the "Holy Wells," near Long Witton, in Northumberland, on Midsummer Sunday and the Sunday following, and amuse themselves with leaping, eating gingerbread, brought for sale to the spot, and drinking the waters of the well. These wells had a high reputation for their very virtuous qualities; that furthest to the east is called the "Eye Well."‡

It is possible that drinking sugar-water is a degradation from drinking a mixture of oatmeal, sugar, and water, and this again may be an abbreviated form of making a cake. Sugar was not a primitive comestible, its place was taken by honey; now honey mixed with

* MISS C. S. BURNE, *Shropshire Folk-lore*, p. 432.

† R. C. HOPE, *Legendary Lore of the Holy Wells of England*, p. 204.

‡ HOPE, *loc.*, p. 108.

meal, if flavoured, makes a kind of gingerbread, a confection that we find in the last example. Gingerbread is certainly a popular cake with the folk, and it is probably a very ancient one. Honey cakes were a favourite food with the ancients; Aristophanes, for example, in his *Birds* pokes fun at Herakles for being so fond of them.

There are any number of wells in the British Islands at which offerings are made; the following will serve as examples. At Sefton, in Lancashire, it was customary for passers-by to drop into St. Helen's Well a new pin "for good luck," or to secure the favourable issue of an expressed wish.* Pin-wells, as they are often popularly termed, are found in several places in Northumberland, Yorkshire, &c.

Henderson informs us that the country girls imagine that the well is in charge of a fairy or spirit who must be propitiated by some offering, and the pin presents itself as the most ready or convenient, besides having a special suitableness as being made of metal.†

In many places in the North of England pieces of rag, cloth, or ribbon take the place of the pins, and are tied to bushes adjoining the wells.

The following custom pertained to the "Chapel

* BAINES, *Lancashire and Cheshire, Past and Present*, iii., 497. *Notes and Queries*, 5th series, x., p. 158.

† HENDERSON, *Folk-lore of the Northern Counties*, p. 230.

Well" or "Rag Well," near Great Ayton, in Yorkshire :—

"If a shirt or shift taken off a sick person be thrown into this well, it will show whether the person so sick will recover or not. If the article float, it denotes the recovery of the person to whom it belongs; but if it sink there is no hope for the life of the sufferer. To reward the patron saint of the well for his intelligence, a rag was torn off from the garment and left hanging upon the briars there about, 'where,' says the writer of a MS. in the Cottonian Library, 'I have seen such numbers as might have made a fayre rheme in a paper myll.'"*

Mr. G. L. Gomme also records† that pin-wells are common in Wales. Near the well of St. Ælian, not far from Bettws Abergeley in Denbighshire, resided a woman who officiated as a kind of priestess. Anyone who wished to inflict a curse upon an enemy resorted to this priestess, and for a trifling sum she registered in a book kept for the purpose the name of the person on whom the curse was wished to fall. A pin was then dropped into the well in the name of the victim, and the curse was complete.

There are holy wells innumerable in Ireland, most of which are still resorted to by peasantry, who firmly

* *Gentleman's Magazine*, 1823; and *Gentleman's Magazine Library, Superstitions*, pp. 143, 147. PARKINSON, in his *Yorkshire Legends and Traditions*, ii., 1889, p. 103, says that this did not happen at St. Oswald's Well, near the foot of Roseberry Topping, as the original writer states, but at the Rag Well.

† *Ethnology in Folk-lore*, pp. 86, 87.

believe in their efficacy. On the northern side of a stream that separates counties Dublin and Wicklow is St. Kevin's Well, which was festooned with rags when I visited it. Many of these rags bore unmistakable evidence of having been removed from sores. I noticed one rag which was torn off from the spot where the garment was marked with its owner's name, so that in this case the spirit of the well could be in no doubt as to the identity of the patient.

In Aranmore, the largest of the Aran Islands, in Galway Bay, are numerous "blessed places." St. Eany's Well, which is overhung by a bramble adorned with rags, is resorted to by women who desire to have children. It is beside a small level sward (a rare occurrence in the Aran Islands) known as the "Angel's Walk." "An' it's here the Guardian Angels of Aran come, of a summer's night, to take their diversion."* A mile or two away is the holy well attached to the Church of the Four Comely Saints. It is here the men come when they want children. To the sprays of blackberry and ivy which overshadow it are attached pieces of calico, velvet, whipcord, &c., and in the well itself are numerous buttons, fish-hooks, nails, and pieces of crockery, glass, &c. . . . In the parish of Kilmurvy is that well known as Tuber Carna, at which prayers for the recovery of a sick person are answered, but the

* MARY BANIM, *Here and There through Ireland*, 1892, p. 133.

water has the further properties of not being boilable and of restoring dead fish to life.*

The processions round the well sunwise are an important and nearly universal part of the ceremony in Ireland, and, as Gomme† points out, the apparently unimportant detail occurring in a Shropshire example,‡ of pouring water over a particular stone, receives significant light from the examples in Ireland. Thus at Dungiven (in co. Derry), after hanging their offerings of rags on the bush adjoining the well, the devotees proceed to a large stone in the River Roe immediately below the old church, and, having performed an ablution, they walk round the stone, bowing to it and repeating prayers, and then, after performing a similar ceremony in the church, they finish the rite by a procession and prayer round the upright stone. §

Out of a large possible selection of Irish holy wells, I will conclude with one or two examples from the north. There is a lyn, or pool, in the stream just a little below Kilgort Bridge, near Claudy, co.

* A. C. HADDON and C. R. BROWNE, "The Ethnography of the Aran Islands, County Galway," *Proc. Roy. Irish Acad.* (3), ii., 1893, p. 818.

† *Ethnology in Folk-lore*, p. 93.

‡ St. Oswald's Well, at Oswestry, is used for wishing and divination. One rite, says Miss Burne, is to go to the well at midnight, take some water up in the hand and drink part of it, at the same time forming a wish in the mind, throw the rest of the water upon a particular stone at the back of the well, and if the votary can succeed in throwing all the water left in his hand upon this stone without touching any other spot his wish will be fulfilled. (*Ethnology in Folk-lore*, p. 85.)

§ MASON, *Statistical Account of Ireland*, i., p. 328.

Derry, called "Turish Hole," or "Turish Lyn." Some people still believe that by bathing in this pool cures can be obtained for any description of disease, and there are traditions that cripples have been cured at this place and left their crutches behind them there. "Back-going" children when washed in this pool became healthy. In fact, tradition says that immersion in the pool was a cure for all manner of diseases, sick-headache included. The date of the ceremonies is May Eve (last day in April), when the persons wanting a cure bathe or wash themselves or the diseased part in the water and repeat some prayers. The offerings, which are of different kinds, are left in a bush beside the lyn. Often a piece of cloth is tied to the bush, sometimes a lock of hair, and sometimes three white stones picked up from the pool. It is not known when or by whom the lyn was blessed, but the custom of offering prayers there indicates that the people regard the place as holy. Tradition says that a very large trout was in Turish-o-Lyn, and that all who had the good fortune to see it on May Eve were sure to get cured. It is said that this trout was caught by some man, and when he had it on the coals cooking it for his dinner it leaped out of the door and went back to its lyn, but it never let itself be seen afterwards.* The tree over

* W. GRAY, "Our Holy Wells: A Folk-lore Chapter," *Proc. Belfast Nat. Field Club* (2), iv., 1893-94, p. 94.

Cranfield Well, on the north shore of Lough Neagh, as in many other cases, is decorated with old rags, and crystals of carbonate of lime are found in the well, which are said to be very lucky.*

Gomme† gives numerous examples of Scottish holy wells. He says:—

“About fifty years after the Reformation it was noted that the wells of Scotland ‘were all tapestried about with old rags.’‡ Only one or two instances need be noted. At Toubermore Well, in Gigha Isle, devotees were accustomed to leave a piece of money, a needle, pin, or one of the prettiest variegated stones they could find.§ In Banffshire, at Montblairie, ‘many still alive remember to have seen the impending boughs adorned with rags of linen and woollen garments, and the well enriched with farthings and bodles, the offerings of those who came from afar to the Fountain.’|| At Wick they leave a piece of bread and cheese and a silver coin, which they alleged disappeared in some mysterious way.¶ . . . It is scarcely necessary to pursue these details with greater minuteness, and it may be stated as a general rule that ‘at all these fountains the invalid used the same ceremonies, approaching them sunwise,’** or ‘deisil,’ as it was called.”

Particularly prominent in Scotland, as well as in Ireland, was this obligation to approach the well sunwise—that is, in the same direction as that taken by the hands of a clock.

* *I.c.*, p. 95.

† *Ethnology in Folk-lore*, p. 95.

‡ *The Book of Bon Accord*, p. 268. § MARTIN'S *Tour*, p. 230.

|| ROBERTSON, *Antiquities of Aberdeen and Banff*, ii., p. 310.

¶ SINCLAIR, *New Statistical Account of Scotland*, xv., p. 161.

** FORBES LESLIE, *Early Races of Scotland*, i., p. 156.

The votaries often bathed in holy wells or sacred pools, and this could in some cases only be done after sunset and before the next sunrise; but, on the other hand, at certain wells it was an infallible cure for almost any disease to bathe as the sun rose on the first Sunday in May. These bathing customs are not indicated in any of the recorded versions of games. The water that was drawn in the bucket may have been for drinking, or for washing an affected part, but actual bathing is not implied.

The injunction of silence must now be referred to. "At Penpont, in Dumfriesshire, the emissary of the patient has to go through a most careful ceremonial. When he reached the well he 'had to draw water in a vessel, which was on no account to touch the ground, to turn himself round with the sun, to throw his offering to the spirit over his left shoulder, and to carry the water, without ever looking back, to the sick person. All this was to be done in absolute silence, and he was to salute no one by the way.'* The elements of magic ritual preserved here are very obvious, and it is to be remarked that silence is a condition imposed upon the devotees at many wells in Ireland, and also in England."† One more example must suffice. The Ffynnon Cefn Lleithfan, or Well of the Lleithfan Ridge, on the eastern slope

* MARTIN, *Western Islands*, p. 7.

† GOMME, *Ethnology in Folk-lore*, p. 99.

of Mynydd y Rhiw, in the west of Caernarvonshire, is a resort for the cure of warts. The sacred character of the well may be inferred from the silence in which it is necessary to go and come, and from the prohibition to turn or look back. The wart is to be bathed in the well with a rag or clout which has grease on it. The clout must then be carefully concealed beneath the stone at the mouth of the well.*

The association of a bush or tree with a holy well is so common as to be practically universal, and there is no need to dwell upon it.

Mr. Gomme, in his very suggestive little book *Ethnology in Folk-lore*, traces the distribution of holy wells in the British Islands. Speaking in general terms, the traces of well-worship become more pronounced and more primitive in character as we pass from east to west in the British Islands.

In the East of England no distinct ritual remains, and only a tradition of the healing qualities of a particular well or spring, or even its bare name, remain; many are now quite nameless.

In the West and North of England it is very different, and here we find examples of garland-dressing and pin-offerings. In Cornwall and Wales, and towards the northern border, the sacred bush by

* E. SYDNEY HARTLAND, *The Legend of Perseus*, ii., 1895, p. 176 (quoting from Prof. Rhys).

the well is decked with rags. These rag-bushes were formerly abundant in Scotland, and they still occur in great profusion in Ireland.

To speak in terms of races: this well-cult is least observed in Teutonic England, but it is retained in Celtic England and in Celtic Scotland, Wales, and Ireland. It is less modified among the Goidelic Celts of Scotland and Ireland than among the Brythonic Celts of Wales and South-west England; the latter are regarded by Professor Rhys as belonging to a later wave of Celtic migration than the Irish and Scots.

It is, however, very probable that well-worship is older than the Celtic migration. The associated custom of the offerings of rags or parts of clothing upon bushes sacred to the well, has been investigated with regard to its geographical distribution by Mr. Walhouse,* and it is certain that it occupies a much wider area than that inhabited by Aryan peoples. Thus, to quote a summary given by General Pitt-Rivers†:—

"Burton says it extends throughout Northern Africa from west to east. . . . Burton found the same custom in Arabia during his pilgrimage to Mecca; in Persia Sir William Ouseley saw a tree close to a large monolith covered with

* M. J. WALHOUSE, "Rag-bushes and Kindred Observances," *Journ. Anth. Inst.*, ix., 1879, pp. 97-106.

† COLONEL A. LANE FOX, "The Distribution of Megalithic Structures," *Journ. Ethnol. Soc. (N.S.)*, i., 1869, p. 64.

these rags, and he describes it as a practice appertaining to a religion long since proscribed in that country; in the Deccan and Ceylon Colonel Leslie says that the trees in the neighbourhood of wells may be seen covered with similar scraps of cotton; Dr. A. Campbell speaks of it as being practised by the Limboos near Darjeeling, in the Himalaya, where it is associated, as in Ireland, with large heaps of stones; and Huc in his travels mentions it among the Tartars."

"Here," as Gomme points out, "not only do we get evidence of the cult in an Aryan country like Persia being proscribed, but, as General Pitt-Rivers observes, 'it is impossible to believe that so singular a custom as this, invariably associated with cairns, megalithic monuments, holy wells, or some such early pagan institutions, could have arisen independently in all these countries.' That the area over which it is found is conterminous with the area of the megalithic monuments, that these monuments take us back to pre-Aryan people and suggest the spread of this people over the area covered by their remains, are arguments in favour of a megalithic date for well-worship and rag offerings." *

The persistence of this cult in the more Celtic portions of the British Islands is then probably not due to this being a religious practice of the Aryans—who were more addicted to fire-worship—but to the fact that in this part of the empire we have distinct traces of that pre-Aryan race to which I have so often referred in the earlier portion of this book. The Celtic Aryans who invaded the British Islands could not uproot the old religion; indeed the converse

* *L.c.*, p. 106.

has usually been the case. It is known that in various parts of the world the conquerors of a country have been psychically conquered by the people they have beaten—thus does the spirit revenge itself on matter. I have an example of this in my mind from New Guinea, where the immigrant Motu pay tribute to the sorcerers of the Koitapu, whose territory they have invaded, in order that they may obtain propitious winds.* For, after all, only the people of a country can be expected to know the local spirits; and new-comers, whether as traders or conquerors, are utterly ignorant of the correct way to entreat or appease the local divinities. We may regard it as pretty certain that the Celt (to use this somewhat vague term) absorbed many of the features of the religion of his Neolithic neighbours. In Ireland and Scotland the Goidels have long been in possession of the soil, but, as has previously been suggested, the Saxon invasion appears to have pushed the Brythons more and more to the west. We, however, find unmistakable relics of water-worship all

* "The Koitapu are much feared by the Motu because of their supposed wonderful power over sun, rain, heaven, and earth, north-west and south-east monsoons; specially do the winds belong to them. . . . They are no doubt the real owners of the soil. . . . By no conquest do the Motuans live here, but simply because the Koitapuans allow them, saying, 'Yours is the sea, the canoes, and the nets; ours is the land and the wallaby. Give us fish for our flesh, and pottery for our yams and bananas.'" (J. CHALMERS, *Pioneering in New Guinea*, 1887, p. 13; cf. also A. C. HADDON, "The Decorative Art of British New Guinea: a Study in Papuan Ethnography," *Cunningham Memoir*, x., *Roy. Irish Acad.*, 1894, pp. 156-164, 258-269.)

over the British Isles; even in the East of England, which has, so to speak, been glaciated by the cold common sense of the Teutonic invasion.

Apart from religious disposition or psychological idiosyncrasy, there are other reasons why well-worship should persist in the "Celtic" parts of the British Islands. The early "missionaries were obliged," as Mr. Gray points out, "as a matter of policy to adopt a compromise, retaining such popular rites and customs as were considered innocent amusements, and engrafting upon them the introduced formalities of the Christian ritual."* The teachers of the new doctrine were not of a very different stage of culture from those they sought to convert, they had not those material benefits and luxuries of a high civilization which gave to the missionaries of last century such a tremendous advantage over the savages they evangelized. In the one case Christianity had to be engrafted craftily and circumspectly, on to paganism, as its visible benefits were not sufficiently apparent to appeal to the more materially-minded mass of the people. In the other case there was no point of contact between the two conditions, and, as a rule, savages do not realize a distinction between secular and sacred, between social duties and religious functions: so when these primitive folk came into contact with the missionaries they were ready to

* *Proc. Belfast Nat. Field Club* (2), iv., p. 92.

embrace the religious tenets and the higher culture of the white man—and the Protestant evangelists insisted only too well that the past should be completely erased. Thus the old culture (for they had culture), the old morality (for they had morality, though it may not have been the morality of the white man), and the old religion were slipped off like old garments, and life had virtually to begin afresh clothed in the new garb of an alien civilization and inspired by an exotic religion.

How different was the policy enforced by Pope Gregory, as embodied in a letter written about the year 601 A.D., and addressed "To his most beloved son, the Abbot Mellitus," who was sent by the Pope to Augustine, first Bishop of Canterbury. Under the policy thus recommended the feasting and amusements that followed the old pagan rites were tolerated, "to the end that whilst some gratifications are outwardly permitted them, they may the more easily consent to the inward consolations of the grace of God."* "Unfortunately the 'gratifications' thus 'permitted' the early converts became afterwards the chief attraction on the day of dedication, and the religious observances on the patron's day degenerated into the 'pattern' or 'fair' that subsequently became the fruitful source of riot and disorder down to our own day. This pattern or fair originated with the

* BEDE'S *Ecclesiastical History*, book i., chap. xxx.

trade carried on in former times by those who provided refreshments for the people who assembled at the wells or places dedicated to some saint who became the patron of the place, and this annual gathering on the patron's day was called a 'pattern' [in Ireland]. The original intention was for worship and religious festivities, but the festive soon absorbed the religious element, and all forms of abuses followed, and hence the gatherings were condemned by the Church. The early Christians strongly condemned the old pagan rites and ceremonies connected with wells, rivers, and fountains, mainly because of the riotous excesses in which the votaries indulged. Making offerings to wells, trees, and earthfast rocks is denounced in a Saxon homily preserved at Cambridge University Library.*

As Mr. Gray points out, in the early annals of Ireland there are many references to wells, and their use in the baptism of early converts. In Dr. Reeves's *Vita St. Columbæ Auctore Adamnano* we find St. Columba strove against the Magii (Druids) at a well in the country of the Picts. He exorcised the heathen demon of the well, which thereafter, as a holy fountain, cured many diseases.† In the *Life of St. Columbkille*, preserved in the *Leabhar Breac* in the

* W. GRAY, *l.c.*, p. 92.

† *The Life of St. Columba, Founder of Ily*; written by Adamnan. Ed. by W. REEVES, Dublin, 1857, p. 119.

library of the Royal Irish Academy in Dublin, it is said—

"He blessed three hundred miraculous crosses :
He blessed three hundred wells that were constant."

We have, therefore, abundant evidence that well or fountain-worship was extremely rife in the British Islands before Christianity was introduced, and that the early missionaries were instructed not to root up the old religion before replacing it with the new. We know that these good men took up their abode by the side of a sacred well, appreciating the fact that as the sacred waters would be continually visited, so they would always have devotees to instruct. Thus it came about that the wells mostly retained their old virtue, but the sanctity was annexed by the missionaries, and in later times the waters almost invariably bore their names. One point is clear, the holiness and efficacy of the wells were in the vast majority, if not in all cases, pre-Christian and probably also pre-Celtic.

The question next arises, Why were springs or streams considered holy?

Savages are not fools; their ways may not be as our ways, or their thoughts as our thoughts, but there is something at the back of their beliefs and customs, if we could only get at it. The persistent forms of water-cult in the British Islands open up many and interesting problems which cannot now be considered.

By far the majority of the customs are related with the reputed healing powers of the well or spring, but there are traces of other virtues, such as a connection between well-worship and the worship of a rain-god, as Mr. Gomme has suggested.*

There is common sense in the association of curative powers with water. It is well known that the wounds of primitive peoples heal with amazing rapidity; wounds that would be of a most serious character amongst ourselves heal almost of themselves when the body is in rude health and when the air and clothes are practically free from putrefactive microbes. All that is necessary is to wash impurities out of the wounds. It is most probable that the uncultured mind would attribute the healing of the wound to the water, and not to the removal of dirt.

Many of these sacred springs have distinct medicinal qualities; their water is impregnated with salts of various kinds; there are sulphur and iron waters, chalybeate springs, and so forth. Experience has shown that these have definite curative properties, and there is no doubt that these were early recognized.

A perennial supply of pure water has ever been appreciated by man, and it would always be remarked if a spring continued to flow when others ran dry.

It would naturally be argued there must be some

* *Ethnology in Folk-lore*, p. 94.

reason for it, and, as always happens, some explanation would be forthcoming. Such a spring was pointed out to me in the island of Mabuiag, in Torres Straits, and it arose in this way: One day, Kwoiam, the legendary hero of the island, was thirsty, and he thrust his javelin into the rock, and water has gushed forth ever since. Before running away as a stream the water fills two small rock pools. Any one may drink from the lower basin, but only old men or "big" men may drink from the upper, the penalty being premature greyness. I asked whether I might be permitted to drink from the upper pool, and I was told that I might, but evidently I was not worthy of the honour, as I have paid the penalty!

