

THE PYGMY RACES OF MEN.¹

I.

IT is well known that there existed among the nations of antiquity a wide-spread belief in the existence of a race or races of human beings of exceedingly diminutive stature, who dwelt in some of the remote and unexplored regions of the earth. These were called *Pygmies*, a word said to be derived from *πυγμή*, which means a fist, and also a measure of length, the distance from the elbow to the knuckles of an ordinary-sized man, or rather more than 13 inches.

In the opening of the third book of the *Iliad*, the Trojan hosts are described as coming on with noise and shouting, "like the cranes which flee from the coming of winter and sudden rain, and fly with clamour towards the streams of ocean, bearing slaughter and fate to the Pygmy men, and in early morn offer cruel battle," or, as Pope has it—

"So when inclement winters vex the plain,
With piercing frosts, or thick descending rain,
To warmer seas the cranes embodied fly,
With noise and order through the midway sky,
To Pygmy nations wounds and death they bring,
And all the war descends upon the wing."

The combats between the pygmies and the cranes are often alluded to by late classical writers, and are not unfrequently depicted upon Greek vases. In one of these in the Hope collection at Deepdene, in which the figures are represented with great spirit, the pygmies are dwarfish-looking men with large heads, negro features, and close woolly or frizzly hair. They are armed with lances. Notices of a less poetical and apparently more scientific character of the occurrence of very small races of human beings are met with in Aristotle, Herodotus, Ctesias, Pliny, Pomponius Melo, and others. Aristotle places his pygmies in Africa, near the sources of the Nile, while Ctesias describes a race of dwarfs in the interior of India. The account in Herodotus is so circumstantial, and has such an air of truthfulness about it, especially in connection with recent discoveries, that it is worth quoting in full.²

"I did hear, indeed, what I will now relate, from certain natives of Cyréné. Once upon a time, they said, they were on a visit to the oracular shrine of Ammon, when it chanced that, in the course of conversation with Etearchus, the Ammonian king, the talk fell upon the Nile, how that its sources were unknown to all men. Etearchus upon this mentioned that some Nasamonians had once come to his Court, and when asked if they could give any information concerning the uninhabited parts of Libya, had told the following tale. The Nasamonians are a Libyan race who occupy the Syrtes, and a tract of no great size towards the east. They said there had grown up among them some wild young men, the sons of certain chiefs, who, when they came to man's estate, indulged in all manner of extravagancies, and among other things drew lots for five of their number to go and explore the desert parts of Libya, and try if they could not penetrate further than any had done previously. The young men therefore dispatched on this errand by their comrades with a plentiful supply of water and provisions, travelled at first through the inhabited region, passing which they came to the wild beast tract, whence they finally entered upon the desert, which they proceeded to cross in a direction from east to west. After journeying for many days over a wide extent of sand, they came at last to a plain where they observed trees growing: approaching them, and seeing fruit on them, they proceeded to gather it. While they were thus engaged, there came upon them some dwarfish men, under the middle height, who seized them and carried them off. The Nasamonians could not understand a word of their language, nor had they any acquaintance with the language of the Nasamonians. They were led across extensive marshes, and finally came to a town, where all the men were of the height of their conductors, and black-complexioned. A great river flowed by the town, running from west to east, and containing crocodiles."

It is satisfactory to know that the narrative concludes by saying that these pioneers of African exploration, forerunners of Bruce and Park, of Barth, Livingstone, Speke, Grant, Schweinfurth, Stanley, and the rest, "got safe back to their country."

Extension of knowledge of the natural products of the earth,

¹ A Lecture delivered at the Royal Institution on Friday evening, April 13, 1888, by Prof. Flower, C.B., LL.D., F.R.S., Director of the Natural History Departments of the British Museum.

² Herodotus, Book II. 32, Rawlinson's translation, p. 47.

and a more critical spirit on the part of authors, led to attempts of explanation of this belief, and the discovery of races of monkeys—of the doings of which, it must be said, more or less fabulous stories were often reported by travellers—generally sufficed the commentators and naturalists of the last century to explain the origin of the stories of the pygmies. To this view the great authority of Buffon was extended.

