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Royal Institution of Great Britain.

WEEKLY EVENING MEETING,

Friday, May 31, 1878.

GEORGE BUSK, Esq. F.R.S. Treasurer and Vice-President,
in the Chair.

WILLIAM HENRY FLOWER, F.R.S.

HUNTERIAN PROFESSOR OF COMPARATIVE ANATOMY AND CONSERVATOR OF THE MUSEUM OF THE
ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The Native Races of the Pacific Ocean.

THE region of the world treated of in the present lecture is that known to geographers as OCEANIA, or OCEANICA, consisting of a vast number of islands of various sizes, from Australia downwards, scattered throughout the great ocean tract bounded east and west by the continents of America and Asia.

The inhabitants of these islands offer many advantages for the commencement of a study of physical anthropology, and for an exposition of the principles of the science. We shall find that they present great diversity; some of the widest contrasts to be met with in the human species are to be found among them. We shall also find in this area some of the lowest existing types of mankind, affording material for studying the most extreme deviation known from the highest race, as exemplified in the European. Lastly, the comparative isolation in which the greater number of these islands have remained for countless generations, lying hidden in their ocean solitudes, far away from the track of commerce and civilization, has caused their inhabitants to develop and retain distinctive characteristics more sharply defined than those of other regions of the world, where constant inter-communication has resulted in infinite and intricate blendings of primitive races, and but partial and imperfect evolutions of new ones.

The people of these islands will be treated of here mainly from an anatomical point of view, and in great measure from observations made upon such portions of their bodily frame (chiefly crania) as are preserved in the collection under my charge. But it must be observed *in limine*, that this collection, as with all others yet formed, large as it may appear to the uninitiated in the difficulties of craniology, is wholly insufficient for the purpose of constructing a classification of mankind, founded on physical structure. It can

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only afford certain indications, valuable as far as they go, from which a provisional or approximative system may be built up. Very many, indeed the majority, of the islands are totally unrepresented in it; others are illustrated by only one or two individuals. Far larger collections, and far more systematic and minute observations, than have yet been made, are required before the natural history of man in this region can be worked out in any detail. The results obtained at present are however sufficient to encourage us to persevere, and to vindicate the study of anatomical characters, especially those of the skull, as a basis for a natural classification, from the disrespect into which it has fallen, on account of the failure of tentative systems of craniology, founded on far too imperfect materials, and too imperfect use of those materials.

I will begin by speaking of the great continental island, as it may be called, of Australia, which when discovered by Europeans was inhabited throughout by a race, distinct in the totality of its characters from any known to exist in any other part of the world. It will be convenient to consider this race first, partly because the materials at my disposal for its investigation are more abundant and more complete than in the case of any other of the races of the Oceanic area, and partly because a comparison of its characters with those of the best known race (that to which we ourselves belong, and which is commonly taken as the standard in works on human anatomy) will afford a good idea both of the kind and the degree of variation to be met with between one of the lowest and one of the highest groups of mankind, and we shall at the same time be able to appreciate whether, and if so, to what extent, any approximation is made by the former towards any still lower types of animal organization.

Although the northern coast of Australia had previously been seen by Spanish and Portuguese navigators (as by Torres in 1606), the first rencontre of any European with the native inhabitants appears to have been that of Abel Tasman, the celebrated Dutch seaman, who in 1644 was sent out by Van Dieman, governor of the possessions of Holland in the East Indies, on his second voyage of discovery. The part which he visited (and to which he gave the name of New Holland) was the north-west coast, and he describes the natives as naked, black, and curly-haired.