There is no need to say more. The advantages of a perennial spring, the undoubted healing properties of many wells, and the cleansing functions of all, are benefits to be devoutly thankful for. An expectant attitude of mind, the "suggestion" of modern psychology, and those obscure mental conditions which all recognize who have impartially considered the "miracles" worked at shrines even in our own day—these have always been operative in addition to the more material benefits of the water, and so has inevitably grown up a recognition of virtue in the water.

Primitive folk do not draw a sharp distinction between things animate and inanimate; this is an

essential fact to remember when we consider their religious beliefs and practices. The bubbling spring, the running brook, the waving boughs, the rushing wind, the burning sun, the sparkling stars, are all as much alive as far as they can tell as are men or animals. Man, too, feels himself weak before the forces of nature; he by no means has subjugated nature; he does not yet possess the earth. As his forceful fellow-men have to be appeased, so must the activities outside man be appeased or interested in his favour. The appreciation of the vast unknown all around him gives origin to the feeling that it is essential for his welfare that he should be put into friendly or harmonious relation with those powers which can benefit him and may do him harm, and so Religion is born into the world.

Morality may be regarded as the acknowledgment of the claims others have on our conduct. According to this view it is the quintessence of etiquette, the habit which any particular society has found to work well in practical experience. In other words, it is the working basis of society.

Religion, on the other hand, has originally nothing to do with morality—of this there is abundant proof—but it has for its aim the putting of man into harmonious relations with the forces outside him. It is how this can be accomplished, and the various conceptions that have arisen concerning these outside

forces that constitute the science of Comparative Religion.

We are now beginning to realize that this is the true "inwardness" of many so-called "savage" conceptions and rituals. At first there is a vague feeling—after if haply something may be found, and it is from this nebulous state that systems have been evolved.

The application of this principle to the subject of sacred wells and the offerings made at them has been so ably stated by my friend Mr. Hartland in the chapter "On Sacred Wells and Trees" in his great work on *The Legend of Perseus*,* that I do not hesitate to transcribe his general conclusions:—

"To sum up:—We find widely spread in Europe the practice of throwing pins into sacred wells, or sticking pins or nails into sacred images or trees, or into the wall of a temple, or floor of a church, and—sometimes accompanying this, more usually alone—a practice of tying rags or leaving portions of clothing upon a sacred tree or bush, or a tree or bush overhanging, or adjacent to, a sacred well, or of depositing them in or about the well.

"The object of this rite is generally the attainment of some wish, or the granting of some prayer, as for a husband or for recovery from sickness.

"In Asia we have the corresponding customs of writing the name on the walls of a temple, suspending some apparently trivial article upon the boughs of a sacred tree, flinging pellets of chewed paper or stones at sacred images, and attaching rags, writings, and other things to the temples,

* Vol. ii., pp. 175-231.

and to trees. Trees are adorned in the same way, with rags and other useless things, in Africa—a practice not unknown, though rare, in America. On the Congo a nail is driven into an idol in the Breton manner. It cannot be doubted that the purpose and origin of all these customs are identical, and that an explanation of one will explain all.

"The most usual explanations are :—First, that the articles left are offerings to the god or presiding spirit ; and, secondly, that they contain the disease of which one desires to be rid, and transfer it to anyone who touches and removes them. Professor Rhys suggests that a distinction is to be drawn between the pins and the rags. The pins, he thinks, may be offerings ; and it is noteworthy that in some cases they are replaced by buttons or small coins. The rags, on the other hand, may be, in his view, the vehicles of the disease. If this opinion were correct, one would expect to find both ceremonies performed by the same patient at the same well : he would throw in the pin, and also place the rag on the bush, or wherever its proper place might be. The performance of *both* ceremonies is, however, I think, exceptional. Where the pin or button is dropped into the well, the patient does not trouble about the rag, and *vice-versâ*.

"Nor can we stop here. From all we know of the process of ceremonial decay, we may be tolerably sure that the rags represent entire articles of clothing, which at an earlier period were deposited. There is no need to discuss here the principle of substitution and representation, so familiar to all students of folk-lore. It is sufficient to point out that, since the rite is almost everywhere in a state of decay, the presumption is in favour of entire garments having been originally deposited ; and that, in fact, we do find this original form of the rite in ancient and several modern examples. Such was a chalybeate spring in the parish of Kennethmont, Aberdeenshire. As its virtue was invoked

not only for human beings, but for cattle, the tribute consisted of 'part of the clothes of the sick and diseased, and harness of the cattle.'

"M. Monseur* suggests that in those instances in which pins or nails were stuck into the cross, or tree, or figure of the saint, the aim was, by causing pain or inconvenience to the object of worship, to keep in his memory the worshipper's prayer. M. Gaidoz† has another theory. He says:—'The idol is a god, who always appears somewhat stupid; it moves not, it speaks not, and, peradventure, it does not hear very well. It must be made to understand by a sign, and a sign which will be at the same time a memento. In touching the idol, especially in touching the member corresponding to that which suffers, its attention is directed to the prayer. And more than that is done in leaving a nail or a pin in its body, for this is a material memento for the idol.' In putting it in this way, the learned professor does not desire to exclude the ideas of an offering and a transfer of disease, for he expressly adds that both these ideas are mingled with that of a memento.

Mr. Hartland continues, "I believe that a profounder thought forms the common ground in which all the customs under consideration—or, as I should prefer to say, all the variations of a single custom—are rooted. They are simply another application of the reasoning that underlies the practices of witchcraft and folk-medicine discussed in previous chapters [of *The Legend of Perseus*]. If an article of my clothing in a witch's hands may cause me to suffer, the same article in contact with a beneficent power may relieve my pain, restore me to health, or promote my general prosperity. A pin that has pricked my wart, even if not covered with

* *Bulletin de Folklore, Organe de la Société du Folklore Wallon.*, i., 1892, p. 250.

† *Mémoires*, vi., 1893, 155.

my blood, has, by its contact, by the wound it has inflicted, acquired a peculiar bond with the wart; the rag that has rubbed the wart has by that friction acquired a similar bond; so that whatever is done to the pin or the rag, whatever influences the pin or the rag may undergo, the same influences are by that very act brought to bear upon the wart. If, instead of using a rag, I rub my warts with raw meat and then bury the meat, the warts will decay and disappear with the decay and dissolution of the meat. In like manner my shirt or stocking, or a rag to represent it, placed upon a sacred bush, or thrust into a sacred well—my name written upon the walls of a temple—a stone or pellet from my hand cast upon a sacred image or a sacred cairn—a remnant of my food cast into a sacred waterfall or bound upon a sacred tree, or a nail from my hand driven into the trunk of the tree—is thenceforth in continual contact with divinity; and the effluence of divinity, reaching and involving it, will reach and involve me. In this way I may become permanently united with the god.

"This is an explanation which I think will cover every case. Of course, it cannot be denied that there are instances where the real object of the rite having been forgotten, the practice has become to a slight extent deflected from its earlier form. But it is not difficult to trace the steps whereby the idea and practice of divination became substituted for that of union with the object of devotion. Still less can it be denied that, where the practice has not been deflected, the real intention has in most places been obscured. These phenomena are familiar to us everywhere, and will mislead no one who understands that the real meaning is not what the people who practise a rite say about it, but that which emerges from a comparison of analogous observances."*

* J. SIDNEY HARTLAND, *The Legend of Perseus: A Study of Tradition in Story, Custom and Belief*, 3 vols., 1894-96: D. Nutt, London.

Mr. Hartland, doubtless in order not to complicate his argument, refers to the "god" of the fountain, but he would be the first to recognize that this is by no means the earliest conception. So far as I understand the ideas of primitive folk, I should imagine the sequence to be somewhat as follows.

The spring or the stream were entities in the same way as human beings, animals, or plants. When the conception arose of a dual (or multiple) nature in man, when, to put it concisely, man was recognized as a body and an indwelling spirit, then the same conception would probably be transferred to the other entities, and hence would arise the belief in a spirit of a fountain or of a tree, which doubtless was as much its own innate spirit as is the spirit of man. As the spirit of man can, according to savage belief, take upon itself various outward and bodily forms,* so there is no reason why the equivalent spirit of well may not do the same. It was a matter of common experience some aquatic animal inhabited a particular piece of water: one or more fish, a frog, or whatever it may have been. The natural conclusion was that the divine life of the waters, as Robertson Smith†

* There is no need to take up my readers' time with illustrations of this proposition, as they will be found garnered in such works as J. G. FRAZER'S *Golden Bough*, ii., "The External Soul in Folk-tales," p. 296, and E. S. HARTLAND'S *The Legend of Perseus*, ii., "The Life-token in Tale and Custom," p. 1.

† W. ROBERTSON SMITH, *Lectures on the Religion of the Semites*, 1889, p. 161.

says, resided in the sacred fish that inhabits them ; of this he gives numerous examples analogous to the Irish and Scottish. Gomme* quotes from Sinclair† a most remarkable example of this, which occurs at a well near the church of Kirkmichael in Banffshire. The guardian of the well assumed the semblance of a fly, who was always present, and whose every movement was regarded by the votaries at the shrine with silent awe, and as he appeared cheerful or dejected the anxious votaries drew their presages. This guardian of the well of St. Michael was believed to be exempt from the laws of mortality. "To the eye of the ignorant," says the local account, "he might sometimes appear dead, but it was only a transmigration into a similar form, which made little alteration to the real identity."

Later beliefs anthropomorphised these spirits, and we have water-fairies, nymphs, and the like. Finally some missionary or hermit became associated with the well, and its therapeutic properties were attributed to the blessing of the water by the saint.

We may trace, then, in this simple game, the attenuated survival of a religious rite, which was observed by our savage forefathers of the polished-stone period. In children's games, or as faithfully performed practices by the folk, this cult has survived the waves of migration and the floods of race-conflict ; even Christianity itself has scarcely prevailed against it.

* *Ethnology in Folk-lore*, p. 102.

† *Statistical Account of Scotland*, xii., p. 465.

CHAPTER XIV.

COURTING GAMES.

MARRIAGE and its preliminaries form such an epoch in life that it would be strange if we did not find them mimicked in the games of children. As a matter of fact courtship and marriage do constitute a very important element in these hitherto unwritten dramas; and it is most interesting to find that customs belonging to various strata of culture are enshrined in song and game. In other words, our children still commemorate methods of courtship which presumably belonged to different races and which certainly were in vogue during diverse ages.

One of the singing games most frequently played by children is that known as "Nuts in May." This seems at first sight a nonsensical title to a not very exciting game, but we shall find that there is plenty of interest in the game to adults as well as to children.

"Here we come gathering nuts in May,
Nuts in May, nuts in May,
Here we come gathering nuts in May,
May, May, May.

"Who will you have for nuts in May,
Nuts in May, nuts in May?
Who will you have for nuts in May,
May, May, May?"

"—— — for nuts in May,
Nuts in May, nuts in May,
—— — for nuts in May,
May, May, May.

"Very well, very well, so you may,
So you may, so you may,
Very well, very well, so you may,
May, may, may.

"Whom will you have to take her away,
Take her away, take her away?
Whom will you have to take her away,
Way, way, way?"

"—— — to take her away,
Take her away, take her away,
—— — to take her away,
Way, way, way."

The children form in two lines of equal length, facing one another, with sufficient space between the lines to admit of their walking in line backwards and forwards, towards and away from each other, as each line sings the verses allotted to it. The first line sings the first, third, and sixth verses, and the opposite line the second, fourth, and fifth. At the end of the sixth verse a handkerchief or other mark is laid on the ground, and the two children (whose names have been mentioned, and who are as evenly matched as

possible) take each other's right hand and endeavour to pull each other over the handkerchief to their own side. The child who is pulled over the handkerchief becomes the "captured nut," and joins the side of her capturers. Then the game begins again by the second line singing the first, third, and sixth verses, while advancing to gather or capture the "nuts," the first line responding with the other verses, and with the same finish as before. Then the first line begins the game, and so on until all the children are in this way matched one against the other.

Almost the only variants in the song are in the last line of each verse, which may run—"On a cold and frosty morning" (which I have heard in Cambridgeshire), "On a fine summer's morning," "So early in the morning," &c.

The game is always played in lines, and the principal incidents running through all the versions are the same, *i.e.*, one player is selected by one line of players from her opponents' party. The "selected" one is refused by her party, unless someone from the opposite side can effect her capture by a contest of strength. In all versions but two or three this contest takes place between the two; in one or two all the players join in the trial of strength. Sometimes the side which is victorious has the right to begin the next game first. In one version when one child is drawn over the boundary line by one from the

opposite side she has to be "crowned" immediately. This is done by the conqueror putting her hand on the captured one's head. If this is not done at once the latter can return to her own side. In some versions the player who is selected for "Nuts" is always captured by the one sent to fetch her. When boys and girls play, the boys are always sent to "fetch away" the girls.

Mrs. Gomme, from whose monograph* I have abstracted the foregoing account, points out that there is some analogy in the game to marriage by capture and to the marriage customs practised at May Day festivals. She attributes the term "Nuts in May" to the gathering by parties of young men of bunches of may at the May festivals and dances, to decorate not only the May-pole, or the May "kissing-bush," but the doors of houses. Nuts is a misapprehension of knots. In Buckinghamshire the children speak of "knots of may," meaning each little bunch of hawthorn blossom. Mrs. Gomme has heard the "May girls" sing in London on May Day—

"Knots of may we've brought you,
Before your door it stands;
It is but a sprout, but it's well budded out
By the work of the Lord's hands."

The gathering of bunches of may by parties of young men and maidens to make the May-bush round

* A. B. GOMME, *Traditional Games*, i., p. 431.

which May Day games were held, and dancing and courting, is mentioned by Sir William Wilde.*

Mrs. Gomme continues:—"The association of May—whether the month, or the flower, or both—with the game is very strong, the refrain, 'Cold and frosty morning,' 'All on a summer's morning,' 'Bright summer's morning,' 'So early in the morning,' also being characteristic of the early days of May and spring, and suggests that the whole day, from early hours, is given up to holiday."†

For the evidence for marriage by capture in the game there is no element of love or courtship, though there is the obtaining possession of a member of an opposing party. It differs from ordinary contest-games in the fact that one party does not wage war against another party for possession of a particular piece of ground, but individual against individual for the possession of an individual. That the player sent to fetch the selected girl is expected to conquer seems to be implied—first, by a choice of a certain player being made to effect the capture; secondly, by the one sent to "fetch" being always successful; and, thirdly, the "crowning" in one version.

Marriage by capture is still practised in Australia and a few other places. In many savage and barbaric countries the bride makes a show of resistance, resorting in some cases to physical force, though all the

* *Irish Popular Superstitions*, p. 52.

† *I.c.*, p. 432.

time willing to be married, and there is frequently a sham fight between the relatives of the bride and bridegroom, and there are actual survivals in English, Scottish, Welsh, and Irish customs of marriage by capture.

Marriage by capture is now in the main a thing of the past, but there are records and survivals which prove it at one time to have been very widely spread. "All the Carib tribes used to capture women from different peoples and tribes, so that the men and women nowhere spake the same tongue, and von Martius states that in Brazil 'some tribes habitually steal their neighbours' daughters.' Among the tribes of Eastern Central Africa, described by Macdonald, marriage by capture occurs not as a symbol only."

According to a common belief, the Australian method of obtaining wives is capture in its most brutal form. But contrary to Mr. Howitt, Mr. Curr informs us that only on rare occasions is a wife captured from another tribe and carried off. The possession of a stolen woman would lead to constant attacks, hence the tribes set themselves very generally against the practice.

Westermarck,* from whom I have so largely quoted, gives a list of a good many peoples in various parts of the world. In Europe it occurred

* E. WESTERMARCK, *The History of Human Marriage*, 1891, p. 384 *et seq.*

in former days among the Lapps, Finns, and Esthoni-
nians. The same practice prevailed among the
peoples of the Aryan race. "The forcible abduction
of a maiden from her home, while she cries out and
weeps, after her kinsmen have been slain or wounded,
and their houses broken open," was, according to the
laws of Manu,* one of the eight legal forms of
marriage.

According to Dionysius of Halicarnassus, marriage
by capture was at the time customary throughout
ancient Greece. The ancient Teutons frequently
captured women for wives. The Slavs, in early
times, according to Nestor, practised marriage by
capture; and in the marriage ceremonies of the
Russians and other Slavonian nations, reminiscences
of this custom still survive. Indeed, among the
South Slavonians, capture *de facto* was in full force
no longer ago than the beginning of the present
century. Among the Welsh, on the morning of the
wedding day, the bridegroom, accompanied by his
friends on horseback, carried off the bride.

It will probably be new to many people that there
are traces of marriage by capture yet remaining in
country districts in England. It was only in the
spring of 1896 that at a wedding in the University
Church at Cambridge, none of the bride's people
entered the church, and as the wedding party left the

* *The Laws of Manu*, book iii., vv. 33, 26.

building they were met by the bride's friends, who banged inflated paper bags. The absence of the bride's relations from the church is the remnant of a fiction of enmity which is also emphasized by the popping of paper bags. These replaced the firing of guns of an older period, and these, again, replaced the weapons of war which in the dim past of pre-historic times were called into active requisition.

We read in the *Folk-lore Journal*:* "At Bocking, in Essex, the parents of the bride keep studiously out of the way at the time of the marriage ceremony. I remember the surprise, not to say horror, of an old gardener who was asked why he did not attend his daughter's wedding. 'Such a thing was never heered of in this here parish,' said he."

The next stage in wife-getting is the giving of compensation to the father, or the group, for the loss of the woman's services. This is very widely distributed even at the present day. The earlier phase which we have just considered may, however, persist to a greater or less extent. I found this transition phase amongst my friends of the Torres Straits. In all of the islands a wife could be obtained by an exchange of girls; a lad would give his sister in exchange for a wife, or an uncle might oblige a nephew and give him a cousin to exchange. In all other cases a wife had to be paid for according to arrangement,

* Vol. ii., p. 246.

but there was usually a recognized rate of exchange. In some islands there was also a fight, which I was assured was "half-play." In some islands also the young man lived part of the year with his wife's people.

Westermarck has collected numerous analogous cases among the uncivilized races of America, Africa, and Asia, and the Indian Archipelago. The custom of obtaining a wife by services rendered to her father has been familiarized to us by Hebrew tradition.

The most common compensation for a wife is property paid to her owner. Her price varies indefinitely. My friend Maino, the chief of Tud (Warrior Island), told me he paid for his wife a camphor-wood chest from Singapore, a dozen jerseys, some fathoms of calico, a dozen fish-hooks, a pound of tobacco, and he finished off the enumeration with the exclamation of, "By golly, she too dear!"

There is no need to traverse the globe for examples; a few cases from nearer home will suffice. Westermarck says in all branches of the Semitic race men had to buy or serve for their wives, the "Mohar" or "Mahr" being originally the same as a purchase sum.* In the Books of Ruth† and Hosea,‡ the bridegroom actually says he has bought his bride; and modern Jews, according to Michaelis, have a sham purchase

* W. ROBERTSON SMITH, *Marriage and Kinship in Early Arabia*, 1885, p. 78 *et seq.* † Ruth iv. 10. ‡ Hosea iii. 2.

among their marriage ceremonies, which is called "Marrying by the penny."*

Among the Finns marriage by purchase exists now, or did so till quite lately. Among the Aryan nations, too, marriage was based on the purchase of the wife. Westermarck gives numerous examples, amongst which we may note that the ancient Scandinavians believed that even the gods had bought their wives. In Germany the expression, "to purchase a wife," was in use till the end of the Middle Ages. As late as the middle of the sixteenth century the English preserved in their marriage ritual traces of this ancient legal procedure.†

This phase also is illustrated in the common singing game usually called "Knights," or "Lords from Spain." A version‡ from the village of Bocking, in Essex, runs as follows:—

"I am a gentleman come from Spain.
I've come to court your daughter Jane."
"My daughter Jane is yet too young
To understand your flattering tongue."
"Let her be young, or let her be old,
She must be sold for Spanish gold.
So fare thee well, my lady gay;
I'll call upon you another day."

* J. D. MICHAELIS, *Commentaries on the Laws of Moses* (Trans.) 1814, i., p. 451.

† E. FRIEDBERG, *Das Recht der Eheschliessung in seiner geschichtlichen Entwicklung*, Leipzig, 1865, pp. 33, 38.

‡ *Folk-lore Record*, iii., p. 171.

PLATE VI.