Still more recently-acquired information as to the actual condition of the human population of the globe has, however, led to a revision of the ideas upon the subject, and to more careful and critical researches into the ancient documents. M. de Quatrefages, the eminent and veteran Professor of Anthropology at the Muséum d'Histoire Naturelle of Paris, has especially carefully examined and collated all the evidence bearing upon the question, and devoted much ingenuity of argument to prove that the two localities in which the ancient authors appear to place their pygmies, the interior of Africa near the sources of the Nile, and the southernmost parts of Asia, and the characters they assign to them, indicate an actual knowledge of the existence of the two groups of small people which still inhabit these regions, the history of which will form the subject of this lecture. The evidence which has convinced M. de Quatrefages, and which, I have no doubt, will suffice for those who take pleasure in discovering an underlying truth in all such legends and myths, or in the more grateful task of rehabilitating the veracity of the fathers of literature and history, will be found collected in a very readable form in a little book published last year in the "Bibliothèque scientifique contemporaine," called "Les Pygmées," to which I refer my readers for fuller information upon the subject of this discourse, and especially for numerous references to the literature of the subject, which, as the book is accessible to all who wish to pursue it further, I need not give here.

It is still, however, to my mind, an open question whether these old stories may not be classed with innumerable others, the offspring of the fertile invention of the human brain, the potency of which as an origin of myths has, I think, sometimes been too much underrated. I shall therefore now take leave of them, and confine myself to giving you, as far as the brief space of time at my disposal admits, an account of our actual knowledge of the smallest races of men either existing or, as far as we know, ever having existed on earth, and which may therefore, taking the word in its current though not literal sense, be called the "pygmies" of the species.

Among the various characters by which the different races of men are distinguished from one another, *size* is undoubtedly one of considerable importance. Not but what in each race there is much individual variation, some persons being taller, and some shorter; yet these variations are, especially in the purer or less mixed races, restricted within certain limits, and there is a general average, both for men and women, which can be ascertained when a sufficient number of accurate measurements have been recorded. That the prevailing size of a race is a really deeply-seated, inherited characteristic, and depends but little on outward conditions, as abundance of food, climate, &c., is proved by well-known facts. The tallest and the shortest races in Europe are respectively the Norwegians and the Lapps, living in almost the same region. In Africa, also, the diminutive Bushmen and the tallest race of the country, the Kaffirs, are close neighbours. The natives of the Andaman Islands and those of many islands of the equatorial region of the Pacific, in which the conditions are similar, or if anything more favourable to the former, are at opposite ends of the scale of height. Those not accustomed to the difficulties both of making and recording such measurements will scarcely be prepared, however, to learn how meagre, unsatisfactory and unreliable our knowledge of the stature of most of the races of mankind is at present, although unquestionably it has been considerably increased within recent years. We must, however, make use of such material as we possess, and trust to the future correction of errors when better opportunities occur.

It is convenient to divide men, according to their height, into three groups—tall, medium, and short; in Topinard's system, the first being those the average height (of the men) of which is above 1'700 metres (5 feet 7 inches), the latter those below 1'500 metres (4 feet 11 inches), and the middle division those between the two. In the last division are included certain of the Mongolian or yellow races of Asia, as the Samoyedes, the Ostiaks, the Japanese, the Siamese, and the Annamites; also the Veddahs of Ceylon and certain of the wild hill-tribes of Southern India. These all range between 1'525 and 1'600 metres—say between 5 feet and 5 feet 3 inches.

It is of none of these people of whom I am going to speak to-day. My pygmies are all on a still smaller scale, the average height of the men being in all cases below 5 feet, in some cases, as we shall see, considerably below.

Besides their diminutive size, I may note at the outset that they all have in a strongly-marked degree the character of the hair distinguished as frizzly—*i.e.* growing in very fine, close curls, and flattened or elliptical in section, and therefore, whatever other structural differences they present, they all belong to the same primary branch of the human species as the African Negro and the Melanesian of the Western Pacific.

I will first direct your attention to a group of islands in the Indian Ocean—the Andamans—where we shall find a race in many respects of the greatest possible interest to the anthropologist.

These islands are situated in the Bay of Bengal, between the 10th and 14th parallels of north latitude, and near the meridian 93° east of Greenwich, and consist of the Great and Little Andamans. The former is about 140 miles long, and has a breadth nowhere exceeding 20 miles. It is divided by narrow channels into three, called respectively North, Middle, and South Andaman, and there are also various smaller islands belonging to the group. Little Andaman is a detached island lying about 28 miles to the south of the main group, about 27 miles in length and 10 to 18 in breadth.