The earliest description of the aborigines of Australia by any Englishman is that of Dampier, who in his first adventurous voyage round the world stayed on the north-west coast, not very far from the spot visited by Tasman, from January 4th to March 12th, 1688. He has left us a tolerably full account of the inhabitants, which, although presenting some discrepancies from those of more modern travellers, is valuable, and probably on the whole trustworthy. "The inhabitants of the country," he says,* "are the miserablest people in the

* 'A New Voyage round the World,' by Captain William Dampier. Sixth edition, 1717, vol. i. p. 464.

world. The *Hodmadods* [Hottentots] of *Monomatapa*, though a nasty people, yet for wealth are gentlemen to these; who have no houses and skin garments, sheep, poultry, and fruits of the earth, ostrich eggs, &c., as the *Hodmadods* have. And setting aside their humane shape, they differ but little from brutes. They are tall, strait-bodied, and thin, with small, long limbs. They have great heads, round foreheads, and great brows. They have great bottle noses, pretty full lips, and wide mouths. The two fore-teeth of their upper-jaw are wanting in all of them, men and women, old and young; whether they draw them out I know not. Neither have they any beards. They are long-vizaged, and of a very unpleasing aspect, having no one graceful feature in their faces. Their hair is black, short, and curl'd, like that of the Negroes; and not long and lank, like the common *Indians*. The colour of their skins, both of their faces and the rest of their body, is black, like that of the Negroes of *Guinea*. They have no sort of cloaths, but a piece of the rind of a tree ty'd like a girdle about their waists, and a handful of long grass, or three or four small green boughs full of leaves, thrust under their girdle to cover their nakedness. They have no houses, but lie in the open air, without any covering; the earth being their bed, and the heavens their canopy. Their only food is a small sort of fish, which they get by making wares of stone across little coves, or branches of the sea. In other places they seek for cockles, mussels, periwinkles, &c. He describes their weapons as wooden swords and lances. "The sword is a piece of wood shaped somewhat like a cutlass," probably a boomerang. It is satisfactory to note that the relations of Dampier and his companions with the natives, both on this and his second visit to Australia at Shark's Bay, eleven years later, were perfectly amicable, or at all events unattended by any serious disagreement or casualty on either side, a sudden and vigorous beating of the drum being sufficient to scare them away on one occasion when they had become troublesome and even threatening.

The next visit of an Englishman to Australia was one which led to far more memorable consequences. It was that of Captain Cook, who, on his first voyage round the world, after sailing westward from New Zealand, reached the coast of "New South Wales," as he named it, near Cape Howe, on the 19th of April, 1770, and sailing northwards, explored the whole east coast to Cape York in Torres Straits. His first sight of the natives, on April 27th, is described at page 489, and his first landing, on the following day, at page 492 of the great navigator's deeply interesting narrative. Read by the light of subsequent events, the gallant though unsuccessful defence of their native land by two naked savages against a boat's crew of forty armed men must excite our sympathy. Certainly no more critical event has ever occurred in the history of any nation, nor combat ever fought attended with such momentous consequences, to one at least of the races engaged, as that which took place in Botany Bay on April 28th,

1770. On that day the fate of the Australian race, which had been for untold ages in undisturbed possession of their native soil, was sealed. Cook's discovery led to the settlement of the country by the English. The settlement of the country by the English means the inevitable annihilation of the aboriginal race.

Cook afterwards saw more of the natives of the northern part of Australia (now Queensland) during his enforced stay in "Endeavour Bay," and has left us a detailed account of their physical characters, condition, and customs,* which, as in the case of all other descriptions given by the illustrious navigator, subsequent observation has fully corroborated, and which will be incorporated with what I shall have to say on these subjects presently.

The whole of the habitable part of the great land tract, 2400 miles from east to west, and nearly 2000 from north to south, when first explored by Europeans was found to be occupied, though very sparsely, by people having a remarkable general similarity in physical characters, language, and customs, though whether they are all to be considered as belonging to one race, or whether, as some suppose, they result from the blending of two originally distinct races, it is not easy upon the present evidence to decide. The latter theory certainly has the merit of reconciling the discrepancies between the accounts of different observers. It will be reverted to in speaking of their physical characters.