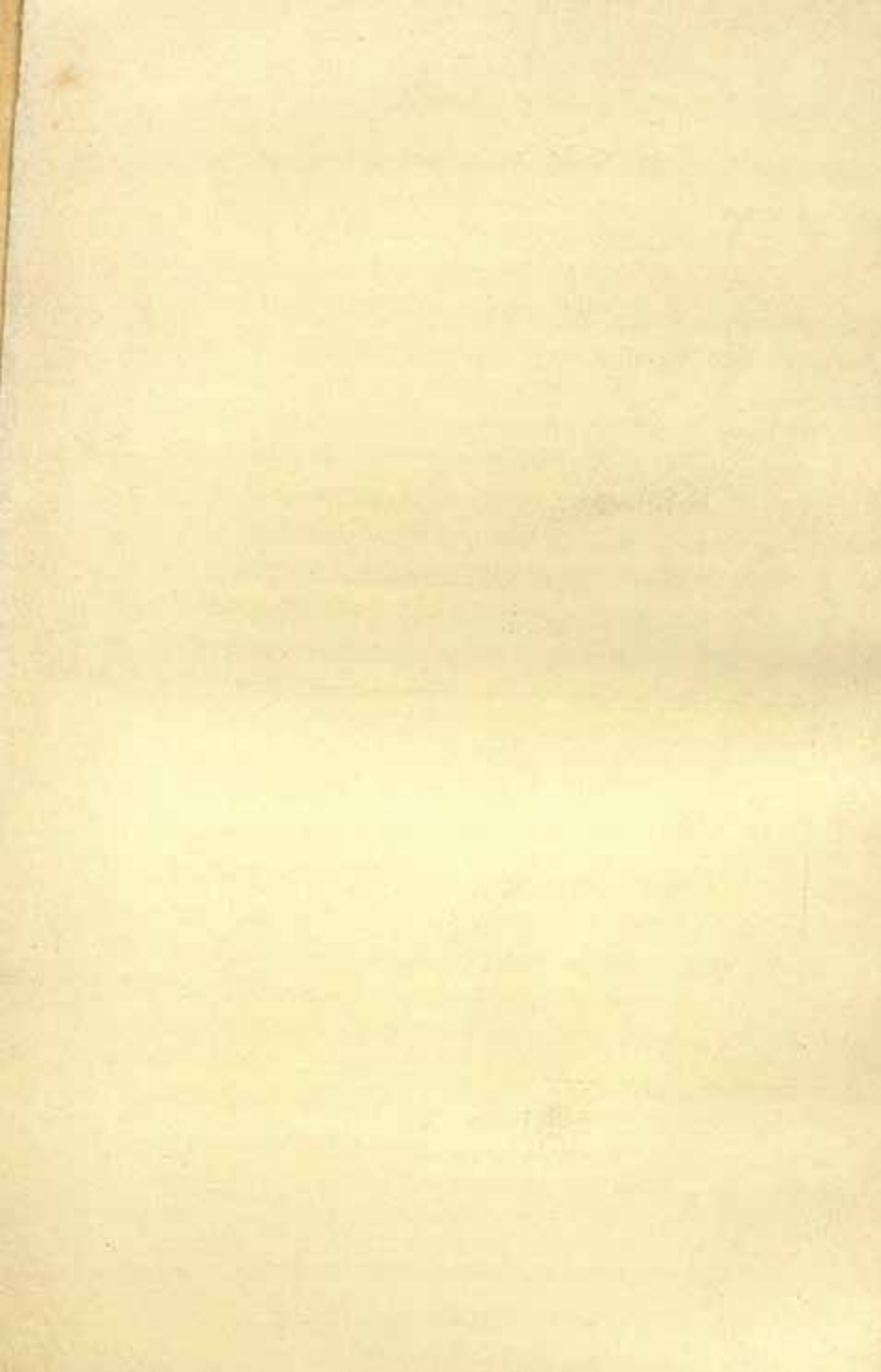
FIG. 1.



FIG. 2.

"Lords from Spain"; from photographs by Miss Clara M. Patterson.

[To face page 402.



"Turn back, turn back, you saucy boy,
And choose the fairest you can spy."

"The fairest one that I can see
Is pretty Miss —. Come to me!"

This game is also played by two alternately advancing and receding lines. At first one line consists of only a single lord, who sings the first, second, and third stanzas. After a pretended reluctance to come to terms, the girl is eventually sold to him. These then sing, "We are two lords from out of Spain," according to the local version, and so it goes on till the lords have purchased the last girl.

The following are the words of this game as played at Ballymiscaw, co. Down.* (Plate VI.)

"There was one lord that came from Spain
He came to court my daughter Jane,
My daughter Jane she is too young
To be controlled by a flattering tongue.

"Will you?"

"No."

"Will you?"

"Yes."

The one who answers "Yes" then joins hands with the "one lord," and they dance round, singing:—

"You dirty wee scut you wouldn't come out
To help us with our dancing.

There were two lords that came from Spain," &c., &c.

* CLARA M. PATTERSON, "A few Children's Games," *Proc. Belfast Nat. Field Club* (2), iv., 1893-94, p. 49.

One or two points call for notice in this version as they occur elsewhere, (1) the use of the word "controlled" for "cajoled"; (2) the abbreviation of the dialogue and, in this instance, the omission of the mercenary spirit, and finally the inelegant couplet at the finish. In a version from Auchencairn, Kirkcudbrightshire, collected by my elder daughter, the "lord" has become a "gypsy," and when the mother tells the gypsy to "choose the fairest one you see," the latter chooses a girl and asks her to come. She replies "No," and turns right round away from the wooer; as she is turning the gypsy says:—

"The naughty girl she would not come out,
She would not come out, to help me in my dancing."

The second time she is asked she must say "Yes."
Then the successful wooer sings:—

"Now we have got the flower of May,
The flower of May, to help us in our dancing."

The two girls take hold of each other's hands and sing:—

"Here come two gypsies come from Spain," &c., &c.

Though often dropped out, the buying element is an essential one; I have an Irish variant which emphasizes this incident:—

"Let her be young or let her be old,
It's for her beauty she must be sold."

A French version, that was presented before the Liverpool Teachers' Guild by Mrs. J. G. Frazer, marks a transition to a higher stage of culture.

LE CHEVALIER DU GUET.

"Qu'est-c'qui passe ici si tard,
Compagnons de la Marjolaine?
Qu'est-c'qui passe ici si tard,
Gai ! gai ! dessus le quai ?

"*Le Chevalier.* C'est le chevalier du guet,
Compagnons de la Marjolaine,
C'est le chevalier du guet,
Gai ! gai ! dessus le quai !

"*Tous.* Que demand, le chevalier,
Compagnons de la Marjolaine,
Que demand, le chevalier,
Gai ! gai ! dessus le quai ?

"*Le Chevalier.* Une fille à marier,
Compagnons, &c.

"*Tous.* N'y a pas de fille à marier,
Compagnons, &c.

"*Le Chevalier.* On m'a dit qu' vous en aviez,
Compagnons, &c.

"*Tous.* Ceux qu, l'on dit s'sont trompés,
Compagnons, &c.

"*Le Chevalier.* Je veux que vous m'en donniez,
Compagnons, &c.

"*Tous.* Sur les minuits revenez,
Compagnons, &c.

"*Le Chevalier.* Les minuits sont bien sonnés,
Compagnons, &c.

- "*Tous.* Mais nos filles sont couchées,
Compagnons, &c.
- "*Le Chevalier.* En est-il un' d'éveillée,
Compagnons, &c.
- "*Tous.* Qu'est-ce que vous lui donnerez,
Compagnons, &c.
- "*Le Chevalier.* De l'or, des bijoux assez,
Compagnons, &c.
- "*Tous.* Elle n'est pas intéressée
Compagnons, &c.
- "*Le Chevalier.* Mon cœur je lui donnerait,
Compagnons, &c.
- "*Tous.* En ce cas—là, choisissez,
Compagnons de la Marjolaine," &c.

We have similar games in our own country, in which the damsel will no longer permit herself to be sold, and only yields to her wooer when he offers her his heart.

The union of husband and wife is indicated in various ways by many peoples. In some parts of India the contracting parties tie themselves or are tied together. Among that very primitive people, the Veddahs of Ceylon, who, according to the Sarasins, never tell a lie and never steal, the bride ties a thin cord of her own twisting round the bridegroom's waist, and they are then husband and wife. The man always wears this string, and nothing would induce him to part with it, for it is emblematic of the marriage tie, and, "as he never parts with it, so he

clings to his wife through life."* In many parts of India bride and bridegroom are for the same reason marked with one another's blood, and Colonel Dalton believes this to be the origin of the custom now so common of marking with red-lead. The former of these customs survives in our wedding-ring, but unfortunately we have not in the British Islands the pretty Continental custom of the exchange of rings, and the wearing of his ring by the husband. I do not recall a reminiscence of the blood custom in folk-practice or folk-song in our own country.

Among the Australian Narrinyeri a woman is supposed to signify her consent to the marriage by carrying fire to her husband's hut and making his fire for him.

In Croatia the bridegroom boxes the bride's ears, in order to indicate that henceforth he is her master. And in ancient Russia, as a part of the marriage ceremony, the father took a new whip, and, after striking his daughter gently with it, told her that he did so for the last time, and then presented the whip to the bridegroom.

Marriage ceremonies arose by degrees and in various ways. When the mode of contracting a marriage altered, the earlier mode, from having been a reality, survived as a ceremony. Thus, as we have

* J. BAILEY, "An account of the Wild Tribes of the Veddahs of Ceylon," *Trans. Ethnol. Soc. (N.S.)*, ii, 1863, p. 293.

seen, the custom of capture was transformed into a mere symbol after purchase was introduced as the legal form of contracting a marriage. In other instances the custom of purchase has survived as a ceremony after it has ceased to be a reality.

According as marriage was recognized as a matter of some importance, the entering into it came, like many other significant events in human life, to be celebrated with certain ceremonies. Very commonly it is accompanied by a wedding feast.

The marriage ceremony often indicates in some way the new relation into which the man and woman enter to each other, most frequently the living together, or the wife's subjection to her husband. Among the Navajos the ceremony merely consisted in eating maize-pudding from the same platter; and among the Santals of India, says Colonel Dalton, "the social meal that the boy and girl eat together is the most important part of the ceremony, as by the act the girl ceases to belong to her father's tribe, and becomes a member of her husband's family."* Eating together is, in the Malay Archipelago, the chief and most wide-spread marriage ceremony. The same custom occurs among the Hovas of Madagascar, the Hindus, Esthonians, and in Ermland in Prussia.†

* E. T. DALTON, *Descriptive Ethnology of Bengal*, Calcutta, 1872, p. 216.

† The foregoing remarks are abbreviated from WESTERMARCK'S *History of Human Marriage*, p. 148.

In many parts of the British Islands children dance in a ring, and sing to a rhyme, in which the following very frequently occurs :—

“He courted [Aggie Wilson] before he was a man ;
He hugged her, he juggled her, he took her on his knee,
Saying, ‘ My dear [Aggie], won’t you marry me ?’

“[Aggie] made pudding so nice and so sweet,
And [Willie] got his knife and cut it round so neat,
Saying, ‘ Taste, love, taste, love, don’t say nay,
For next Monday morning is our wedding day.’ ”*

Another Irish version runs :—

“[Annie] made a pudding,
She made it very sweet ;
She daren’t put a knife in it
Till [George] came home at neet.
‘ Taste, [George], taste, and don’t say nay !
Perhaps to-morrow morning ’ll be our wedding day.’ ”

Our bought wedding-cake is an unsentimental survival of this pretty custom.

In this particular group of singing games love-making forms an important element ; we have thus reached a higher level of culture than is exhibited in the previous games.

In these courting games we often find love-lorn damsels, who, like poor Mary, sit weeping.

“ Poor Mary sits a-weeping, a-weeping, a-weeping.
What is Mary weeping for, weeping for, weeping for ?
She’s weeping for a husband, a husband, a husband.”

* *Proc. Belfast Nat. Field Club* (2), iv., p. 52.

Or there is the very practical young lady on the mountain:—

"There stands a lady on a mountain,
Who she is I do not know;
All she wants is gold and silver,
All she wants is a nice young man.

"Now she's married I wish her joy,
First a girl and then a boy;
Seven years after son and daughter:
Pray, young couple, kiss together.

"Kiss her once, kiss her twice,
Kiss her three times three."

The marriage formula of the second verse is a very common one, subject, of course, to numerous variations. That this enshrines some ancient and widely-spread sentiment there can be little doubt.

Finally, we find a large number of games which are merely excuses for kissing, such as Kiss in the ring, the Cushion dance, and others, and incidentally kissing comes, not unnaturally, into a number of courting and marriage games. As it happens England has an ancient reputation for kissing, as the celebrated scholar Erasmus testified to his friend, Faustus Anderlin, at Paris:—

"Your friend Erasmus gets on well in England. . . . If you are a wise man you will cross the Channel yourself. . . . To mention but a single attraction, the English girls are divinely pretty. Soft, pleasant, gentle, and charming as the Muses. They have one custom which cannot be too much

admired (*Est præterea mos nunquam satis laudatus*). When you go anywhere on a visit the girls all kiss you. They kiss you when you arrive. They kiss you when you go away; and they kiss you again when you return. Go where you will, it is all kisses (*basiatur affatim denique, quocunque te moveas*). My dear Faustus, if you had once tasted how soft and fragrant these lips were, you would wish to spend your life here."*

* "Ex Anglia, anno 1499," *Epist. lxxv.* (quoted from the Programme of Sir Ernest Clarke's lecture on "May Day in Merrie England," delivered to the Cambridge Antiquarian Society, March 8th, 1897).

CHAPTER XV.

FUNERAL GAMES.

IN the summer of 1896 I saw the following game played in the village of Barrington, near Cambridge.

A row of girls stand opposite to the "mother," behind whom hides the crouching "Jenny." (Plate VII., Fig. 1.) The row advances and retreats, singing the first couplet:—

"I've come to see Jenny Jones, Jenny Jones,
How does she do?"

The "mother" replies:—

"She is washing, washing, washing,
You can't see her now."

The row again advance and retreat (this they do all through the game):—

"I've come to see Jenny Jones, Jenny Jones,
How does she do?"

"She is scrubbing, scrubbing, scrubbing,
You can't see her now."

"I've come to see Jenny Jones, Jenny Jones,
How does she do?"

"She is ill."

PLATE VII.



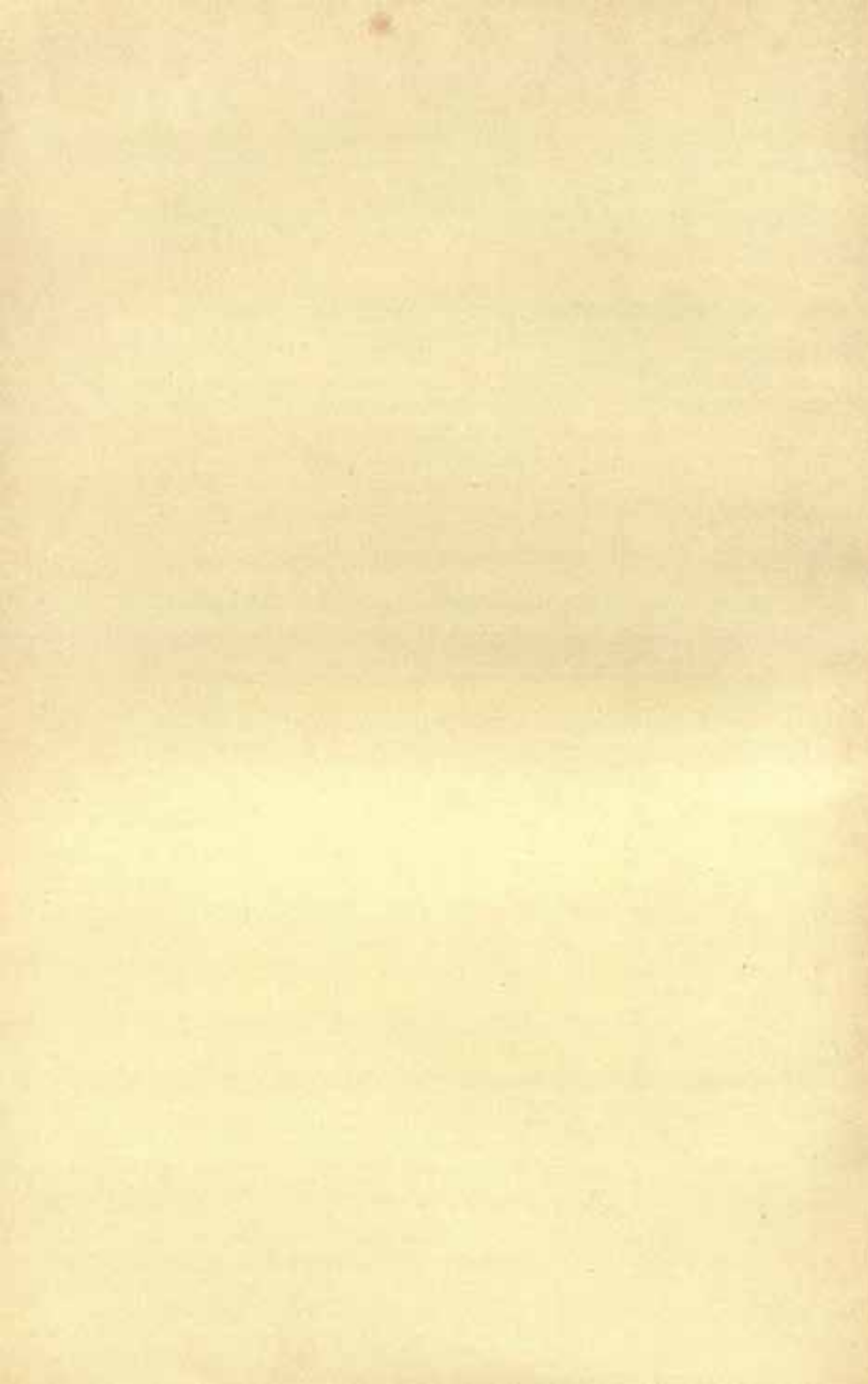
FIG. 1.



FIG. 2.

"Jenny Jones"; from photographs.

[To face page 412.



"'I've come to see Jenny Jones, Jenny Jones,
How does she do?'

"'She's very ill.'

"'I've come to see Jenny Jones, Jenny Jones,
How does she do?'

"'She's dead.'"

The "mother" says this in a mournful voice, and at the same time "Jenny" lies on the ground. (Plate VII., Fig. 2.)

The row again advance as before :—

"Come in blue, blue, blue,
Will that suit?'"

The "mother" replies :—

"'Blue is for sailors, sailors, sailors,
That won't suit.'

"'Come in red, red, red,
Will that suit?'

"'Red is for soldiers, soldiers, soldiers,
That won't suit.'

"'Come in white, white, white,
Will that suit?'

"'White is for weddings, weddings, weddings,
That won't suit.'

"'Come in black, black, black,
Will that suit?'

"'Black is for mourning, mourning, mourning,
That will suit.'"

Two of the girls come forward, take up "Jenny" and convey her a short distance off (Plate VIII., Fig. 1), the "mother" and other children following crying, with handkerchiefs up to their eyes. "Jenny" is then placed at full length on the ground as if in a grave; all the children stand round crying; the girl who stands over the grave picks up a handful of earth and sprinkles it over the dead "Jenny" (Plate VIII., Fig. 2), saying—

"Ashes to ashes, dust to dust,
If God won't have you the Devil must."

"Jenny Jones" then jumps up and runs after the other children, who flee before her. The one she catches is the Jenny Jones of the next game.

At Auchencairn in Kirkcudbrightshire, I collected the following version :—

GEORGINA.

First side. " 'I've come to see Georgina, Georgina, Georgina,
I've come to see Georgina, how's she to-day?'

Second side. 'She's up-stairs washing, washing, washing,
She's up-stairs washing and can't get away.'

First side. 'Oh! very well ladies, ladies, ladies,
We'll come another day.'

First side. " 'We've come to see Georgina, Georgina, Georgina,
We've come to see Georgina, how's she to-day?'

Second side. 'She's up-stairs ironing, ironing, ironing,
She's up-stairs ironing and can't get away.'

First side. 'Oh! very well ladies, ladies, ladies,
We'll come another day.'

PLATE VIII.



FIG. 1.



FIG. 2.

"Jenny Jones"; from photographs.

To face page 414.

First side. " 'We've come to see Georgina, Georgina, Georgina,
We've come to see Georgina, how's she to-day?'

Second side. 'She was coming down-stairs with a basin of water
And she fell down and broke her toe, and she's
dead.'

First side. " "And what shall we dress her in, dress her in, dress her in?
And what shall we dress her in, dress her in—red?'

Second side. 'Red for the soldiers, soldiers, soldiers,
Red for the soldiers, and that shan't do.'

First side. " "What shall we dress her in, dress her in, dress her in?
What shall we dress her in, dress her in—blue?'

Second side. 'Blue for the sailors, sailors, sailors,
Blue for the sailors, and that shan't do.'

First side. " "What shall we dress her in, dress her in, dress her in?
What shall we dress her in, dress her in—black?'

Second side. 'Black for the mourners, mourners, mourners,
Black for the mourners, and that shan't do.'

First side. " "What shall we dress her in, dress her in, dress her in?
What shall we dress her in, dress her in—white?'