Although these islands have been inhabited for a very great length of time by people whose state of culture and customs have undergone little or no change, as proved by the examination of the contents of the old kitchen-middens, or refuse heaps, found in many places in them, and although they lie so near the track of civilization and commerce, the islands and their inhabitants were practically unknown to the world until so recently as the year 1858. It is true that their existence is mentioned by Arabic writers of the ninth century, and again by Marco Polo, and that in 1788 an attempt was made to establish a penal colony upon them by the East India Company, which was abandoned a few years after; but the bad reputation the inhabitants had acquired for ferocious and inhospitable treatment of strangers brought by accident to their shores caused them to be carefully avoided, and no permanent settlement or relations of anything like a friendly character, or likely to afford any useful information as to the character of the islands or the inhabitants, were established. It is fair to mention that this hostility to foreigners, which for long was one of the chief characteristics by which the Andamanese were known to the outer world, found much justification in the cruel experiences they suffered from the malpractices, especially kidnapping for slavery, of the Chinese and Malay traders who visited the islands in search of *bêche de mer* and edible birds'-nests. It is also to this characteristic that the inhabitants owe so much of their interest to us from a scientific point of view, for we have here the rare case of a population, confined to a very limited space, and isolated for hundreds, perhaps thousands, of years from all contact with external influence, their physical characters unmixed by crossing, and their culture, their beliefs, their language entirely their own.

In 1857, when the Sepoy mutiny called the attention of the Indian Government to the necessity of a habitation for their numerous convict prisoners, the Andaman Islands were again thought of for the purpose. A Commission, consisting of Dr. F. J. Mouat, Dr. G. Playfair, and Lieut. J. A. Heathcote was sent to the islands to report upon their capabilities for such a purpose; and, acting upon its recommendations, early in the following year the islands were taken possession of in the name of the East India Company by Captain (now General) H. Man, and the British flag hoisted at Port Blair, near the southern end of Great Andaman, which thenceforth became the nucleus of the settlement of invaders, now numbering about 15,000 persons, of whom more than three-fourths are convict prisoners, the rest soldiers, police, and the usual accompaniments of a military station.

The effect of this inroad upon the unsophisticated native population, who, though spread over the whole area of the islands, were far less numerous, may easily be imagined. It is simply deterioration of character, moral and physical decay, and finally extinction. The newly-introduced habits of life, vices, and diseases, are spreading at a fearful rate, and with deadly effect. In this sad history there are, however, two redeeming features which distinguish our occupation of the Andamans from that of Tasmania, where a similar tragedy was played out during

the present century. In the first place, the British Governors and residents appear from the first to have used every effort to obtain for the natives the most careful and considerate treatment, and to alleviate as much as possible the evils which they have unintentionally been the means of inflicting on them. Secondly, most careful records have been preserved of the physical characters, the social customs, the arts, manufactures, traditions, and language of the people while still in their primitive condition. For this most important work, a work which, if not done, would have left a blank in the history of the world which could never have been replaced, we are indebted almost entirely to the scientific enthusiasm of one individual, Mr. Edward Horace Man, who most fortunately happened to be in a position (as Assistant Superintendent of the Islands, and specially in charge of the natives) which enabled him to obtain the required information with facilities which probably no one else could have had, and whose observations "On the Aboriginal Inhabitants of the Andaman Islands," published by the Anthropological Institute of Great Britain and Ireland, are most valuable, not only for the information they contain, but as correcting the numerous erroneous and misleading statements circulated regarding these people by previous and less well informed or less critical authors.

The Arab writer of the ninth century previously alluded to states that "their complexion is frightful, their hair frizzled, their countenance and eyes frightful, their feet very large, and almost a cubit in length, and they go quite naked," while Marco Polo (about 1285) says that "the people are no better than wild beasts, and I assure you all the men of this island of Angamanain have heads like dogs, and teeth and eyes likewise; in fact, in the face they are just like big mastiff dogs." These specimens of mediæval anthropology are almost rivalled by the descriptions of the customs and moral character of the same people published as recently as 1862, based chiefly on information obtained from one of the runaway sepoy convicts, and which represent them as among the lowest and most degraded of human beings.

The natives of the Andamans are divided into nine distinct tribes, each inhabiting its own district. Eight of these live upon the Great Andaman Islands, and one upon the hitherto almost unexplored Little Andaman. Although each of these tribes possesses a distinct dialect, these are all traceable to the same source, and are all in the same stage of development. The observations that have been made hitherto relate mostly to the tribe inhabiting the south island, but it does not appear that there is any great variation either in physical characters or manners, customs, and culture among them.