The geographical position of the country has isolated them in a remarkable manner, probably for long ages, from all the rest of the world; except for a little infusion of Papuan and Malay influence on the north coast, all the civilization they possess is undoubtedly their own. This isolation must be taken into account, in considering their social condition, as an index of their real elevation in the scale of humanity; for as with individuals so with nations, those naturally of inferior endowments may, by the influence of educated and civilized neighbours, appear superior to others who have not had these advantages. Although, as will be shown hereafter, the anatomical structure of the Australian, as compared with that of the European, shows signs of degradation, yet, in some respects, he is not below, but, perhaps, rather above, some African negroes, who may greatly surpass him in knowledge of the arts, in social customs, and other conditions, by which relative superiority of race is usually tested. But then the Africans have been living from time immemorial in contact with more highly educated races.

However this may be, it is certainly true that there is nowhere existing at present any large group of human beings, the inhabitants in fact of a whole continent, so totally removed from what we call civilization, as were the Australians when first discovered; as the following short summary of their condition will show:—

Of clothing the majority had none, being like those described by

* *Op cit.*, p. 631, et seq.

Cook, absolutely naked, both sexes alike. Some, however, wore a girdle or band of bark, leaves, or skin, and others a short cloak, made of kangaroo skin, thrown over the shoulders. Yet they were not destitute of the idea of personal adornment, daubs of red or yellow ochre mixed with grease on the body, a stick or a bone stuck through the septum of the nose, and feathers in the hair were indispensable to the full dress at least of the men. They had no fixed dwelling-places, but moved about from spot to spot as inclination or necessity compelled, erecting temporary shelters of the most primitive and unstable character, of boughs of trees, or pieces of bark. Some (as those described by Dampier) appear to have made no habitations of any kind. Their bark or log canoes were of the roughest and most simple construction, though in this, as in some other respects, an improvement is observed near Cape York, doubtless under Papuan influence. They had no bows and arrows, their arms being spears, lances, and shields, and two remarkable and ingenious weapons peculiar, or nearly so, to themselves, and almost universally distributed throughout the country, the boomerang or the "wummera," or throwing stick. With the aid of the latter in propelling their lances, "at fifty yards," Captain Cook says, "they were more sure of their mark than we were with a single bullet." They had no metals and no kind of pottery for domestic use. The only vessels that they had for holding water were curved pieces of bark, or, in some districts, the skulls of their deceased relatives. They knew, however, how to manufacture knives of flint and shells, axes of stone, and cord and nets out of native grass. Their cookery was of the rudest kind, as they had no vessels in which they could boil water. Their food consisted of the flesh of kangaroos and other marsupial and rodent mammals, fish, molluscs, crabs, snakes, lizards, wild seeds, roots, and fruits. They made no sort of attempt at cultivation of the ground, and possessed no domestic animal, except the half wild dingo, or native dog. Cannibalism, though occasional, was not so universal a custom as with many other races higher in the social scale, as the New Zealanders and Fiji islanders.

They were divided into numerous small tribes, each composed of a varying number of individuals (from fifteen to three hundred or more), which were constantly at war with each other. They acknowledged no hereditary or formally elected chiefs, but had several curious and complicated social customs, of which those relating to the initiation into manhood, and others designed to prevent the intermarrying of near relations, are the best known. They possessed nothing resembling writing, but native drawings have been discovered, which (as in the case of many others of the least elevated of mankind) show some power of representing graphically the forms of men and animals. Though every tribe spoke its own dialect, all the languages of the continent are said to have possessed closely affined common characters.