Second side. 'White for the dead people, dead people, dead
people,
White for the dead people, and that will do.'"

My friend Miss Patterson collected the following version at Holywood, co. Down.* Here "Jenny" sits up on her "mother's" knee, and is not hidden as in most of the versions.

" 'I came to see Jeannie jo, Jeannie jo, Jeannie jo,
I came to see Jeannie jo, is she within?'

" "Jeannie jo's washing clothes, washing clothes, washing clothes,
Jeannie jo's washing clothes, and ye can't see her to-day.'

* CLARA M. PATTERSON, "A Few Children's Games," *Proc. Belfast Nat. Field Club* (2), iv., 1893-94, p. 50.

“ ‘Oh, but I ’m sorry, I ’m sorry,
Oh, but I ’m sorry I can’t see her to-day.’

“ ‘Farewell ladies, O ladies, O ladies,
Farewell ladies, and gentlemen, too.’ ”

Then the same verses are repeated for—

Starching clothes,
smoothing clothes,
dead,

including the two final couplets. The verses then proceed with—

“ ‘What shall we dress her in, dress her in, dress her in?
What shall we dress her in? Shall it be black?’

“ ‘Black for the sweeps, the sweeps, the sweeps,
Black for the sweeps, and that shall not do.’

“ ‘What shall we dress her in, dress her in, dress her in?
What shall we dress her in? Shall it be blue?’

“ ‘Blue for the sailors, sailors, sailors,
Blue for the sailors, and that shall not do.’

“ ‘What shall we dress her in, dress her in, dress her in?
What shall we dress her in? Shall it be red?’

“ ‘Red for the soldiers, soldiers, soldiers,
Red for the soldiers, and that shall not do.’

“ ‘What shall we dress her in, dress her in, dress her in?
What shall we dress her in? Shall it be orange?’

“ ‘Orange for the Orange-men, Orange-men, Orange-men,
Orange for the Orange-men, and that shall not do.’

“ ‘What shall we dress her in, dress her in, dress her in?
What shall we dress her in? Shall it be white?’

“ ‘White for the corpse, the corpse, the corpse,
White for the corpse, and that will just do.’ ”

They then make a funeral procession, the two biggest making a seat with their hands for "Jenny" and carrying her, followed by the rest in pairs, singing :

"We have lost a soldier, soldier, soldier,
We have lost a soldier, and the Queen has lost a man.
We will bury him in the bed of glory, glory, glory,
We will bury him in the bed of glory, and we'll never see him
any more."

These three examples from England, Scotland, and Ireland must suffice; it would have been easy to print a large number of versions. There are two chief ways in which the game is played, but most of them follow the procedure narrated above, usually with minor variations. The "mother" usually holds out her skirts with both hands so as to hide "Jenny" more completely. When "Jenny" is dead she is sometimes covered up. The resuscitation of "Jenny" is widely spread. At Liphook, in Hampshire, she is "swung to life again" by two of the players. In the Southampton version she is called "The Ghost"; the children run away in affected terror, calling out "The Ghost!"

The second form of playing the game occurs in Shropshire. The players are divided into two sides of about equal numbers, each side advancing and retiring in line when singing their parts. "Jenny" in some cases walks with the girls in her line until

the funeral, when she is carried to the grave, and in others she stands alone behind the line.

The differences in the words of the various versions are comparatively slight. The domestic occupations of washing, drying, folding, starching and ironing occur more or less in all the variants, except in the most degraded forms; brewing and baking are recorded only in one case. The sequence of "ill," "very ill," "dying" and "dead" may also be abbreviated.

The choosing of colours is an important element alike for the living and the dead. In some versions the mourners ask what colour they are to wear when they attend the funeral; red, blue, white, and black are nearly always mentioned, but interesting additions may be made. One version asks "Pink?" with the reply—

"Pink is for the babies, babies, babies,
Pink is for the babies, and that won't do."

In Irish versions we have local colour added. In the North, in reply to the question, "Shall it be orange?" the mourners are told—

"Orange for the Orange-men," &c.

One version adds :—

"Shall we come in green?"

"Green is for the good people, good people, good people,
Green is for the good people. You can't come in that."

Calling the fairies "good people," or "wee-folk," or similar names, is a common practice in Ireland, since these little people individually or collectively do not like to be called by their own name. Of this there are many instances in fairy-lore, but this is by no means confined to fairy-folk. On my first landing on Inishmaan, the central of the three Aran Islands in Galway Bay, I saw a group of two men and two women sitting on the beach. They allowed me to take their photographs,* but when I asked the women to tell me their names so that I might post prints to them, they refused. The women never received their photographs, for to this day I do not know who they were. About an hour afterwards I was measuring some of the men of the island, and I asked a young man who was standing by to let me measure him, and I asked him his name. He would not tell it, but a bystander told it to me.

This circumstance reminded me that four years before that I had asked a precisely similar question of a Papuan in one of the islands of Torres Straits, who had exhibited the same disinclination to tell his name; further illustrations of this superstition could be multiplied indefinitely.

It is interesting to note that the folk credit the same repugnance to being called by their own names to other living things; for example, a fisherman told

* *Proc. Roy. Irish Acad.* (3), ii., pl. xxiii. fig. 7.

me that in Aberdeen the salmon is called "the red fish," and in Sunderland the pig is known by fisherfolk as "the queer fellow," it bringing bad luck for them to be called by their proper designations, since in the case of the salmon the fish would not allow themselves to be caught.

The meaning of it is simple. It is a very widespread belief among primitive peoples—indeed it is universal—that one can gain power over a person by possessing some of his hair, nail-parings, spittle, or whatever it may be. The same property extends to his belongings, and especially to a knowledge of his name; how unlikely would such a person be to voluntarily give his name to a stranger.

To come back to "Jenny jo," the final answer to the mourners is that they must come in black, but when the question is asked as to what the dead maiden must be dressed in, the reply is invariably white, in consonance with the custom of very ancient days. The dressing of the dead body of a maiden in white by her girl companions, and the carrying of the body by them to the grave, are common village customs, the whole village being invited to the funeral.

As Newell says* :—

"Such imitations of burial ceremonies are not merely imaginative. It was once the custom for the girls of a village to take an active part in the interment of one of their

* *Games and Songs of American Children*, 1884, p. 65.

number. In a Flemish town, a generation since, when a young girl died, her body was carried to the church, thence to the cemetery, by her former companions. The religious ceremony over, and the coffin deposited in the earth, all the young girls, holding in one hand the mortuary cloth, returned to the church, chanting the *Maiden's Dance* with a spirit and rhythm scarcely conceivable by one who has not heard it. The pall which they carried to the church was of sky-blue silk, having in the middle a great cross of white silk, on which were set three crowns of silver."

The following is a rendering of the *Maiden's Dance*:—

"In heaven is a dance;
Alleluia!
There dance all the maids;
Benedicamus Domino—
Alleluia!

"It is for Amelia;
Alleluia!
We dance like the maids;
Benedicamus Domino—
Alleluia!"*

The common English name of the game is "Jenny Jones," but it is sometimes called "Jenny jo," as it is also in Scotland and North-east Ireland; the latter may safely be regarded as the original form. Mrs. Gomme says: "The corruption of this into 'Jenny Jones' is exactly what might be expected from modern English ignorance of the pretty meaning of the word jo, 'dear,' and to what length this corruption may

* BERNONI, *Cant. Pop. Venez.*, xi. 2, "Rosetina."

proceed under such influences may be seen by such forms as 'Jingy Jog,' 'Jilly Jog,' and 'Georgina.'"

Mrs. Gomme is inclined to believe that the game that is played by two lines of children is the older version, and suggests that this represents "the wooing by a band of suitors of girls surrounded by their fellow-villagers"—a custom which became obsolete in favour of ordinary marriage custom. The dropping out of this custom would cause the game to change from a representation of both wooing and burial to one of burial only. As burials only, the mother and one line of children action is sufficient, but the presence of a wooing incident in the earlier form of the game is plainly revealed by the verse which sings, "Fare ye well, ladies," or, as it has become in the English variant, "Very well, ladies."

The English versions are usually suggestive of a troop of village maidens who call on a companion, but they are refused admittance, as the daily tasks have to be performed. On the death of their little friend they return to discuss the important question of how they and the corpse are to be dressed, and finally they perform their allotted duty as pall-bearers and mourners.

In some of the Scottish versions the opening incident is that of a lover coming to court his sweetheart. He is repeatedly prevented from seeing her, owing to the fact that her mother keeps her close to her every-

day domestic duties; later the constant swain is denied for a more serious reason, and finally, instead of his blushing love, he finds a cold corpse. This popular game is in reality a pathetic drama.

There are other funeral games among our children, as, for example, the widely-spread "Green Gravel."

Round Cambridge the village children join hands, form a ring, and walk round, singing—

"Green gravel, green gravel, your grass is so green,
The fairest young damsel that ever was seen.
—— ——— Your true love is dead,
He sends you a letter to turn round your head."

On mentioning one of the players by her christian and surname, the girl turns right round, so that she now faces outwards. On the repetition of the verse the girl next to her is mentioned, and so on, in regular order, until all the girls face outwards, when the game is finished.

An Irish version runs* :—

"Green gravel, green gravel, the grass is so green,
The prettiest damsel that ever was seen;
I washed her with new milk and dressed her in silk,
And I wrote down her name with a brass pen and ink.
Dear —, dear —, your true love is dead,
And I send you a letter to turn round your head."

A Belfast version has for the middle lines—

"We washed her, we dried her, we rolled her in silk,
And we wrote down her name with a glass pen and ink."

* CLARA M. PATTERSON, *Proc. Belfast Nat. Field Club*, 1893-94, p. 51.

As in all the rhymes of these singing games there are variations to the words, but in this case the variants are usually of but very minor importance. The writing of the name with a pen and ink is doubtless quite a modern addition ; it is usually "a gold pen."

In some cases the rhyme is mixed up with fragments of courting games. Mrs. Gomme says : "The additional ceremony of marriage in four of the games is clearly an interpolation, which may have arisen from the custom of playing love and marriage games at funerals and during the watching of the corpse, or may be a mere transition to the more pleasant task of love-making as the basis of a game. . . The decay that has set in is apparent by the evident attempt to alter from "green gravel" to "green grover" and "yellow gravel," and to introduce pen and black ink. The addition of incongruous elements from other games is a frequent occurrence in modern games, and is the natural result of decadence in the original form of the game. Altogether this game-rhyme affords a very good example of the condition of traditional games among the present generation of children." Those who would like to make acquaintance with the airs to which the words are sung, or who are interested in the various modifications, or who wish to study Mrs. Gomme's analysis of the game, are referred to the original monograph, from which I have so freely borrowed.

Mrs. Gomme points out that green gravel and green grass indicate the locality of the scene. "Green," as applied to gravel, probably means freshly-disturbed soil, just as a green grave means a freshly-made grave. The tenant of the new grave is the well-loved lady of a disconsolate lover.

The washing and dressing of the corpse, and putting an inscription on the place where it is laid, are indicated by the third and fourth lines. The widely-spread incidents of washing a corpse in milk and dressing it in silk occur in the ballad of "Burd Ellen" *:—

"Tak up, tak up my bonny young son,
Gar wash him wi' the milk;
Tak up, tak up my fair lady,
Gar row her in the silk."

The final couplet of "Green Gravel" is a funeral dirge, a singing to the dead. In some versions a touching wail is added:—

"Oh, mother! oh, mother! do you think it is true?"
"Oh, yes, child! oh, yes, child!"
"Then what shall I do?"

The possibility of communion with the dead, which is indicated by the line, "He sent you a letter to turn round your head," is not inconsistent with primitive thought. To these simple souls the spirits of the dead are very real beings, and as Gomme has

* JAMIESON, *Ballads*, p. 125.

demonstrated in his *Ethnology in Folk-lore*, we have two strata of belief in this country; the lower, pre-Aryan, belief, which is similar in its general characters to that which is of almost universal occurrence, is based on the idea that the spirits of the dead are inimical to the living. Associated with this are numerous customs, such as the curious practice in Scotland of turning upside down all the chairs in the room from which the corpse has just been taken;* or in England of unhinging the gate and placing it across the entrance, and of carrying the corpse to the grave by a roundabout way.† There is also the practice in Scotland of keeping up a dance all night after a funeral,‡ which by the analogous practice among the Nagas, a non-Aryan tribe of Southern India, must be attributed to the desire to get rid of the spirit of the deceased.§ In the west of Kerry, in Ireland, a broad line is whitewashed round the windows and door of a house in which there has been a death, so that the spirit may not return.

The later stratum is the Aryan worship of deceased ancestors, and this cult of the dead based on the love of dead kindred, is found generally prevalent over the country, whereas the above mentioned cult,

* *Folk-lore Record*, ii., p. 214.

† FRAZER, in *Journ. Anth. Inst.*, xv., p. 72.

‡ NAPIER, *Folk-lore of West of Scotland*, p. 66; *Folk-lore Journal*, iii., p. 281. POCOCKE'S *Tour through Scotland*, 1760, p. 88.

§ OWEN'S *Notes on the Naga Tribes*, p. 23.

which is based on the fear of dead kindred, is found only in isolated patches of the country.* In the present instance the relations between the dead and the living are of a friendly nature, but in the last game we noticed that in several versions the "ghost" of the deceased Jenny chased the frightened mourners.

In confirmation of this being a representation of an old funeral ceremony, it may be pointed out that the action of turning backwards during the singing of the dirge is also represented in the curious funeral ceremony called "Dish-a-loof," which is thus described by Henderson: "All the attendants going out of the room, return into it backwards, repeating this rhyme of 'saining.' "†

I cannot now enter into a discussion of this ceremony and the chant in question; suffice it to say that "Dish-a-loof" is also found in children's games.

In several versions of these funeral games, love-making is added, and it is difficult to determine whether this is a degenerate feature which has crept into the game, for we often find a mixture taking place in these games, or whether it was an original element that has been sporadically retained.

Festivity at a funeral may seem out of place to us, but one must remember that different men have

* G. L. GOMME, *Ethnology in Folk-lore*, 1892, p. 125.

† *Folk-lore of the Northern Counties*, p. 53.

different manners, and what may appear incongruous to some people passes unnoticed among others.

The mixture that appears in some of the singing games of children of mourning and courting, of death and marriage, of solemnity and frivolity, is not due to lack of sensibility on the part of the children; it is no sign of a natural depravity, but it is probably in many cases merely a survival. Children must play the old games and repeat the old rhymes, and they do so as faithfully as they can. Conscious departure from custom is often regarded as a kind of moral delinquency, it is, in fact, a species of sacrilege. This conservatism of children and of the folk is the sheet-anchor of folk-lore.

We have only to cross the Irish Sea to find that the English children are not singular in this association of comedy with tragedy.

Croker * says :—

"The wake of a corpse is a scene of merriment rather than of mourning. . . . In the evening a general assembly of the neighbours takes place, when they are entertained with whiskey, tobacco, and snuff. On these occasions songs are sung and stories related, while the younger part of the company beguile the time with various games and sports, such as blind man's buff or hunt the slipper. Dancing, or rather running in a ring round an individual, who performs various evolutions, is also a common amusement; and four

* T. CROFTON CROKER, *Researches in the South of Ireland*, 1824, p. 170.

or five young men will sometimes, for the diversion of the party, blacken their faces and go through a regular series of gestures with sticks, not unlike those of the English morris dancers. Amongst the games played at wakes are two which I have never observed out of Ireland, and from their being so universal with the peasantry, they are probably of considerable antiquity. One of these is called 'The Walls of Troy,' and the other 'Short Castle.'"

The former game is a very old English game, which is generally known as "Nine Men's Morris."*

Lady Wilde† gives a somewhat similar account of "Wake Games." She refers to "Shuffle the Brogue" ("Hunt the Slipper"), "The Horse Fair," and "The Mock Marriage." Lady Wilde says that nothing irreverent is meant, for it is considered that whatever keeps up the spirits at a wake is allowable, and harmless in the sight of God. In towns the fun often degenerates into licence and drinking, and many games have been therefore forbidden by the priesthood, particularly the one called "The Mock Marriage," which often gave occasion for much scandal, and tumult and fighting amongst the young men; whereas, in the country wake, it would be deemed a disgrace for a man to create a disturbance or even to lose his temper, and the women and young girls were treated with the utmost respect.

* A. B. GOMME, *Traditional Games*, p. 414; the diagram on p. 418 is the same as that given by Croker on p. 171.

† *Ancient Cures, Charms, and Usages of Ireland*, 1890, p. 129.

"Wake ceremonies are still held in the Irish cabins, where the men drink and smoke, and tell ancient stories, though the highly dramatic games of former times have almost entirely died out, 'for,' as the peasant narrator added, when concluding his account of the scenes he had witnessed in his early youth, 'there is no mirth or laughter to be heard any more in the country, the spirit has gone from our people, and all the old fun is frozen, and the music is dumb in poor Ireland now.'"

We know that in the prehistoric times in Ireland famous inter-tribal games were held near some of the great tumuli of departed heroes or kings, similar to the funeral games of Patroclus that Homer has immortalised.

It is a question for future research whether some of our games may not have had this origin and have subsequently been divorced from the funeral festival. If this can be shown to have been the case, then it is probable that certain of these games will be found to have had a magical or a symbolic significance which is at present entirely unsuspected.

One version of "Jinny Jo" ends with—

"Poor Jinny Jo is dead and gone, dead and gone, dead and gone,
Poor Jinny Jo is dead and gone, all the day long.

We've come to wake Jinny Jo, Jinny Jo, Jinny Jo;
We've come to wake Jinny Jo, all the day long.
Jinny Jo has candles round her head," &c. *

* "The Wares of Autolycus," *Pall Mall Gazette*, Jan. 18th, 1897,
p. 10.

The wake and candles are probably an Irish innovation; at all events, an old Irish nurse remembered only the following fragment of "Jenny Jo":—

"Jenny jo's dead and gone, dead and gone, dead and gone,
Jenny jo's dead and gone, all the day long.

Pipes and tobacco for Jenny jo, Jenny jo, Jenny jo,

Pipes and tobacco for Jenny jo, all the day long.

Miss M. Hayden, who gave me this and several other Irish games, writes: "The 'pipes and tobacco' seem rather odd."

There are two explanations: the obvious one is that the tobacco is for the wake. We have seen that Croker refers to this custom, and Lady Wilde says: "There is always a plateful of tobacco and another of snuff placed on a table by the side of the corpse, and each man as he enters is expected to fill his pipe and pray in silence for a few moments." *

The rhyme says that the pipes and tobacco are for Jenny jo, that is, for the deceased person. Last year my friend Mr. R. Welch, the well-known landscape photographer of Belfast, took some photographs of an old graveyard at Salruck, Little Killary, West Galway, on some graves of which were deposited a large number of pipes, some quite new and still with the shavings with which they were packed in the bowl, others filled with tobacco. Were these offerings to the spirits of the deceased? An Irish

* *Id.*, p. 134.

journal indignantly denied that this occurred, and accused Mr. Welch of himself putting the pipes there in order to produce a photograph that would appeal to the English tourist. Mr. Welch, however, was vindicated, and we may charitably assume that the writer was ignorant that this custom was fairly common in Mayo and North Galway. I mention this circumstance, as facts which appear to tell against the intelligence of a sensitive people may be publicly denied, though they occur all the same.

The distribution of tobacco and pipes is stated to be an act of hospitality to those who attend the funeral on the part of the deceased's relatives, who could not entertain such a large number in an ordinary way at home. The idea current among the people who smoke the pipes in the graveyard at the funeral is, that it is unlucky to take them away. Why unlucky, if not the survival of a custom older than pipes in Ireland?

The custom of leaving some of the belongings of the deceased person, or of placing offerings, sometimes of food only, at the grave, is so widely spread among backward peoples that it is superfluous to multiply examples; I will give merely a single instance that came under my own observation at Cape York in North Queensland. On the grave of a native was the stretcher that had carried him to his last resting place, at the head and foot of the grave were two

posts, on to the top of the latter was tied a handkerchief, and on to the top of the former a second handkerchief and the pipe of the deceased, and close by was his tin "billy." It was very pathetic to see the belongings of the poor man put by his side ready for the use of his spirit, or perhaps it was the spirits of the objects which were for the use of the spirit of the man.

And now I must close—not because I have exhausted the subject—indeed, I have touched on only a few of the problems that the toys and games of children suggest—but because I have come to an end of my space. We are now discovering the fact that if only we have the understanding, we can learn much of the past history of man from a study of our children. Two thousand years ago, as in our own days, might be seen "children sitting in the market places, which call unto their fellows, and say—'We piped unto you, and ye did not dance; we wailed, and ye did not mourn.'" This lament might well have been made to their elders—but at last we are beginning to heed their piping and their wailing.

CHAPTER XVI.

PRACTICAL SUGGESTIONS FOR CONDUCTING ETHNOGRAPHICAL INVESTIGATIONS IN THE BRITISH ISLANDS.