With regard to the important character of size, we have more abundant and more accurate information than of most other races. Mr. Man gives the measurements of forty-eight men and forty-one women, making the average of the former 4 feet 10 $\frac{1}{2}$ inches, that of the latter 4 feet 7 $\frac{1}{2}$ inches, a difference therefore of 3 $\frac{1}{2}$ inches between the sexes. The tallest man was 5 feet 4 $\frac{1}{2}$ inches; the shortest 4 feet 6 inches. The tallest woman 4 feet 11 $\frac{1}{2}$ inches; the shortest 4 feet 4 inches. Measurements made upon the living subject are always liable to errors, but it is possible that in so large a series these will compensate each other, and that therefore the averages may be relied upon. My own observations, based upon the measurements of the bones alone of as many as twenty-nine skeletons, give smaller averages, viz. 4 feet 8 $\frac{1}{2}$ inches for the men, and 4 feet 6 $\frac{1}{2}$ inches for the women; but these, it must be recollected, are calculated from the length of the femur, upon a ratio which, though usually correct for Europeans, may not hold good in the case of other races.¹ The hair is fine, and very closely curled; woolly, as it is generally called, or, rather, frizzly, and elliptical in section, as in the Negroes. The colour of the skin is very dark, although not absolutely black. The head is of roundish (brachycephalic) form, the cephalic index of the skull being about 82. The other cranial characters are fully described in the papers just referred to. The teeth are large, but the jaws are only slightly prognathous. The features possess little of the Negro type; at all events, little of the most marked and coarser peculiarities of that type. The projecting jaws, the prominent thick lips, the broad and flattened nose of the genuine Negro are so softened down in the Andamanese as scarcely to be recognized, and yet in

¹ See "On the Osteology and Affinities of the Natives of the Andaman Islands" (Journal Anthropological Institute, vol. ix. p. 108, 1879); and "Additional Observations on the Osteology of the Natives of the Andaman Islands" (*ibid.*, vol. x.v. p. 115, 1884).

the relative proportions of the limb-bones, especially in the shortness of the humerus compared with the fore-arm, and in the form of the pelvis, Negro affinities are most strongly indicated.

In speaking of the culture of the Andamanese, of course I only refer to their condition before the introduction of European civilization into the islands. They live in small villages or encampments, in dwellings of simple and rude construction, built only of branches and leaves of trees. They are entirely ignorant of agriculture, and keep no poultry or domestic animals. They make rude pots of clay, sun-dried, or partially baked in the fire, but these are hand-made, as they are ignorant of the use of the potter's wheel. Their clothing is of the scantiest description, and what little they have chiefly serves for decorative or ornamental purposes, and not for keeping the body warm. They make no use of the skins of animals. They have fairly well-made dug-out canoes and outriggers, but only fit for navigating the numerous creeks and straits between the islands, and not for voyages in the open sea. They are expert swimmers and divers. Though constantly using fire, they are quite ignorant of the art of producing it, and have to expend much care and labour in keeping up a constant supply of burning or smouldering wood. They are ignorant of all metals; but for domestic purposes make great use of shells, especially a species of *Cyrene* found abundantly on the shores of the islands, also quartz chips and flakes, and bamboo knives. They have stone anvils and hammers, and they make good string from vegetable fibres, as well as baskets, fishing-nets, sleeping-mats, &c. Their principal weapons are the bow and arrow, in the use of which they are particularly skilful. They have harpoons for killing turtle and fish, but no kind of shield or breastplate for defence when fighting. The natural fertility of the island supplies them with abundance and a great variety of food all the year round, the purveying of which affords occupation and amusement for the greater part of the male population. This consists of pigs (*Sus andamanensis*), which are numerous on the islands, paradoxurus, dugong, and occasionally porpoise, iguanas, turtles' eggs, many kinds of fish, prawns, mollusks, larvae of large wood-boring and burrowing beetles, honey, and numerous roots (as yams), fruits, and seeds. The food is invariably cooked before eating, and generally taken when extremely hot. They were ignorant of all stimulants or intoxicating drinks—in fact, water was their only beverage; and tobacco, or any substitute for it, was quite unknown till introduced by Europeans.

(To be continued.)

THE INSTITUTION OF MECHANICAL ENGINEERS.

THE Institution of Mechanical Engineers held its annual meeting at the house of the Institution of Civil Engineers in Great George Street, Westminster, on the 3rd and 4th inst., under the presidency of Mr. E. H. Carbutt.

The papers brought forward for reading and discussion were: the Third Report of the Research Committee of the Institution on Friction; "Description of the Emery Testing Machine," by Mr. Henry R. Towne, of Stamford, Connecticut, U.S.A.; and "Supplementary Paper on the Use of Petroleum Refuse as Fuel in Locomotive Engines," by Mr. Thomas Urquhart, Locomotive Superintendent, Grazi and Tsaritsin Railway, South-East Russia; the third of which was deferred till the next meeting of the Institute.