It will be seen from this summary that the Australian of the present day is on an immeasurably lower level of civilization than the

Britons were, even as far back as the neolithic period, ages before the invasion of Cæsar, as there is fairly good evidence that the country "was then inhabited by a tolerably large population, divided into tribes, and living principally on their flocks and herds, acquainted with agriculture, and supplementing their food by hunting and fishing. They were acquainted with the arts of spinning and making pottery, and with mining, and exchanged their commodities by barter. They were possessed of boats, in which they could make voyages from France to Britain or from Britain to Ireland. They revered their dead by erecting tombs, and they worshipped the Great Unknown in those rude temples which astonish us on the lonely moor, or the swelling chalk down, or within reach of the sound of the waves on the sea-shore."*

I do not propose to enter into the question of the moral and intellectual character of these or of the other people of whom I shall have to speak, as there is no subject upon which it is so difficult to obtain satisfactory evidence or to draw just conclusions. It is hard enough to do so with people about whom we have ample means of judging, but to attempt it with savages, whose language is imperfectly understood, and whose ideas and notions are most difficult to appreciate, would lead me far beyond the scope of the subject I have undertaken; so I will pass at once to the physical characters of the race.

Although there are many general traits common to all Australians, yet, as indicated above, it is by no means certain that they are such a homogeneous people as has been often supposed. Topinard, who has made a careful summary of the descriptions of various travellers,† thinks that he can distinguish two races, which, either pure or mixed in various proportions, constitute the various tribes now, or recently, inhabiting the continent.

1. The finer race, taller and lighter coloured (chocolate or coppery), with straight or wavy hair, inhabiting the elevated plains of the whole of the interior, and reaching the coast at Queensland, and to the north. These are the people described by Cook at Endeavour Bay.

2. The lower race, negroid, black, and small, with woolly hair, and more prognathous. They are met with chiefly on the coast at various parts, as on the north-west (Dampier), King George's Sound, and the neighbourhood of Sydney. These, Topinard considers the primitive inhabitants of the land; they are now becoming extinct, by absorption into the other, the invading race, and by the encroachments of the latter and of European settlers. He thinks, moreover, that he can distinguish two types of Australian crania; but these have not been associated hitherto with the other characters, as unfortunately the larger number of osteological specimens in our Museums have

* 'Edinburgh Review,' April 1878, No. 302, p. 448.

† 'Étude sur les Races Indigènes de l'Australie.' Paris, 1872.

no indication of the tribe, or of the external appearance of the individual, to which they belonged.

Under these circumstances, it is necessary at present to treat them all as belonging to one race, trusting to future and more careful observations to discriminate between the different branches into which it may have become divided, or perhaps the different roots from which it may have sprung.

With regard to the stature of the Australians, we have really no very precise information; travellers almost always trusting to somewhat vague impressions, instead of actual measurements. Stanbridge, however, gives the average of men of Victoria as 5 feet 5½ inches. As facts contributing to a knowledge of this subject, I may mention that the height of four adult male skeletons now in England are respectively, 1. (Middlesex Hospital) 5 feet; 2. (Cambridge University) 5 feet 4 inches; 3. (Cambridge University) 5 feet; 4. (Barnard Davis collection) 5 feet 1 inch; and four in the Blumenbach collection at Gottingen, are according to Dr. J. W. Spengel, respectively 5 feet 8 inches, 5 feet 5 inches, 5 feet 3 inches, and 5 feet 3 inches, giving an average of 5 feet 3 inches for the eight males. Three female skeletons, two in the museum of the Royal College of Surgeons, and one at Haslar Hospital, are respectively 5 feet 2 inches, 4 feet 11 inches, and 4 feet 11 inches. These numbers are of course quite insufficient to give the true average of the race, but I think that we may infer from them, that the general height is somewhat less than that of Englishmen, whose average, as ascertained by the very careful observations of Dr. Beddoe, is not very far from 5 feet 6½ inches.*

The colour of the skin presents various shades of darkness, never really black, but more usually of a dark brown or chocolate colour. The hair is always black, though often artificially discoloured by lime or ochre. It is greatly developed upon the scalp, face, breast, shoulders, and arms; the men being nearly always full-bearded. The hair on the head has neither the stiff, lank character of the Mongolian and American races, nor (unless in exceptional cases, as those described by Dampier, indicating mixture of other races) the frizzly or "woolly" character of the negro or Melanesian; but is fine, silky, and slightly curled or wavy. When allowed to grow long, it commonly hangs on the head in tangled, shaggy masses. As in general appearance, so in microscopic section, it is intermediate between the two extreme forms mentioned above, having neither the nearly cylindrical form of the lank-haired races, nor the flattening of the frizzly-haired groups of men. It is, in fact, very similar in size and form to that of many Europeans.