AN influential committee was appointed by the British Association in 1892 to conduct an ETHNOGRAPHICAL SURVEY OF THE UNITED KINGDOM :—

"COPY OF FIRST CIRCULAR.

"SIR,—The above-named Committee, in pursuance of the object for which they have been delegated by the Society of Antiquaries of London, the Folk-lore Society, the Dialect Society, and the Anthropological Institute, and appointed by the British Association, propose to record for certain typical villages and the neighbouring districts :—

- "(1) Physical types of the inhabitants.
- (2) Current traditions and beliefs.
- (3) Peculiarities of dialect.
- (4) Monuments and other remains of ancient culture ;
and
- (5) Historical evidence as to the continuity of race.

"As a first step the Committee desire to form a list of such villages in the United Kingdom as appear especially to deserve ethnographic study, out of which a selection

might afterwards be made for the survey. The villages or districts suitable for entry on the list are such as contain not less than a hundred adults, the large majority of whose forefathers have lived there so far back as can be traced, and of whom the desired physical measurements, with photographs, might be obtained.

"It is believed by the Committee that such villages may exist in the districts with which you are acquainted, and as you are eminently capable of affording help in this preliminary search, we have to request that you will do so by kindly furnishing the names of any that may occur to you, with a brief account of their several characteristics, mentioning at the same time the addresses of such of their residents as would be likely to support the Committee in pursuing their inquiry.

"They would also be glad to be favoured with the names of any persons known to you in other districts to whom this circular letter might with propriety be addressed."

In January, 1894, another circular was issued from which the following is extracted:—

"They are sure you will excuse their urging what may at first sight appear to be trivial details, but which are in reality of great practical importance to those who have to arrange and consult a large collection of communications from different persons. These are, that the communications should all be written on foolscap paper, and that the writing should be on one side only of the page, and should never run so near the margin as to be an obstacle to future binding.

"The Committee are satisfied that the value of the returns will be much reduced if they do not give information under all the several heads. If it should happen, therefore, that

your own pursuits or means of information do not enable you to fill up the whole of the forms desired, they would take it as a particular favour if you could induce friends to supply the missing details, and thus to render the information complete.

"The Committee, in addressing you individually, wish to disclaim any idea of interfering with the action of local societies, from many of which, on the contrary, they have reason to expect very valuable assistance. If it should suit your convenience to present to your local society an even fuller account of your observations than may be necessary to comply with the requirements of this Committee, such a course would be highly desirable, and it is hoped that the local societies will, on the other hand, give to the observers in their several districts all the encouragement and moral assistance that may be found practicable.

"All communications should be addressed to 'THE SECRETARY OF THE ETHNOGRAPHIC SURVEY, British Association, Burlington House, London, W.'"

The work done by this Committee will be found in the Reports of the Association, but as yet no systematic survey of the British Islands has been attempted. The Ethnographical Survey of Ireland has been undertaken by a Dublin committee, which is supported by the Royal Irish Academy, and four comprehensive reports* have been published by that

* "The Ethnography of the Aran Islands, County Galway," by Prof. A. C. HADDON and Dr. C. R. BROWNE, *Proc. Roy. Irish Acad.* (3rd ser.), ii., 1893, pp. 768-830, pls. xxii.-xxiv.; "The Ethnography of Inishbofin and Inishshark, County Galway," by Dr. C. R. BROWNE, *Id.*, iii., 1894, pp. 317-370, pls. viii., ix.; "The Ethnography of the Mullet, Inishkea

body. These reports are drawn up on the following lines :—

I. *Physiography of the district investigated.* II. *Anthropography.*—1. Methods; 2. Physical characters with lists of measurements; 3. Vital Statistics (general and economic), (A) Population, (B) Acreage and Rental, (c) Language and Education, (D) Health; 4. Psychology; 5. Folk names. III. *Sociology.*—1. Occupations; 2. Family Life and Customs; 3. Food; 4. Clothing; 5. Dwellings; 6. Transport. IV. *Folk-lore.*—1. Customs and Beliefs; 2. Legends and Traditions; 3. Leechcraft. V. *Archæology.*—1. Survivals. 2. Antiquities. VI. *History.* VII. *Ethnology.* VIII. *Bibliography.*

It will be evident that this is a somewhat ambitious programme, and although in many instances the information given on a particular subject is meagre, owing to the very limited time available for work in the field, it was considered best to keep to the general scheme in order to emphasize the fact that in all investigations of this kind the widest possible outlook must be maintained.

Islands and Portacloy, County Mayo," by Dr. C. R. BROWNE, *l.c.*, iii., 1895, pp. 587-649, pls. xv.-xvii.; "The Ethnography of Ballycroy, County Mayo," by Dr. C. R. BROWNE, *l.c.*, iv., 1897, pp. 74-111, pls. iii., iv.; "The Ethnography of Clare Island and Inishturk, County Mayo," by Dr. C. R. BROWNE, *l.c.*, iv., 1898.

I.—INSTRUCTIONS FOR MAKING CERTAIN
SOMATOLOGICAL OBSERVATIONS.1. *Hair and Eye Colours.*

I have already (pp. 30–34) given an account of Dr. Beddoe's methods of recording the colours of the hair and eyes; it only remains to add a few practical hints which I also cull from *The Races of Britain*, p. 4:—

"When unable to decide in which of two columns (e.g. B or D) an individual ought to be inscribed, I divide him between the two, by a Solomonian judgment, and set down $\frac{1}{2}$, or .5, in each of them.

"When engaged in this work, I set down in his proper place on my card of observation every person (with the exceptions to be mentioned presently) whom I meet, or who passes me within a short distance, say from one to three yards. As a rule I take no note of persons who apparently belong to the upper classes, as these are more migratory and more often mixed in blood. I neglect those whom I suppose to be under age—fixing the point roughly at 18 or 20 for men, 17 or 18 for women—as well as all those whose hair has begun to grizzle. Thus I get a fairly uniform material to work upon, though doubtless the hair of most people does darken considerably between 20 and 40 or 50. In order to preserve perfect fairness, I always examine first, out of any group of persons, the one who is nearest, rather than the one to whom my attention is most drawn. Certain colours of the hair, such as red, certain shades of the eye, such as light grey, can be discerned at a very considerable distance; but I take no note of anyone who does not approach me so nearly that I can recognize the more obscure colours. Much allowance needs to be made for the varying effects of light.

Direct sunlight is better avoided when possible; I always choose the shady side of a street on a sunny day. Considerable difficulties are created by the freaks of fashion. I once visited Friesland, in order to study the physical type of that region. Conceive my disappointment when I found myself surrounded by comely damsels and buxom matrons, not one of whom suffered a single yellow hair to stray beyond her lace cap or silver-gilt head-plate. When I began to work in England dark hair was in fashion among women; and light and reddish hues were dulled with greasy unguents. In later years fair hair has been more in vogue; and golden shades, sometimes unknown to nature, are produced by art. Among men, on the other hand, the close cropping of the head, borrowed from the French, makes comparisons difficult. Fortunately, most vagaries of this kind are little prevalent in the classes among whom I seek my material.

"It may be objected that there is no security that many of the persons observed may not be aliens to the place or neighbourhood wherein they are encountered. Certainly; there is no such security. But if a sufficient number of observations be secured, and the upper and other notoriously migratory classes (who are mostly easy of recognition) be excluded, the probability is immense that the great majority of the remainder have been born within a moderate radius of the centre of observation; and the majority will determine the position of the community in my chromatic scale."

Personally I am rather inclined to think it would be a good plan, when marking the "niger" column, to make a slightly different mark for those cases in which the hair is known to be absolutely black, *i.e.*, when it shows black under all conditions of light and when quite dry.

Many opportunities present themselves for collecting these statistics, such as market-days, village flower shows, local festivals and sports, the "hinds' hirings" of Northumberland, *i.e.*, those days when the farm labourers of both sexes come into the towns to hire out themselves for the following year. When groups are being photographed, or individuals measured, a small crowd generally collects, and one of the party can be told off to unobtrusively make notes of the colours of the eyes and hair of onlookers.

The markings on the cards should always consist of short, firm strokes (dots are less satisfactory); it is best never to put numbers. Each group of cards should be kept in labelled envelopes. A little method and system is a great saving of time in the end, and the results are more likely to be trustworthy if system is made into habit.

The following table is an example of one way in which the results can be tabulated; a similar table should be made for Females, Boys and Girls. These can be combined in various ways afterwards.

ADULTS.—MALES.*

Hair.	Eyes.			Totals.	Percentage of Hair Colours.
	Light.	Medium.	Dark.		
Red . . .	4	1	—	5	3.73
Fair . . .	8	—	—	8	5.97
Brown . . .	80	3	2	85	63.43
Dark . . .	27	6	1	34	25.37
Black . . .	—	1	1	2	1.50
Totals . .	119	11	4	134	100.00
Percentage of Eye Colours . .	88.80	8.21	2.99	100.00	

Index of Nigrescence, 18.57.

It is occasionally a matter of local belief—or it may come out in the observations—that the inhabitants of one village, or of an island, are lighter or darker, as the case may be, or vary in some other way from the neighbouring locality. All such supposed or real variations should be worked out on special tables. It is well not to use the recording cards for more than one occasion or for more than one village.

2. *Anthropometry for British Ethnography.*

I have kept the instructions for collecting the hair and eye colours distinct from the other ethnographical

* A. C. HADDON and C. R. BROWNE, "The Ethnography of the Aran Islands, County Galway" (*Proceedings Royal Irish Academy* [3], ii., 1893, p. 783).

data, as these can so readily be made anywhere by anybody, whereas the following data, for the most part, require the employment of instruments and a little preparatory training.

The schedule on pp. 444, 445 is that drawn up by the Ethnographical Survey Committee of the British Association. Copies of this, for field observation, can be obtained from the Secretary of the Committee, E. S. Hartland, Esq., Highgarth, Gloucester.

"Directions for Measurement.

"Instrument required for these measurements:—The 'Traveller's Anthropometer,' manufactured by Aston & Mander, 61, Old Compton Street, London, W.C.; price, £3 3s. complete; without 2-metre steel measuring tape and box footpiece, £2 10s. With this instrument all the measurements can be taken. In a permanent laboratory it will be found convenient to have a fixed graduated standard for measuring the height, or a scale affixed to a wall. For field work a tape measure may be temporarily suspended to a rigid vertical support, with the zero just touching the ground or floor. A 2-metre tape, a pair of folding callipers, a folding square, all of which are graduated in millimetres, and a small set-square can be obtained from Aston & Mander for £1 6s.; with this small equipment all the necessary measurements can be taken.

"*Height Standing.*—The subject should stand perfectly upright, with his back to the standard or fixed tape, and his eyes directed horizontally forwards. Care should be taken that the standard or support for the tape is vertical. The stature may be measured by placing the person with

his back against a wall to which a metre scale has been affixed. The height is determined by placing a carpenter's square or a large set-square against the support in such a manner that the lower edge is at right angles to the scale; the square should be placed well above the head, and then brought down till its lower edge feels the resistance of the top of the head. The observer should be careful that the height is taken in the middle line of the head. If the subject should object to take off his boots, measure the thickness of the boot-heel, and deduct it from stature indicated in boots.

"Height Sitting.—For this the subject should be seated on a low stool or bench, having behind it a graduated rod or tape with its zero level with the seat; he should sit perfectly erect, with his back well in against the scale. Then proceed as in measuring the height standing. The square should be employed here also if the tape against a wall is used.

"Length of Cranium.—Measured with callipers from the most prominent part of the projection between the eyebrows (glabella) to the most distant point at the back of the head in the *middle line*. Care should be taken to keep the end of the callipers steady on the glabella by holding it there with the fingers, while the other extremity is searching for the maximum projection of the head behind.

"Breadth of Cranium.—The maximum breadth of head, which is usually about the level of the *top* of the ears, is measured at right angles to the length. Care must be taken to hold the instrument so that both its points are exactly on the same horizontal level.

"Face Length.—This is measured from the slight furrow which marks the root of the nose, and which is about the level of a line drawn from the centre of the pupil of one

Place..... Name of Observer.....
 I. PHYSICAL TYPES OF THE INHABITANTS.

Number.	Date of Measurement.	Surname.	Christian Name.	Age.	Sex.	Town or Village.	County.
SURNAME.	SURNAME of your Father.	SURNAME of your Mother before she was married.		What district do your Parents' people come from?			
				Your Father's?	Your Mother's?		
Have your Father's people occupied that part of the country for long? If not, state what you know of their original locality. } Ditto for your Mother's people. }							
GENERAL CONDITION : (1) stout ; (2) medium ; (3) thin.			Photograph number. (N.B.—The photograph of the person measured should be sent along with this schedule.)				
SKIN : (1) pale ; (2) ruddy ; (3) dark.			Freckled (?).				
HAIR : (R) red ; (F) fair ; (B) brown ; (D) dark ; (N) black.			(1) straight ; (2) wavy ; (3) curly.				
COLOUR OF BEARD : (R) ; (F) ; (B) ; (D) ; (N).							

EYES: (1) blue; (2) light grey; (3) dark grey; (4) green; (5) light brown; (6) dark brown.									
SHAPE OF FACE: (1) long and narrow; (2) medium; (3) short and broad. (a) cheek-bones inconspicuous; (b) cheek-bones prominent.									
PROFILE OF NOSE: Compare with outline figures at foot,* and give the number with which the nose under examination most closely corresponds.									
LIPS: (1) thin; (2) medium; (3) thick.									
EARS: (A) flat; (B) outstanding; (a) coarse; (b) finely moulded.									
LORES OF EARS: (1) absent; (2) present; (a) attached; (b) detached.									
HEIGHT.		CRANIUM.		FACE.				REMARKS.	
Standing.	Sitting.	Length.	Breadth.	Length.	Upper Face Length.	Breadth.	Interocular Breadth.		
NOSE.		Height of Head.	Height of Cranium.						
Length.	Breadth.								

* In the original schedule the figures of the noses are inserted here—these are Nos. 1-5 of Fig. 9, p. 91.

eye to that of the other, to the under part of the chin. Should there be two furrows, as is often the case, measure from between them.*

"Upper Face Length.—From root of nose to the interval between the two central front teeth at their roots.

"Face Breadth.—Maximum breadth of face between the bony projections in front of the ears.

"Inter-ocular Breadth.—Width between the internal angles of the eyes. While this is being measured the subject should shut his eyes.

"Bigonial Breadth.—Breadth of face at the outer surface of the angles of the lower jaw below the ears.

"Nose Length.—From the furrow at root of nose to the angle between the nose and the upper lip in the middle line.*

"Breadth of Nose.—Measured horizontally across the nostrils at the widest part, but without compressing the nostrils.

"Height of Head.—The head should be so held that the eyes look straight forward to a point at the same level as themselves, *i.e.*, the plane of vision should be exactly horizontal. The rod of the Anthropometer should be held vertically in front of the face of the subject, and the upper straight arm should be extended as far as possible and placed along the middle line of the head; the shorter lower arm should be pushed up to the lower surface of the chin. When measured with the square the depending bar must be held vertically in front of the face (with the assistance of the spirit-level or plumb-line), and the small set-square passed up this arm from below in such a manner that its horizontal upper edge will come into contact with the

* See special instructions for taking nasal measurements, pp. 457, 458.

lower contour of the chin. The distance between the lower edge of the horizontal bar of the square and the upper edge of the set-square can be read off, and this will be the maximum height of the head.

"Height of Cranium.—The head being held in precisely the same manner as in measuring the height of the head, the instrument is rotated to the left side of the head, its upper bar still resting on the crown and the recording arm (or the set-square) is pointed to the centre of the line of attachment of the small projecting cartilage in front of the ear-hole."

NOTE.—It is essential that these rules should be strictly followed in order to secure accuracy. All measurements must be made in millimetres. If possible, the subject's weight should be obtained, and recorded in the place set apart for remarks. The observer is recommended to procure 'Notes and Queries on Anthropology,' 2nd edition, from the Anthropological Institute, 3, Hanover Square, London, W. Net price, 3s. 6d.

I have printed the schedule verbatim, with the exception of the addition of the line relating to the length of time the subject's mother's people have resided in that particular district.

The vagueness of the question, "What district do your father's (or mother's) people come from?" is better for our purpose than any more precise question would be, as it gives us just the information we require. For example, if with specious exactitude we asked a subject where he was born, and he replied "Cambridge," then where his parents were born, it

might be "Cambridge" for both; whereas his grandparents, on both sides, might have been North-country folk, and their forbears for many generations back. Now mere residence in Cambridge for two generations would not alter a Northumberland and Durham ancestry, provided, as we assume in this case, that no local intermixture had taken place. People usually know, in a general sort of way, where their "people" lived some generations ago, and our apparently vague question gets directly at this information.

The "surname of your father" is generally a superfluous question, but owing to some local peculiarities of naming people it is as well to retain it.

The schedule is printed on paper of foolscap size, with the observations on one side and the directions on the other. These are cumbersome in the field, and as field-work should be undertaken only by those who have already had some experience, or, at all events, by those who have mastered the technique, there is no need to issue the instructions on each sheet. I would therefore suggest that cards be employed about 6 inches in length and 4 inches in breadth, which might be printed as follows:—

No.

Date,

Locality,		County,			
Name,					
Occupation,		Age,			
Birthplace,					
What district do your Father's people come from?					
What district do your Mother's people come from?					
Skin—Pale, Ruddy, Dark; Freckled, ..					
Hair { Red, Fair, Brown, Dark, Jet Black, Straight, Wavy, Curly, ..					
Eyes { Blue, Grey; Green, Hazel; Brown Light; Medium; Dark					
Face { Long, Narrow; Medium; Short, Broad Cheek-bones—(1) inconspicuous, (2) prominent, ..					
Ears { A, flat; B, outstanding, Lobes—(1) absent, (2) present, ..					
Nose—Length, ..		Breadth, ..	Profile, ..		
Head—Length, ..		Breadth, ..	Height, ..		
Face, ..	Length.	Upper Face Length.	Breadth.	Inter-ocular Breadth.	Bigonial Breadth.
Auricular sulci, ..		Alveolar, ..	Nasal, ..	Alveolar, ..	
Height, standing, ..		Height sitting, ..	Weight, ..		
Hand, ..		Forearm, ..	Span, ..		
Cephalic Index,		Total Facial Index, ..			
Length—Height Index, ..		Upper Facial Index, ..			
Breadth—Height Index, ..		Nasal Index,			

Similar schedules to these, but with the addition of some physical tests and with some minor alterations, are in use in the Anthropological Laboratory of the Cambridge Philosophical Society, and in that of Trinity College, Dublin.

In Cambridge the head height from the level of the ear-hole is alone taken; for field-work it is advisable, if possible, to take the total height of the head as detailed in the schedule.

Head Measurements.—The height of the cranium is the same as the altitudinal auricular radius of the card used in Ireland. The schedule explains how this may be obtained by projection, as it is termed: but in Ireland we use a modification of Busk's craniometer that was introduced by Professor Cunningham,* by means of which we take the radii from the level of the ear-holes to the greatest vertical height of the head, to the nasion, and to the insertion of the upper front teeth in the gums (alveolus). This instrument is very convenient to use, and gives accurate measurements; it is made so as to take to pieces, and is therefore quite portable. A further advantage is that analogous measurements can be made on skulls—the disadvantage is the dislike some people have to anything being inserted in their ears. An extended experience in Ireland shows that very few refuse

* C. R. BROWNE, "Some new Anthropometrical Instruments," *Proc. Roy. Irish Acad.* (3), ii., 1892, p. 397.

point blank to the instrument being used, and most make no objection whatever.

There is no need for me to say more about the cephalic index or the method of obtaining it; but it is desirable that the question should be determined of the ratio of the cephalic index (that is the index of the living head) to the cranial index (or the index of the skull). This matter has received the attention of many anthropologists, and has recently been discussed by Dr. W. Z. Ripley.* Most anthropologists follow Broca, and add two units to the cranial index to obtain the cephalic index; thus a skull having a length-breadth index of 78 would correspond to a cephalic index of 80 in the living subject. Tappeiner, in the Tyrol, finds differences from 1 to 5 units; Mantegazza allows 3 units; Zampa allows 2.5 units; Boas allows 1.4 for American Indians; Livi allows 1.3 for Italians; Mies allows 1.11 for men, and .85 for women, with a tendency to increase among brachycephals; Topinard allows $\frac{1}{3}$ of a unit; Weisbach and Zuckerhandl allow only $\frac{1}{10}$ of a unit; whereas Virchow says no correction is needed as the two are practically equal. Ripley believes that the difference is nearer 1.5 than 2 units.†

The German system of craniometry, taken as it

* WILLIAM Z. RIPLEY, "Notes et Documents pour la Construction d'une Carte de l'Indice Céphalique en Europe," *L'Anthropologie*, vii, 1896, p. 513.

† *Lc.*, p. 519.

is from an artificial base, does not correspond to the maximum length as taken directly by French, English, and American anthropologists, and so tends to increase the length-breadth index (by diminishing the length) as compared with the French.