The third report of the Friction Committee is on experiments on the friction of a collar-bearing. The general conclusions of the Committee are that this kind of bearing is inferior to a cylindrical journal in weight-carrying power. The coefficient of friction is also much higher than for a cylindrical bearing, and the friction follows the law of the friction of solids more nearly than that of liquids, due doubtless to the less perfect lubrication applicable to this form of bearing compared with a cylindrical one. The coefficient of friction appears to be independent of the speed, but to diminish somewhat as the load is increased, and may be stated approximately at $\frac{1}{20}$ at 15 lbs. per square inch, diminishing to $\frac{1}{30}$ at 75 lbs. per square inch.

In the broad principles of construction on which the Emery system of testing and weighing machinery rests are included two radically new and highly important elements—namely, an arrangement of hydraulic chambers and diaphragms capable of receiving without injury pressures and shocks of great intensity, and of transmitting them simultaneously, without loss from

friction, to a convenient point for the purpose of measuring and recording them, and capable also of reducing them to such lower term of degree as may be desirable; and a means for flexibly uniting a vibrating scale-beam either to a fixed abutment or to another beam of the same system, in such a manner as absolutely to eliminate friction, and to preserve indefinitely the fulcrum intervals or distances precisely as first adjusted, and to resist and transmit all the pressures and shocks to which the fulcrums are subjected, without in the slightest degree impairing their sensitiveness or durability.

The hydraulic construction is such that through it the strain on the specimen is transmitted without loss to a hydraulic chamber containing a thin film of liquid, which is again transmitted through a small copper tube, without loss from friction or otherwise, to a much smaller chamber containing a similar thin film of liquid. The acting area of the liquid in the smaller chamber is less than that in the larger in the proportion in which the load on the specimen is desired to be reduced before it is received upon the beams in the scale-case where it is measured. In the scale-case containing the weighing mechanism, the pressure transmitted from the smaller chamber is received at one end of a system of levers, and measured by means of devices which are shown in detail in the figures which accompanied the paper.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Among the courses of lectures announced for this Term we may notice the following:—

In Physics, Prof. Clifton is lecturing on Optical Properties of Crystals, and Mr. Selby on Absolute Electrical Units, at the Clarendon Laboratory. At Christ Church, Mr. Baynes lectures on Thermo-dynamics, and on the Transfer of Energy in an Electro-magnetic Field.

The University has made a grant to Mr. Smith, in aid of the Millard Engineering Laboratory, and practical work on the physical basis of engineering is regularly carried on there.

In Chemistry, besides the usual courses, Mr. Veley is lecturing on Thermo-chemistry, and Mr. Marsh on Recent Organic Research.

The work of the Geological Chair is at present being done by Mr. W. W. Watts (M.A. Camb.), who is lecturing for a term in order that Prof. Green may complete his session at the Yorkshire College.

Owing to Prof. Moseley's continued illness, Dr. Hickson is still acting as Deputy Linacre Professor, and is lecturing on the Morphology of the Chordata. Mr. Bourne, who is to assume his post as Superintendent of the Plymouth Marine Station in a month, is lecturing on Embryology, and Prof. Westwood on the Winged Arthropoda.

Dr. Burdon-Sanderson lectures this Term on Nutrition, and Dr. Gilbert on the Rotation of Crops.

In the absence of any Professor of Botany, Mr. J. B. Farmer is conducting the necessary elementary courses.

CAMBRIDGE.—Prof. Adams is appointed one of the four representatives of Cambridge at the 800th anniversary of the foundation of the University of Bologna, in June next.

An additional class-room for students of Mineralogy is to be formed.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, April 19.—"The Radio-Micrometer." By C. V. Boys.

The author gave the result of a mathematical investigation made with a view to arrive at the best possible construction of the radio-micrometer already described by him. At the conclusion of the meeting he showed in action an instrument which he had made, having the best proportions, which was both simpler in construction and far more sensitive than the one he exhibited on a previous occasion.

"On the Compounds of Ammonia with Selenium Dioxide." By Sir Charles A. Cameron, M.D., F.R.C.S.I., and John Macallan, F.I.C.

On passing dry ammonia into a solution of selenium dioxide in absolute alcohol, a compound is formed to which the authors have assigned the name ammonium selenosamate, and the formula $\text{NH}_4\text{SeO}_2\text{NH}_2$. It is the ammonium salt of a new