To reduce the German ratio to that of the French one unit must be added to the German cranial indices (as, for example, in the measurements of Frisian crania made by Virchow and by Broca). If two units be added to the French cranial index to obtain the cephalic index, only one unit must be added to the German cranial index to make it correspond with the French cephalic index; but owing to his special methods Welcker's indices average, as Ripley* points out, two units below other German indices.

About the same time that Ripley had come to the foregoing conclusion Dr. Ammon† published a paper on the same subject, as the result of a very careful inquiry. As this is an important matter, I give Ammon's conclusions for the convenience of those who may wish to correlate the cranial measurements made by the two chief Continental schools.

"*Length*.—To obtain the French length from German measurements add 1 mm. to the brachycephals (80-84.9) and hyperbrachycephals (85-89.9); 1.1 mm. to the mesaticephals (75-79.9) and ultra-brachycephals (90-94.9); 1.5 mm. to

* *I.c.*, p. 520.

† OTTO AMMON, "La Corrélation entre l'indice céphalométrique de Broca et celui d'Ihéring," *L'Anthropologie*, vii., 1896, p. 676.

the dolichocephals (70-74.9), and 1.4 mm. to the extreme brachycephals (95-100).

"*Breadth*.—Identical in both methods.

"*Index*.—The French index is obtained by deducting half a unit from the German index; or to be more exact, deduct .6 from the dolichocephals and .7 from the extreme brachycephals instead of .5.

"Inversely to transform the numbers obtained according to the French method into those of the German method, one must deduct 1 mm. from the length, &c., and add .5 to the index."

Collignon points out* that one is too apt to attach to the terms dolichocephaly and brachycephaly a concrete sense which they should not have.

Thus a human variety may by the proportions of the body and its members and by the characters of the face and the length of the skull, manifestly resemble a dolichocephalic race and yet have a cephalic index of 81 or 82. Or another variety may have a long and broad body, short legs, a low flat face and short head, and other characters of a brachycephalic people and yet have a narrow head, giving an index of 78 or 79. Collignon would respectively allocate these aberrant varieties to the dolichocephals and to the brachycephals respectively.

One knows that in a race as pure as possible there may be a range in the cephalic index of 13 units, that is to say a pure race having a mean index of 84 may normally vary between 78 and 90, and inversely a race

* *Mém. Soc. d'Anth. de Paris* (3), i., 1895, p. 23.

having a mean index of 77 may oscillate between 71 and 83.

There are thus normally, and without any foreign influences, some individuals of a brachycephalic race who may be relatively dolichocephals, and conversely there may be brachycephalic individuals in a dolichocephalic race.

When the mean antero-posterior diameter of the cranium exceeds 190 millim. in the living, the head should be considered as long, and the race to which it belongs is ranged as a whole in the great dolichocephalic group, rather than in the group of brachycephalic races. It will be noted that Collignon, for the sake of brevity of description, ignores a mesaticephalic group.

Collignon gives* the following examples:—

Dolichocephalic Populations.

	Head length.	Cephalic index.
80 Tunisians (Race of Djerid) . . .	194.4	... 73.8
41 Negroes of the Soudan . . .	195.5	... 74.5
100 Coast Tunisians . . .	194.9	... 76.1
20 Pure Arabs . . .	193.3	... 77.2
30 Mediterraneans . . .	195.8	... 78.3
100 Kymri (of France) . . .	193.1	... 79.7

Brachycephalic Populations.

50 Tunisians of Djerbah . . .	187.7	... 80.4
1045 Manche (N. France) . . .	188.3	... 83.0
960 Côtes-du-Nord („) . . .	187.2	... 83.6
100 Celts (of France) . . .	187.6	... 84.9

* *l.c.*, p. 24.

On page 77 of the same Memoir he suggests the index of 82 for the limit of dolichocephaly and brachycephaly in the living subject.

As these practical instructions are intended for ethnographical survey work in the field and not for craniological purposes, I will not give instructions for skull measurements, but will refer the reader to such works as Flower's *Osteological Catalogue* (Part I., "Man") of the Royal College of Surgeons (1879); Garson, in *Notes and Queries on Anthropology* (1892); Topinard's *Éléments d'Anthropologie générale* (1885); Broca's *Instructions crâniométriques* (1876); De Quatrefages et Hamy's *Crania Ethnica* (1882); Garson, "The Frankfort Craniometric Agreement, with Critical Remarks thereon," *Journ. Anth. Inst.*, xiv., 1884, p. 64; Schmidt's *Anthropologische Methoden* (Leipzig, 1888), and Macalister's *Anatomy*; Quain's *Anatomy*, &c. Professor Macalister is writing a book which will thoroughly cover this ground.

The only skull measurements I have referred to are the length, breadth, and height, and the two measurements required for the nasal index; the latter have been sufficiently described on p. 120. The length of the skull is taken by the French, English, and American anthropologists from the glabella (the middle-line between the brow-ridges), to the greatest diameter obtainable behind in the middle line; this gives the greatest obtainable mesial length. All

anthropologists take the greatest breadth wherever found above the levels of the ear-holes; care must be taken that the callipers are held at right angles to the median longitudinal (sagittal) line, and that the two ends of the callipers are at the same level. The height of the skull is the diameter between the basion (the middle point of the anterior edge of the foramen magnum) and the bregma (the point on the vertex where the frontal and interparietal sutures meet).

Nasal Measurements.—Dr. R. Collignon, who has paid more attention than any other anthropologist to the nasal index in the living, draws attention* to the great care that is required in taking the measurements, as, owing to the low units of the dimensions, even small differences in the method employed will lead to considerable differences in the results. The nasal index is an extremely delicate measurement, and it is only on account of its exceptional ethnological importance that it claims so much attention and trouble.

We have already seen that the index is the ratio of the maximum breadth of the base of the nose, that is of the wings of the nose, to its height, the latter being taken from the root to the point of insertion of the septum.

There is no difficulty about the first measurement,

* "La Nomenclature quinaire de l'indice nasal du vivant."—*Revue d'Anthropologie* (3), ii., 1887, p. 8.

except that care must be taken not to squeeze the wings and to guard against laughter, which often happens, and which gives a false platyrrhiny by the distension of the nostrils. Distension is also caused by breathing through the nostrils; this can be stopped by the subject keeping his mouth open.

The second measurement is less easy, and in certain cases is of extreme difficulty owing to an uncertainty in selecting the upper point of measurement.

Among the great majority of Europeans the condition does not exist; the origin of the root of the nose is generally seen at a glance with the greatest ease. It suffices to look at the face in profile, and to place one arm of the compass at the deepest point seen. But among the yellow or black races and among some Europeans it is by no means the same; the line of the forehead very often passes on to the nose in a regular curve, which does not present any change of direction. In this case, Topinard recommends that the subject should be looked at full face; usually one can distinguish a slight horizontal fold which is the desired spot; or by stroking vertically from above downwards upon the skin of the lower part of the forehead the fold is indicated in the great majority of cases with great clearness. This should be lightly marked with a pencil.

To recapitulate. In order to determine the height of the nose, stand to the right of the subject and look

at his profile; if the exact spot where the root begins is clear, place the lower arm of the sliding compass against the angle which the septum makes with the upper lip, without pressing it too much, and gently bring down the upper arm to the upper spot. If there is any doubt about the latter, press down the skin of the forehead with the left hand, always looking at the profile, so as to appreciate the change of direction which is produced, mark it, and proceed as above.

Instead of the ordinary sliding compass which may have sharp points, and which is usually difficult to use with precision for these measurements, Collignon for many years has employed a small, light, boxwood sliding compass, which can be obtained from any French shoemaker, and which costs only 1fr. 25c.

It cannot be too strongly insisted upon that the subject must be measured in profile, as a measurement taken in full face is nearly always erroneous.

One further detail must be added: It is necessary to hold the compass in the right hand, to apply first the lower arm against the septum and to hold it there, and to gently make the other arm descend to the upper point of measurement. If one proceeds in the inverse manner, starting from above and drawing the sliding arm towards the septum, one draws down the skin, and so a lower figure is obtained for the nasal height.

When possible, and always in those cases where

there is no doubt, the measurement should be read to half a millimetre.

The naso-malar index, which was introduced by Oldfield Thomas,* is a very important addition to facial measurements, as it indicates the amount of the projection of the bridge of the nose. The basal line (bi-malar line) is measured from the outer edge of each orbit, at a point on each side about 2 or 4 mm. below the fronto-malar suture in the skull, or from a corresponding point in the living. From these points another measurement is taken, this time with the tape, across the bridge of the nose—this is the naso-malar line. The difference in length between these two lines is due to the prominence of the bridge of the nose, the formula being:—

$$\frac{\text{Naso-malar line} \times 100}{\text{Bi-malar line.}} = \text{Index.}$$

The actual position of the two malar points is not very important, but great care must be taken that the two measurements are from exactly the same points, so it is well to mark them in the first instance.

This index is proving one of great importance, and it has the great advantage of being fairly comparable in the living and on skulls. Sir William Flower suggested to Mr. Risley that he should employ it in

* OLDFIELD THOMAS, "Account of a Collection of Human Skulls from Torres Straits," *Journ. Anth. Inst.*, xiv., 1885, p. 332.

India, and the former's prognostications as to its usefulness have been abundantly verified.

Risley* has proposed a modification of the classification adopted provisionally by Oldfield Thomas. I subjoin both of these :—

OLDFIELD THOMAS.		RISLEY.
— 107'5	Platyopic	— 109 9
107'5 — 110'0	Mesopic	110 — 112'9
110 +	Pro-opic	113 +

The size of the schedules issued by the Ethnographical Committee of the British Association and the numerous observations required have, it is feared, deterred many from undertaking this branch of the inquiry who might otherwise have been so disposed. The Committee, while urging that the full complement of observations should be taken whenever possible, would be pleased if the short list on the opposite page was filled up by observers all over the British Islands.

The circumference of the head is taken with a steel or linen tape graduated in millimetres (the latter can be obtained for 6*d.* each). The measurement is taken immediately above the eyebrows, beneath the ears, and round the greatest protuberance behind; the tape should be drawn as tightly as possible, care being taken to include as little hair as possible. This

* H. H. RISLEY, "The Study of Ethnology in India," *Journ. Anth. Inst.*, xx., 1891, p. 255.

*	†	†	†	†
Age				
District from which Father's people come				
District from which Mother's people come				
Hair				
Eyes				
Shape of Nose				
Head {	Length			
	Breadth			
	Index			
Nose {	Height			
	Breadth			
	Index			
Circumference of Head ...				
Stature				
Weight				

* This space can be utilized for the name of the locality where the observations are made.

† These spaces are for the names of the subjects.

Any additional information can be added underneath the "weight." The observer's name and address and the date should be written on the back or elsewhere.

is a difficult measurement to take on women's heads, but with care it can usually be done.

Most people have an idea of their weight, and it is generally possible for people to get themselves weighed without much difficulty. The weight should be reduced to pounds, and if not accurately made should be qualified by "about."

The following few hints for field-work may, perhaps, prove useful. Dr. Beddoe* writes:—

"I have spoken of the necessity and frequent difficulty of obtaining the consent of the owner of the head to be examined. His reluctance may sometimes be overcome by means of money, without going to the extent of the new hat always jocularly demanded in such cases. Sometimes other means have proved successful. I cannot resist detailing those by which I succeeded in obtaining a valuable series of head-measurements in Kerry. Our travelling party consisted of Dr. Barnard Davis, Dr. T. Wise, Mr. Windele, and myself. Whenever a likely little squad of natives was encountered the two archæologists got up a dispute about the relative size and shape of their own heads, which I was called in to settle with the callipers. The unsuspecting Irishmen usually entered keenly into the debate, and before the little drama had been finished were eagerly betting on the sizes of their own heads, and begging to have their wagers determined in the same manner."

Following the suggestion of Dr. Beddoe, when also in the West of Ireland, I told the natives that we had measured a number of people in Dublin, and we

* *The Races of Britain*, p. 8.

wanted to see who were the taller and who had the larger heads. Generally it is best to commence with the stature, as if it were wanted merely to find out who were the tallest men. Most people take a pride in having large heads, and so vanity paves the way for the cephalic measurements. The subject then becomes interested and amused, and the onlookers indulge in mild chaff, so that by one means or another not only can the above-mentioned measurements be taken, but others may be added. When the eye and hair colours and other physical features are noted, a very fair documental description of the individual has been secured. The subject is generally ready enough to be photographed, both full-face and side view, and a promise of a copy of his photograph will usually induce a recalcitrant person to submit to the entire operation.

Sometimes it will be found advantageous to explain why the measurements are wanted, on other occasions this would be useless. One old man who had never been photographed, and who had refused the earnest entreaties of his family to have his portrait taken, sat in a chair to be measured, and I took a front and side view of his face before he realized what had happened, and when he found out he was very pleased. Many are the devices that have to be adopted and varied the arguments employed to induce country folk to allow themselves to be measured.

PHOTOGRAPHY.

The following are the instructions issued by the Ethnographical Survey Committee with regard to photographing the typical inhabitants of a district:—

“Facial characteristics are conveniently recorded by means of photographs, taken in the three ways explained below. Amateurs in photography are now so numerous that it is hoped the desired materials may be abundantly supplied. At least twelve more or less beardless male adults and twelve female adults should be photographed. It will add much to the value of the portrait if these same persons have also been measured. The photographs should be mounted on cards, each card bearing the name of the district, and a letter or number to distinguish the individual portraits; the cards to be secured together by a thread passing loosely through a hole in each of their upper left-hand corners. Three sorts of portrait are wanted, as follows:—

“(a) A few portraits of such persons as may, in the opinion of the person who sends them, best convey the peculiar characteristics of the race. These may be taken in whatever aspect shall best display those characteristics, and should be accompanied by a note directing attention to them.

“(b) At least twelve portraits of the *left* side of the face of as many different adults of the same sex. These must show in each case the *exact* profile, and the hair should be so arranged so as to show the ear. All the persons should occupy in turn the same chair (with movable blocks on the seat, to raise the sitters' heads to a uniform height), the camera being fixed throughout in the same place. The portraits to be on such a scale that the distance between the top of the head and the bottom of the chin shall in no case

be less than $1\frac{1}{4}$ inch. Smaller portraits can hardly be utilized in any way. If the incidence of the light be not the same in all cases they cannot be used to make composite portraits. By attending to the following hints the successive sitters may be made to occupy so nearly the same position that the camera need hardly be refocussed. In regulating the height of the head it is tedious and clumsy to arrange the proper blocks on the seat by trial. The simpler plan is to make the sitter first take his place on a separate seat with its back to the wall, having previously marked on the wall, at heights corresponding to those of the various heights of head, the numbers of the blocks that should be used in each case. The appropriate number of the sitter is noted, and the proper blocks are placed on the chair with the assurance that what was wanted has been correctly done. The distance of the sitter from the camera can be adjusted with much precision by fixing a looking-glass in the wall (say five feet from his chair), so that he can see the reflection of his face in it. The backward or forward position of the sitter is easily controlled by the operator, if he looks at the sitter's head over the middle of the camera, against a mark on the wall beyond. It would be a considerable aid in making measurements of the features of the portrait, and preventing the possibility of mistaking the district of which the sitter is a representative, if a board be fixed above his head *in the place of his profile*, on which a scale of inches is very legibly marked, and the name of the district written. This board should be so placed as just to fall within the photographic plate. The background should be of a medium tint (say a sheet of light brown paper pinned against the wall beyond), very dark and very light tints being both unsuitable for composite photography.

"(c) The same persons who were taken in side face should be subsequently photographed in *strictly* full face. They

should occupy a different chair, the place of the camera being changed in accordance. Time will be greatly saved if all the side faces are taken first, and then all the full faces; unless, indeed, there happen to be two operators, each with his own camera, ready to take the same persons in turn. The remarks just made in respect to (*b*) are, in principle, more or less applicable to the present case; but the previous method of insuring a uniform distance between the sitter and the camera ceases to be appropriate.

"It is proposed that composites of some of these groups shall be taken by Mr. Galton, so far as his time allows."

Although it is advisable to adopt Dr. Francis Galton's suggestions, useful photographs can be obtained by having the lens of the camera on a line with the centre of the head, and by taking care that the sitter sits squarely in front or presents a true profile. It is important to provide oneself with a soft, neutral-coloured background which can be rolled up for transport.

In order to get reliable data it is necessary to have a large number of workers in every part of the country. This is work which might well be undertaken by field clubs and other local societies; and I would also like to suggest that the local photographic societies should encourage the photographic record by their members of all local objects and customs that have any anthropological or ethnographical interest, not omitting field portraits of typical inhabitants. There is so much to do, and so much

is fast disappearing, that we require the assistance of as many societies and isolated workers as possible.

In order that the work done may be known to the Committee and a record of it filed for the use of students, all the completed schedules, or the published papers based thereon, and a copy of the photographs should be sent to the secretary, who will eventually deposit them in an institution where they will be accessible to all students.

II.—INSTRUCTIONS FOR THE COLLECTION OF FOLK-LORE.

Folk-lore is now a well-defined study, but there is still considerable ignorance in many minds concerning the subjects which are investigated, the methods of study, and the objects of these researches.

Everywhere, and at all times, man has "attempted to explain the natural phenomena surrounding and affecting him. When such explanations are universally or generally accepted by any tribe or people they constitute the mythology and to some extent the religious beliefs of such tribe or people."*

Man is naturally profoundly affected and even modified by his environment; the physical conditions of his country and climate, the nature of the vegetation and of the animal life around him all leave

* G. L. GOMME, *The Handbook of Folk-lore*, 1890, p. 1.

an impress on his character. The friendly as well as the inimical relations between man and man have given rise to rules to govern conduct and intercourse, and these have crystallized into custom.

When man changes from one condition to another he still clings to his old beliefs and customs, and should these in process of time cease to be as binding to him or as sacred as they were in the olden time, the memories of them will be preserved and related to the rising generation, to be again narrated to future generations. But in all civilized races there are less cultured people who have lagged behind in the march of civilization and who still retain a greater or less amount of belief in the ancient traditions, and who practise old customs though it be but in an attenuated manner; these are the "folk," and it is their "lore" which is the subject of inquiry. In other words, it is a study of "survivals" or "relics of an unrecorded past." "Folk-lore contains the survivals of the oldest and rudest culture of man."*

The method of the study is the careful collection, "comparison and identification of the survivals of archaic beliefs, customs, and traditions in modern ages."

The object of the study of folk-lore is to increase our knowledge about ourselves. The vast bulk of the materials of folk-lore date from the prehistoric period

* G. L. GOMME, "Presidential Address," *Folk-lore*, ii., 1891, p. 9.

before knowledge was committed to writing, and when it could only be perpetuated orally. As Mr. Hartland has said,* "To this mode of preservation and communication, as well as to the things thus preserved and communicated, the name of tradition is given, and folk-lore is the science of tradition."

The study of folk-lore is not unlike that of vertebrate palæontology. The palæontologist comes across remains which are usually very imperfect; by careful comparison with other fossils and with recent animals he can approximately, and sometimes almost perfectly, recover the form of the extinct animal. In some cases it will be found to exactly resemble a living animal; in others it will be different. This also is the method of the folk-lorist; he checks his survivals by comparisons with the living beliefs and customs of savages, and the resemblances far outnumber the discrepancies. One might almost define folk-lore as "psychical palæontology."

The range of subjects comprised under folk-lore is very considerable; superstitions connected with natural objects, goblinism, witchcraft, leechcraft, magic and divination, beliefs relating to a future life, and superstitions generally, may be classed under *Superstitious belief and practice*. Festival customs, ceremonial customs, games, and local customs are

* Report of a lecture in the *Gloucestershire Chronicle*, March 27th, 1897.

grouped as *Traditional customs*. *Traditional narratives* include hero-tales or sagas, which sometimes degrade into nursery tales or Märchen; drolls, fables, and the like; myths of creation, deluge, fire, and doom; ballads and songs; place legends and traditions. Lastly, *Folk-sayings* comprise jingles, nursery rhymes, riddles, proverbs, nicknames, and place-names.

A general idea of the scope of folk-lore will be found in an excellent little book by Miss Marian Roalfe Cox, entitled *An Introduction to Folk-lore*.

The following is the schedule that is issued by the Ethnographical Survey Committee:—

"Place..... Name of Observer.....

"CURRENT TRADITIONS AND BELIEFS.

"*Folk-lore*.

"Every item of Folk-lore should be collected, consisting of customs, traditions, superstitions, sayings of the people, games, and any superstitions connected with special days, marriages, births, deaths, cultivation of the land, election of local officers, or other events. Each item should be written legibly on a separate piece of paper, and the name, occupation, and age of the person from whom the information is obtained should in all cases be carefully recorded. If a custom or tradition relates to a particular place or object, especially if it relates to a curious natural feature of the district, or to an ancient monument or camp, some information should be given about such place or monument. Sometimes a custom, tradition, or

superstition may relate to a particular family or group of persons, and not generally to the whole population; and, in this case, care should be exercised in giving necessary particulars. Any objects which are used for local ceremonies, such as masks, ribbons, coloured dresses, &c., should be described accurately, and, if possible, photographed; or might be forwarded to London, either for permanent location, or to be drawn or photographed. Any superstitions that are believed at one place and professedly disbelieved at another, or the exact opposite believed, should be most carefully noted.

"The following questions are examples of the kind and direction of the inquiries to be made, and are not intended to confine the inquirer to the special subjects referred to in them, nor to limit the replies to categorical answers. The numbers within brackets refer to the corresponding articles in the *Handbook of Folk-lore* (published by Nutt, 270, Strand, London).

- (4) Relate any tradition as to the origin of mountains or as to giants being entombed therein.

Are there any traditions about giants or dwarfs in the district? Relate them.

Is there a story about a Blinded Giant like that of Polyphemus?

- (13) Describe any ceremonies performed at certain times in connection with mountains.
- (16) Relate any traditions or beliefs about caves.
- (19) Are any customs performed on islands not usually inhabited? Are they used as burial places?
- (25) Describe any practices of leaving small objects, articles of dress, &c., at wells.
- (29) Are there spirits of rivers or streams? Give their names.
- (32) Describe any practices of casting small objects, articles of dress, &c., in the rivers.

- (33) Are running waters supposed not to allow criminals or evil spirits to cross them?
- (39) Describe any customs at the choosing of a site for building, and relate any traditions as to the site or erection of any building.
- (42) Is there a practice of sprinkling foundations with the blood of animals, a bull, or a cock?
- (43) Does the building of a house cause the death of the builder?
- (48, 49, 50) Relate any traditions of the sun, moon, stars.
- (62) Describe the customs of fishermen at launching their boats.
- (63) Give any omens believed in by fishermen.
- (66) Is it unlucky to assist a drowning person?
- (84) What ceremonies are performed when trees are felled?
- (85) Describe any custom of placing rags and other small objects upon bushes or trees.
- (86) Describe any maypole customs and dances.
- (87) Describe any customs of wassailing of fruit trees.
- (90) Are split trees used in divination or for the cure of disease?
- (98) Describe any ceremonies used for love divination with plants or trees.
- (105) Describe the garlands made and used at ceremonies.
- (110) What animals are considered lucky and what unlucky to meet, come in contact with, or kill?
- (132) Describe any customs in which animals are sacrificed, or driven away from house or village.
- (133) Describe customs in which men dress up as animals.
- (137) Give the names of the local demons, fairies, pixies, ghosts, &c. Have any of them personal proper names?
- (139) Their habits, whether gregarious or solitary. Do they use special implements?

- (140) Form and appearance, if beautiful or hideous, small in stature, different at different times.
- (144) Character, if merry, mischievous, sulky, spiteful, industrious, stupid, easily outwitted.
- (145) Occupations, music, dancing, helping mankind, carrying on mining, agricultural work.
- (146) Haunts or habitations, if human dwellings, mounds, burrows, mines, forests, boggy moorlands, waters, the underworld, dolmens, stone circles.
- (190) Give the details of any practices connected with the worship of the local saint.
- (191) Are sacrifices or offerings made to the local saint, on what days, and when?
- (192) What is the shrine of the local saint?
- (210) Witchcraft. Describe minutely the ceremonies performed by the witch. What preliminary ceremony took place to protect the witch?
- (294) Are charms used to find evil spirits and prevent their moving away?
- (295) Are amulets, talismans, written bits of paper, gestures, &c., used to avert evil or to ensure good? If so, how, when, where?
- (297) Are skulls of animals, or horses, or other objects hung up in trees, to avert the evil eye and other malign influences?
- (298) What methods are employed for divining future events? What omens are believed in?
- (353) What superstitions are attached to women's work as such?
- (356) Are women ever excluded from any occupations, ceremonies, or places?
- (358) What superstitions are attached to the status of widowhood?
- (366) Are particular parts of any town or village, or particular sections of any community, entirely occupied in one trade or occupation?

- (368) Have they customs and superstitions peculiar to their occupation?
- (369) Do they intermarry among themselves, and keep aloof from other people?
- (373) Have they any processions or festivals?
- (422) What parts of the body are superstitiously regarded?
- (432) Are bones, nails, hair, the subject of particular customs or superstitions; and is anything done with bones when accidentally discovered?
- (436) Is dressing ever considered as a special ceremonial; are omens drawn from accidents in dressing?
- (452) Are any parts of the house considered sacred?
- (453) Is the threshold the object of any ceremony; is it adorned with garlands; is it guarded by a horseshoe or other object?
- (454) Are any ceremonies performed at the hearth; are the ashes used for divination; is the fire ever kept burning for any continuous period?
- (456) Is it unlucky to give fire from the hearth to strangers always, or when?
- (467) Is there any ceremony on leaving a house, or on first occupying a house?
- (509) What are the chief festivals, and what the lesser festivals observed?
- (515) Explain the popular belief in the object of each festival.
- (516) Describe the customs and observances appertaining to each festival.
- (540) When does the new year popularly begin?
- “State the superstitions or legends known to attach to—
- (a) Halloween (both old and new styles).
 - (b) May Eve.
 - (c) Midsummer Day, and St. John's Eve.
 - (d) Lammas, or August 1.
 - (e) New Year's Day.
 - (f) Christmas.

"Is there any superstition as to the first person who enters a house in the New Year? Is stress laid upon the colour of complexion and hair?

- (567) What are the customs observed at the birth of children?
- (588) Describe the ceremonies practised at courtship and marriage.
- (623) Describe the ceremonies at death and burial.
- (669) Describe any games of ball or any games with string, or other games.
- (674) Describe all nursery games of children.
- (686) Is there any special rule of succession to property?
- (703) Is any stone or group of stones, or any ancient monument or ancient tree connected with local customs?
- (706) Are any special parts of the village or town the subject of particular rights, privileges, or disabilities; do these parts bear any particular names?
- (711) Describe special local modes of punishment or of lynch law.
- (719) Describe special customs observed at ploughing, harrowing, sowing, manuring, haymaking, apple gathering, corn harvest, hemp harvest, flax harvest, potato gathering, threshing, flax picking, and hemp picking.

"The collections under this head will be digested by Professor Rhys and the representatives of the Folk-lore Society."

Miss Burne * has such an honourable reputation as a collector of folk-lore that I cannot do better than reprint some of her valuable advice :—

"To begin with, we need a careful geographical examination of the habitats and boundaries of the various items of English folk-lore, such as the English Dialect Society has

* CHARLOTTE S. BURNE, "The Collection of English Folk-lore," *Folk-lore*, i., 1890, p. 313.

made and is making of dialectal boundaries. The results which may be expected from the comparison of such a record of English folk-lore, with evidence obtained from other lines of study, seem to open a vista of possible discovery. There is nothing like speaking from experience, so I will illustrate my meaning from personal knowledge.

"It is generally customary in England to hire farm servants by the year, but the hiring-time varies in different places. In North-east Shropshire the hiring-time is Christmas; in South-west Shropshire it is May. I took great pains to pick out the boundary line between these two customs, market-town by market-town, and almost village by village, and I found it coincide almost exactly with the boundary line of the change of dialect between North-east and South-west, which is very marked; and very fairly also with the boundary between the diocese of Lichfield (the ancient Bishopric of the Mercians) on the North-east, and the Welsh diocese of St. Asaph and the diocese of Hereford (the old kingdom of the Hecanas or Magesætas) on the South-west.* Moreover, the South-western custom of hiring prevails over a considerable part of North Wales, while hiring at Christmas prevails in Cheshire and North Staffordshire.

"Again, 'souling,' or begging for apples, on the eve of All Souls' Day (November 1st), is a common custom in that part of Shropshire where Christmas hirings occur, and in North Staffordshire; but in South Staffordshire I believe the same custom is, or was, observed not on All Souls' but on St. Clement's Eve (November 21st). Once more: in South Staffordshire and in South Shropshire, as far north as Shrewsbury, Mothering Sunday is known, if not observed; but I have never met with anyone in the north of either county who had heard of it. If such boundaries were

* For a similar case of diocesan boundaries coinciding with tribal frontiers, see p. 139 *ante*.

mapped out over the whole of England, and compared with other evidence, they would almost certainly yield valuable historical and ethnological results.

"It is comparatively easy to pick out the boundaries of a custom, but very difficult to discover those of a superstitious opinion. Curious bits of superstition and 'luck' may be carried about the country in so many ways, to so many unexpected places, in a manner that would be impossible to a popular custom. You perhaps come across some old woman who strongly objects to your bringing, it may be, snowdrops, or catkins, or perhaps hawthorn, into her house, while her neighbours are not in the least offended by it. Now she *may* be the sole surviving depositary of a genuine piece of local folk-lore, or she *may* be following the instructions of a grandmother who came from the other end of England, and she may be quite unable to tell you how she acquired her views on the subject. In many cases, I think, the collector can do no more than set down the name of the place where, or the informant from whom, he obtained the several items, without committing himself to any statement as to how far they are universal or not.

"Negative evidence, again, is most difficult to obtain, but valuable in proportion to the difficulty of proving the negative. In fact, it can only be proved (as it has been remarked to me) if a collector gets hold of a thorough believer in the superstitions of his locality, and can find out if there are any other superstitions of other localities which he decidedly does *not* believe in, any that he laughs at, any that he looks upon as stupid or 'superstitious,' while his own belief, of course, is not 'superstitious'!

"For myself," continues Miss Burne, "I have not found the English poor *laugh* at superstitions they are not acquainted with, unless they are, as many are, superior to superstition in general. They do not get farther than a slow,

grave remark, 'No, I niver heered *that*. I shouldna think as there can be anything in *that*. Now, as to (so and so), *that's* true, *that* is. For my gronfayther knowed a mon . . . ' et cetera! But it is beyond question that to ascertain what a superstitious man does *not*, is quite as valuable for our purpose as to learn what he *does* know. Even then the collectors should not be too hasty in drawing conclusions. The information he fails again and again to obtain may some day crop up quite unexpectedly at his very doors.

"The ideal of geographical collection would be reached if a number of collectors would undertake definite areas adjoining each other—say, for instance, the several hundreds of a county—would set down what is known, and what, after every possible inquiry, is *not* known there, and would then compare results."

Miss Burne next discusses the question of the relations between folk-lore and history. "The early history of every nation is dependent on oral tradition, not on written records, and so is open to doubt. But the questions, *How much* dependence may be placed upon tradition? and *How long* the remembrance of an event may be preserved among unlettered people? are by no means unimportant." She gives several examples, and comes to the conclusion that the folk, even in England, *do* preserve some memory of historical events for three or even four centuries.

The consideration of the influence of folk-lore on history naturally leads to the subject of the influence of history on folk-lore. Miss Burne instances the

common Mummers' Play, which "comes to us like a traveller from a journey, laden with curiosities collected by the way."

A custom may die out in one parish and take a new lease of life in another owing to purely local and temporary causes.

Miss Burne gives very valuable advice in the personal collecting of English folk-lore.

"If you wish to understand folk-lore you must learn to understand the folk. You must know what the folk think, and how they act on subjects such as folk-lore touches, and observe how their minds form the natural background to the superstitions they act on, the customs they practise, the tales they tell."

She gives numerous interesting examples of the mental attitude of the folk.

Lastly, Miss Burne gives some very useful hints about the actual work of collecting.

"The best collecting is that which is done by accident, by living among the people and garnering up the sayings and stories they let fall from time to time. But one can hardly make a complete collection, even within a limited area, in this way, and deliberate search is therefore necessary. One needs first to know where to look, and the educated people of the neighbourhood cannot always help one. Too often the collector is met with the dignified repulse, '*Our* people are not superstitious, I am glad to say'; and it is not given to everyone to be able to confute the assertion, as the Rev. Elias Owen, in a paper on 'Montgomeryshire Super-

stitutions,* relates that he once did. His errand in the parish where it was made was to inspect the schools, and at the close of his examination he asked the first class, 'Now, children, can you tell me of any place where there is a *buggan*' (a ghost or bogey) 'to be seen, or of anyone who has ever seen one?' Instantly every hand in the class was stretched out, and every child had a story to tell. He then asked, 'Which of you can tell me of a cure for warts?' with like results, greatly to the discomfiture of his friend the clergyman, who had fondly imagined there was no superstition in his parish! The clergy are very liable to this illusion, because the people are apt to keep superstition out of their way, which in itself is a not uninstructional folk-lore item. Lawyers, doctors, and especially land agents and gentlemen-farmers are often much better able to help than are the clergy.

"When visiting a strange place with the set purpose of personal collecting, the best way of beginning is, perhaps, to get the parish clerk or sexton to show the church, and then to draw him out on bell-ringing and burying customs, and to obtain from him the names of the 'oldest inhabitants' for further inquiry. Failing the sexton, the village inn-keeper might be a good starting-point. Then a visit may be paid to the school in the mid-day 'recess,' and the children may be bribed to play all the games they know. Possibly some bits of local legend may be gleaned from them as a foundation for future inquiries.

"Old household or family customs are best preserved in solitary farmhouses, especially if tenanted by the same family for several generations. But it is a mistake to think that a very remote and thinly populated parish will necessarily yield more folk-lore of all kinds than another. A scanty stay-at-home population does not preserve legends

* *Montgomeryshire Collections*, xv., part i., p. 135.

well, and has not *esprit de corps* sufficient for the celebration of public customs. A large village, or a market-town quite in the country, is generally the best place to find these; and the 'lowest of the people'—the chimney-sweepers, brick-makers, besom-makers, hawkers, tinkers, and other trades in which work is irregular—are those who keep up old games, songs, dances, and dramatic performances. Most villages have their doctress, generally an intelligent old woman, who, nevertheless, mixes something of superstition with her remedies.

"Superstitious opinions, though they flourish most, of course, among the lower classes, cannot well be collected direct from them, because they really do not understand what superstition is, and cannot, as they say, 'make out what the gentleman is driving at.' They must be inquired for among the class of small employers, who have a little more cultivation than their workpeople, but yet live on terms of sufficient familiarity with them to know their ideas thoroughly and to share a good many of them! A little patient effort will in all probability enable the collector to make the acquaintance of some old grandfather or grandmother of this class, who, sitting in the chimney-corner of some old-fashioned kitchen, loves nothing better than to pour out tales of 'old times.' Here is the collector's opportunity! . . . They are excellent company, these old people! if one can but get them to talk of their past lives, and not of their present ailments; and they are dying around us every day, and their traditions are dying with them, for they have left off transmitting them to their children. If the folk-lore of England is not recorded soon it will never be recorded at all, for these 'foot-prints in the sands of time' are fast being trampled out by the hurrying feet of the busy multitudes of the Present."*

* *I.c.*, p. 330.

The need for recording all local folk-lore is very pressing. In some districts, as in the Lincolnshire Cars, much still remains, as has been sympathetically recorded by Mrs. M. C. Balfour.*

"With the barren Cars of the older times is connected a peasantry that is changing as the soil itself has changed, only more gradually, for the sluggish current of their life and habit is but slowly beaten back by the impetus of modern innovations. . . . It seems as if it were off the high-road, so to speak, of busy modern English life; in these days of depression amongst farmers, and of absentee landlords, it is visited by few strangers; and the only resident upper class is represented by the clergy and a very mixed set of tenant-farmers, who, in trouble themselves, generally care little for the people under them, except as regards their work and pay.

"This is, I dare say, unavoidable; but it throws the people back on themselves, and accounts, no doubt, for the survival of much amongst them which has decayed elsewhere. Even their speech sounds strange to a modern English ear, for it is almost pure Saxon, and keeps many of the original inflexions which we have lost.

"The people themselves are not easy to make friends with, for they are strongly suspicious of strangers; but once won over, are said to be staunch and faithful . . . and intensely averse to change or innovation of any sort; many of them live and die within the limits of a narrow parish, outside of which they never set foot. The younger generations are changing; but they show less disbelief in the old legends than indifference to them; they seem growing, not so much less superstitious, as less impressionable. But in some of the old people there is still a simple serious faith that is delight-

* "Legends of the Cars," *Folk-lore*, ii., 1891, p. 147.

ful, and I do not think that elsewhere in England one could nowadays find such a childlike certainty of unseen things or such an unquestioning belief in supernatural powers. . . . It is not easy, in so short a notice, to present vividly the curious mixture of rusticity and savagery, of superstition and indifference, of ignorance and shrewdness, which is found in these peasants. . . . The old and simple heathendom still lay untouched, though hidden, below successive varnishes of superstition, religion, and civilization.”*

Dr. Douglas Hyde,† the poet who has the love of the old Ireland within him, writes :—

“Such myth stories as these ought to be preserved, since they are about the last visible link connecting civilized with prehistoric man, for, of all the traces that man in his earliest period has left behind him, there is nothing except a few drilled stones or flint arrow-heads that approaches the antiquity of these tales, as told to-day by a half-starving peasant in a smoky Connacht cabin.

“It is time to say a word about the narrators of these stories. The people who can recite them are, as far as my researches have gone, to be found only among the oldest, most neglected, and poorest of the Irish-speaking population. English-speaking people either do not know them at all, or else tell them in so bald and condensed a form as to be useless. Almost all the men from whom I used to hear stories, in the county Roscommon, are dead. Ten or fifteen years ago I used to hear a great many stories, but I did not understand their value. Now, when I go back for them, I cannot find them. They have died out, and will never again

* *Ibid.*, p. 257.

† DOUGLAS HYDE, *Beside the Fire, a collection of Irish Gaelic Folk Stories*, 1890, p. xli.

be heard on the hillsides, where they probably existed for a couple of thousand years; they will never be repeated there again, to use the Irish phrase, 'while grass grows or water runs.' One old man 'had at one time,' as he expressed it, 'the full of a sack of stories,' but he had forgotten them. His grandchildren stood by his knee while he told me one or two, but it was evident they did not understand a word (as he was telling the stories in Irish). His son and daughter laughed at them as nonsense. Even in Achill, where, if anywhere, one ought to find folk-stories in their purity, a fine-looking dark man of about forty-five, who told me a number of them, and could repeat Ossian's poems, assured me that now-a-days when he went into a house in the evening, and the old people got him to recite, the boys would go out; 'they wouldn't understand me,' said he, 'and when they wouldn't, they'd sooner be listening to the lowing of the cows.' This, too, is an island where many people cannot speak English."

Hyde reminds us that at the time of the famine in '47, this pure Aryan language (Irish) was spoken by at least four million souls (more than the whole population of Switzerland), and it promises in a few years to become as extinct as Cornish.

Hyde* gives the following valuable advice as to collecting folk-tales in Ireland:—

"I may mention here that it is not as easy a thing as might be imagined to collect Irish stories. One hears that tales are to be had from such and such a man, generally, alas! a very old one. With difficulty one manages to find him out, only to discover, probably, that he has some work

* *L.c.*, p. xlv.

on hand. If it happens to be harvest time it is nearly useless going to him at all, unless one is prepared to sit up with him all night, for his mind is sure to be so distraught with harvest operations that he can tell you nothing. If it is winter time, however, and you fortunately find him unoccupied, nevertheless, it requires some management to get him to tell his stories. Half a glass of *ishka-baha*, a pipe of tobacco, and a story of one's own are the best things to begin with. If, however, you start to take down the story *verbatim*, with pencil and paper, as an unwary collector might do, you destroy all, or your shanachie becomes irritable. He will not wait for you to write down your sentence, and if you call out, 'stop, stop, wait till I get this down,' he will forget what he was going to tell you, and you will not get a third of his story, though you may think you have it all. What you must generally do is to sit quietly smoking your pipe, without the slightest interruption, not even when he comes to words and phrases which you do not understand. He must be allowed his own way to the end, and then, after judiciously praising him and discussing the story, you remark, as if the thought had suddenly struck you, 'I'd like to have that on paper.' Then you can get it from him easily enough, and when he leaves out whole incidents, as he is sure to do, you, who have just heard the story, can put him right, and so get it from him nearly in its entirety. Still it is not always easy to write down these stories, for they are full of old or corrupted words, which neither you nor your narrator understand, and if you press him too much over the meaning of these he gets confused and irritable."

This and the two following schedules complete the set issued by the Ethnographical Survey Committee.

"Place Name of Observer

"PECULIARITIES OF DIALECT.

"Directions to Collectors of Dialect Tests.

"1. Do not, if it can be helped, let your informant know the nature of your observations. The true dialect speaker will not speak his dialect freely or truly unless he is unaware that his utterance is watched. In some cases persons of the middle class can afford correct information, and there is less risk in allowing them to know your purpose.

"2. Observe the use of consonants. Note, for example, if *v* and *z* are used where the standard pronunciation has *f* and *s*. This is common in the south.

"3. Observe very carefully the nature of the vowels. This requires practice in uttering and appreciating vowel sounds, some knowledge of phonetics, and a good ear.

"4. Record all observations in *the same* standard phonetic alphabet, viz., that given in Sweet's *Primer of Phonetics*. A few modifications in this may be made, viz., *ng* for Sweet's symbol for the sound of *ng* in *thing*; *sh* for his symbol for the *sh* in *she*; *ch* for his symbol for the *ch* in *choose*; *th* for the *th* in *thin*; *dh* for the *th* in *then*. If these modifications are used, say so. But the symbol *j* must only be used for the *y* in *you*, viz., as in German. If the sound of *j* in *just* is meant, Sweet's symbol should be used. On the whole it is far better to use no modifications at all. Sweet's symbols are no more difficult to use than any others after a very brief practice, such as every observer of phonetics must necessarily go through.

"5. If you find that you are unable to record sounds according to the above scheme it is better to make *no return at all*. Incorrect returns are misleading in the highest degree, most of all such as are recorded in the ordinary spelling of literary English.

"6. The chief vowel-sounds to be tested are those which occur in the following words of English origin, viz., *man, hard, name, help, meat* (spelt with *ea*), *green* (spelt with *ee*), *hill, wine, fire, soft, hole, oak* (spelt with *oa*), *cool, sun, house, day, law*, or words involving similar sounds. Also words of French origin, such as *just, master* (*a* before *s*), *grant* (*a* before *n*), *try, value, measure, bacon, pay, chair, journey, pity, beef, clear, profit, boil, roast, pork, false, butcher, fruit, blue, pure, poor*, or words involving similar sounds.

"The best account of these sounds, as tested for a Yorkshire dialect, is to be found in Wright's *Dialect of Windhill* (English Dialect Society, 1892), published by Kegan Paul at 12s. 6d. Sweet's symbols are here employed throughout.

"Sweet's *Primer of Phonetics* is published by the Oxford Press at 3s. 6d.

"A list of text-words (of English origin) is given at p. 42 of Skeat's *Primer of English Etymology*, published by the Oxford Press at 1s. 6d.

"7. The task of collecting words which seem to be peculiarly dialectal (as to form or meaning, or both) has been performed so thoroughly that it is useless to record what has been often already recorded. See, for example, Halliwell's (or Wright's) *Provincial Glossary*, and the publications of the English Dialect Society. In many cases, however, the *pronunciation* of such words has not been noted, and may be carefully set down with great advantage.

"The Rev. Professor Skeat has been kind enough to draw up the foregoing directions, and the collections under this head will be submitted to him."

"Place..... Name of Observer.....

"MONUMENTS AND OTHER REMAINS OF ANCIENT CULTURE.

"Plot on a map, describe, furnish photographs or sketches, and state the measurements and names (if any) of these according to the following classification:—

Drift implements. Caves and their contents.

Stone circles. Monoliths. Lake dwellings

Camps. Enclosures. Collections of hut circles.

Cromlechs. Cairns. Sepulchral chambers.

Barrows, describing the form, and distinguishing those which have not been opened.

Inscribed stones.

Figured stones. Stone crosses.

Castra (walled). Earthen camps.

Foundations of Roman buildings.

Cemeteries (what modes of sepulture).

Burials, inhumation or cremation.

Detailed contents of graves.

Types of fibulæ and other ornaments.

Coins. Implements and weapons, stone, bronze, or iron.

Other antiquities.

A list of place-names within the area. No modern names required.

"Special note should be made of British, Roman, and Saxon interments occurring in the same field, and other signs of successive occupation.

"Reference should be made to the article 'Archæology' in *Notes and Queries on Anthropology*, p. 176.

"These relate to England only. The sub-committees for other parts of the United Kingdom will prepare modified lists.

"The collections under this head will be digested by Mr. Payne."

"Place..... Name of Observer....."

**"HISTORICAL EVIDENCE AS TO THE CONTINUITY
OF RACE.**

"Mention any historical events connected with the place, especially such as relate to early settlements in it, or more recent incursions of alien immigrants.

"State the nature of the pursuits and occupations of the inhabitants.

"State if any precautions have been taken by the people to keep themselves to themselves; if the old village tenures of land have been preserved.

"Has any particular form of religious belief been maintained?

"Are the people constitutionally averse to change?

"What are the dates of the churches and monastic or other ancient buildings or existing remains of former buildings?

"Do existing buildings stand on the sites of older ones?

"How far back can particular families or family names be traced?

"Can any evidence of this be obtained from the manor rolls; from the parish registers; from the tythingmen's returns; from guild or corporation records?

"Are particular family names common?

"In what county or local history is the best description of the place to be found?

"Evidences of historical continuity of customs, dress, dwellings, implements, &c., should be noted.

"The collections under this head will be digested by Mr. Brabrook."

APPENDIX A

THE following is the classification of anthropology which has been proposed by Dr. Brinton :—

"THE ANTHROPOLOGIC SCIENCES.

"Proposed Classification and International Nomenclature.

" ANTHROPOLOGY.

" I. SOMATOLOGY.—Physical and Experimental Anthropology.

" II. ETHNOLOGY.—Historic and Analytic Anthropology.

" III. ETHNOGRAPHY.—Geographic and Descriptive Anthropology.

" IV. ARCHÆOLOGY.—Prehistoric and Reconstructive Anthropology.

" I. SOMATOLOGY.

" 1. *Internal Somatology.*—Osteology, craniology, prosopology, myology, splanchnology.

" 2. *External Somatology.*—Anthropometry, colour, hair, canons of proportion, physical beauty.

" 3. *Psychology.*—Experimental and practical, sensation, rates of nervous impulse, brain and nerve action.

- "4. *Developmental and Comparative Somatology*.—Embryology, heredity, teratology, human biology, evolution, anatomy of anthropoids, ethnic anatomy and physiology, comparative nosology and medical geography, fertility and sterility, racial pathology, criminal anthropology, vital statistics, anatomical classification of races.

"II. ETHNOLOGY.

- "1. *Sociology*.—Systems of government and the social contract, laws and ethical standards, the marriage relation and rules of consanguinity and descent, social classes and institutions, international relations (war, commerce, colonization).
- "2. *Technology*.—The utilitarian arts, as tool making, ceramics, architecture, agriculture, means of transportation, clothing, weights and measures, media of exchange; the esthetic arts—music, drawing, painting, sculpture, decoration, games, cookery, perfumery.
- "3. *Religion*.—Psychological origin and development; personal, family, tribal, and world religions; animism, fetichism, polytheism, monotheism, atheism; mythology and mythogeny; symbolism and religious art; sacred places and objects; rites, ceremonies, and mortuary customs; religious teachers, classes, and doctrines; theocracies; analyses of special religions; philosophy and natural history of religions.
- "4. *Linguistics*.—Gesture and sign language; spoken language, parts of speech, logic of grammar, origin, growth, and classification of languages, relation

to ethnography; written language, pictographic, symbolic, ideographic, and phonetic writing, evolution of alphabets, phonetic systems; forms of expression, poetic (metrical, rhythmical), dramatic, prosaic.

- "5. *Folk-lore*.—Traditional customs and narratives, folk-sayings, superstitious beliefs and practices.

"III. ETHNOGRAPHY.

- "1. *General Ethnography*.—Origin, characteristics, and subdivisions of races and peoples. The 'geographical provinces' or 'areas of characterization.' Anthro-po-geography. Lines of migrations and national intercourse.
- "2. *Special Ethnography*.—The Eurafrican or white race (North Mediterranean and South Mediterranean branches); the Austafrican or black race; the Asian race (Sinitic and Sibiric branches); the American race; Insular and Littoral peoples (Nigritic, Malayic, and Australic stocks).

"IV. ARCHÆOLOGY.

- "1. *General Archæology*.—Geology of the epoch of man. Glacial phenomena. Diluvial and alluvial deposits. Physical geography of the quaternary. Prehistoric botany and zoology. Prehistoric Ages—the Age of Stone (palæolithic period, neolithic period); the Age of Bronze; the Age of Iron; prehistoric commerce; palethnology; proto-historic epoch.
- "2. *Special Archæology*.—Egyptian, Assyrian, Phenician, classical, medieval, and American archæology.

"The urgent need of a uniform classification and nomenclature for the various sciences connected with the study of man must be apparent to all who are familiar with the current literature of anthropology.

"The plan proposed above is based upon the works and suggestions of well-known English, French, German, Italian, and American writers. The proposer claims no other credit than that of selection. He offers no neologisms. The leading terms, those printed in italics and capitals, are substantially the same in all the languages named; they are already domesticated in the anthropological writings of every country, and all that is needed is a general agreement as to their connotation.

"In order that this may be brought about, the writer respectfully submits the above to those interested in the study of this science.

"D. G. BRINTON, M.D., LL.D.,

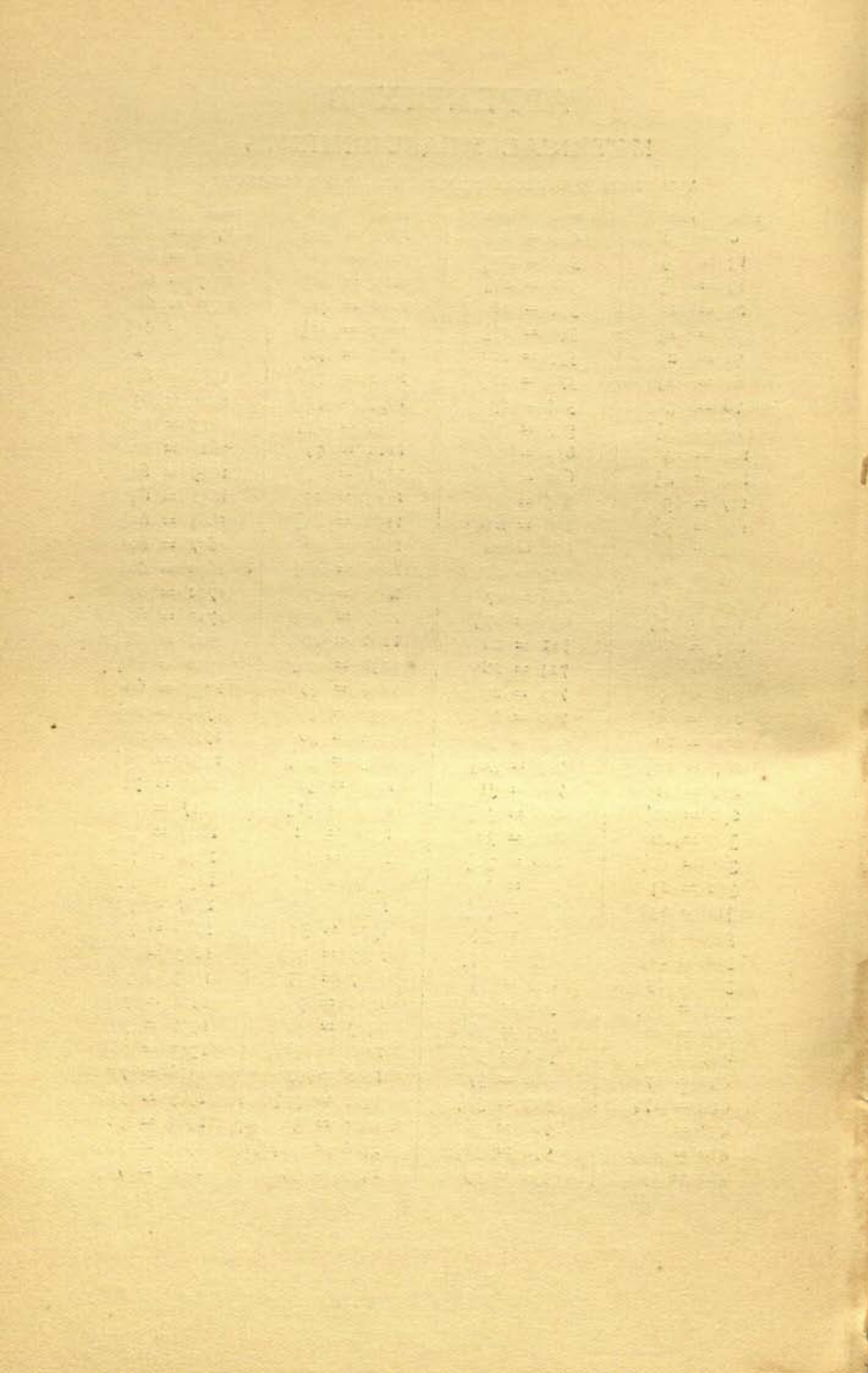
Professor of Ethnology at the Academy of Natural Sciences,
PHILADELPHIA, PA., U.S.A."

APPENDIX B

METRICAL MEASUREMENTS

AND THEIR EQUIVALENTS IN INCHES AND HALF-INCHES.

mm.	inch	mm.	inch	mm.	inch	mm.	inch
6 =	$\frac{1}{4}$	495 =	$19\frac{1}{2}$	1004 =	$39\frac{1}{2}$	1512 =	$59\frac{1}{2}$
13 =	$\frac{1}{2}$	508 =	20	1016 =	40	1524 =	60
19 =	$\frac{3}{4}$	521 =	$20\frac{1}{2}$	1029 =	$40\frac{1}{2}$	1537 =	$60\frac{1}{2}$
25 =	1	534 =	21	1042 =	41	1550 =	61
38 =	$1\frac{1}{2}$	546 =	$21\frac{1}{2}$	1055 =	$41\frac{1}{2}$	1562 =	$61\frac{1}{2}$
51 =	2	559 =	22	1067 =	42	1575 =	62
64 =	$2\frac{1}{2}$	571 =	$22\frac{1}{2}$	1080 =	$42\frac{1}{2}$	1588 =	$62\frac{1}{2}$
76 =	3	584 =	23	1093 =	43	1601 =	63
89 =	$3\frac{1}{2}$	597 =	$23\frac{1}{2}$	1105 =	$43\frac{1}{2}$	1613 =	$63\frac{1}{2}$
101 =	4	610 =	24	1118 =	44	1626 =	64
114 =	$4\frac{1}{2}$	622 =	$24\frac{1}{2}$	1131 =	$44\frac{1}{2}$	1639 =	$64\frac{1}{2}$
127 =	5	635 =	25	1144 =	45	1651 =	65
140 =	$5\frac{1}{2}$	648 =	$25\frac{1}{2}$	1156 =	$45\frac{1}{2}$	1664 =	$65\frac{1}{2}$
152 =	6	661 =	26	1169 =	46	1677 =	66
165 =	$6\frac{1}{2}$	673 =	$26\frac{1}{2}$	1181 =	$46\frac{1}{2}$	1690 =	$66\frac{1}{2}$
178 =	7	686 =	27	1194 =	47	1702 =	67
190 =	$7\frac{1}{2}$	699 =	$27\frac{1}{2}$	1207 =	$47\frac{1}{2}$	1715 =	$67\frac{1}{2}$
203 =	8	711 =	28	1220 =	48	1728 =	68
216 =	$8\frac{1}{2}$	724 =	$28\frac{1}{2}$	1232 =	$48\frac{1}{2}$	1740 =	$68\frac{1}{2}$
228 =	9	737 =	29	1245 =	49	1753 =	69
241 =	$9\frac{1}{2}$	750 =	$29\frac{1}{2}$	1258 =	$49\frac{1}{2}$	1766 =	$69\frac{1}{2}$
254 =	10	762 =	30	1270 =	50	1778 =	70
267 =	$10\frac{1}{2}$	775 =	$30\frac{1}{2}$	1283 =	$50\frac{1}{2}$	1791 =	$70\frac{1}{2}$
279 =	11	788 =	31	1296 =	51	1804 =	71
292 =	$11\frac{1}{2}$	800 =	$31\frac{1}{2}$	1309 =	$51\frac{1}{2}$	1817 =	$71\frac{1}{2}$
305 =	12	813 =	32	1321 =	52	1829 =	72
318 =	$12\frac{1}{2}$	826 =	$32\frac{1}{2}$	1334 =	$52\frac{1}{2}$	1842 =	$72\frac{1}{2}$
330 =	13	838 =	33	1347 =	53	1855 =	73
343 =	$13\frac{1}{2}$	851 =	$33\frac{1}{2}$	1359 =	$53\frac{1}{2}$	1867 =	$73\frac{1}{2}$
356 =	14	864 =	34	1372 =	54	1880 =	74
368 =	$14\frac{1}{2}$	877 =	$34\frac{1}{2}$	1385 =	$54\frac{1}{2}$	1893 =	$74\frac{1}{2}$
381 =	15	889 =	35	1397 =	55	1905 =	75
394 =	$15\frac{1}{2}$	902 =	$35\frac{1}{2}$	1410 =	$55\frac{1}{2}$	1918 =	$75\frac{1}{2}$
406 =	16	915 =	36	1423 =	56	1931 =	76
419 =	$16\frac{1}{2}$	927 =	$36\frac{1}{2}$	1436 =	$56\frac{1}{2}$	1943 =	$76\frac{1}{2}$
432 =	17	940 =	37	1448 =	57	1956 =	77
444 =	$17\frac{1}{2}$	953 =	$37\frac{1}{2}$	1461 =	$57\frac{1}{2}$	1969 =	$77\frac{1}{2}$
457 =	18	966 =	38	1474 =	58	1981 =	78
470 =	$18\frac{1}{2}$	978 =	$38\frac{1}{2}$	1486 =	$58\frac{1}{2}$	1994 =	$78\frac{1}{2}$
482 =	19	991 =	39	1499 =	59	2000 =	$78\frac{3}{4}$



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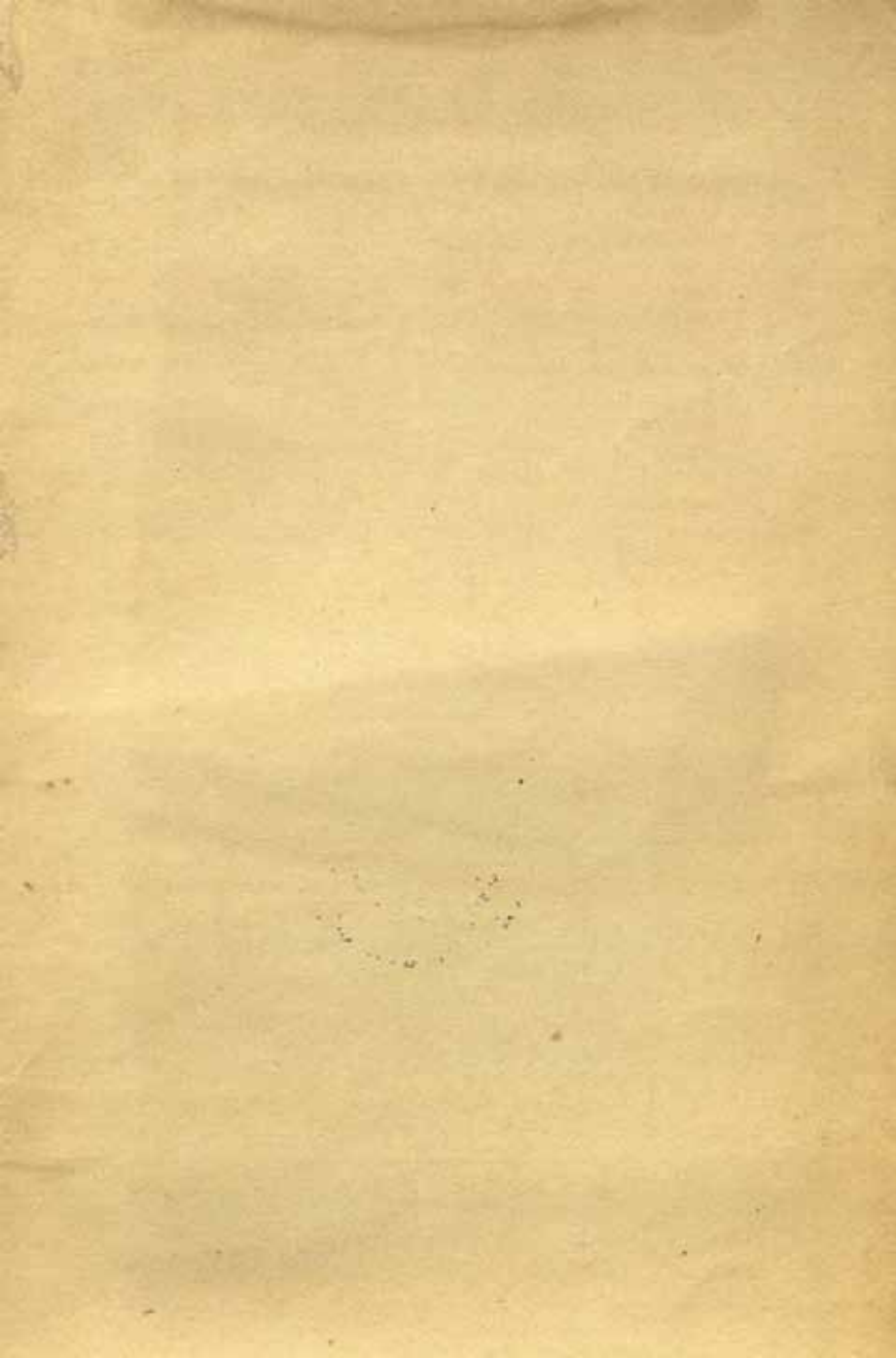
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