The figure of the Australian is variously described by different travellers; but the limbs, especially the legs, are generally said to be

* "On the Stature and Bulk of Man in the British Isles." 'Mem. Anthropol. Soc. Lond.' vol. iii. 1870.

slender, and the head appears disproportionately large. In fact, as will be shown presently, though the cerebral cavity is small, the outline of the bony framework of the head is large and long, and the overhanging brows, profusion of shaggy hair, and luxuriant beard, heighten the effect of size.

Judging from descriptions, and numerous photographs which I have seen, there is a type of countenance common to, and very distinctive of, all Australian natives. In the album of the Anthropological Institute, there are excellent photographs of upwards of fifty natives of both sexes and different ages, which present a remarkable family likeness. It is true that, though from various tribes, these are all from one district, near Melbourne; but others from New South Wales, and from North Australia, show the same common characters, and the general resemblance of the facial portion of the skulls indicates a general prevalence of similar and strongly marked features. These are as follows:—The head is narrow and long behind the ears. The eyes (which are said to be bright and sparkling) are sunk beneath very heavy and prominent brows. The nose is short, not prominent, but very wide, its width at the lower end equalling its height, and being about one-third of the whole width of the face. The upper part of the dorsum is deeply sunk under the projecting forehead, there being no prominence of the “bridge”; the dorsum seen in profile is straight or slightly rounded. The apex is thick and round, the nostrils dilated, their plane directed downwards, outwards, and forwards. The mouth is very wide; the lips thick and projecting, though by no means to the extent observed in most African negroes. The degree of prognathism varies, as will be seen when speaking of the cranium. The chin is usually small.

No part of the organization offers such definite characters for description, analysis, and comparison as the skeleton. The bones are nearly imperishable, readily preserved, and easily examined and measured. Of all parts of the skeleton the cranium is the most valuable, as it gives the means of estimating the volume and form of the brain; and the facial characters, by which the races of mankind are so strongly differentiated, have their outlines clearly indicated in its bony framework.

The Museum of the Royal College of Surgeons contains a fine series of crania of native Australians, fifty-four in number—a far larger series than is contained in any one collection elsewhere. Of these, twelve are from North Australia, Cape York, and Port Essington; one from Queensland; six from New South Wales; nineteen from South Australia; four from West Australia; and the remainder from unknown localities. As I have not been able to find any constant characters by which the skulls from different regions of the continent can be distinguished, I have taken them all together in the following summary of their characteristics, irrespective of locality. Five of the skulls have not arrived at full maturity, having the basal suture still upon (being, therefore, below the age of twenty), and

are consequently rejected in the average of measurements. Of the remaining forty-nine, twenty-six appear to belong to males and nineteen to females; the remaining four being doubtful. The sexual characters are generally very well marked. Of pathological deformities sufficiently marked to interfere with the normal characters of the cranium, or of variations of form caused by premature synostosis of the sutures, there are none; and not one of the series (or any other Australian which I have examined) shows any signs of having been artificially deformed during infancy. These skulls show that the practice of knocking out some of the front teeth on initiation into manhood is not so frequent as some writers on the customs of the Australians would lead us to believe. In only one case, both central upper incisors have been lost, and the right only in five cases, the left in one, though this latter may have been due to natural decay. Among fifteen Australian skulls in the Army Medical Museum, at Netley, three have lost the right central incisor, none the left.

In order to appreciate the distinctive characters of the Australian crania more fully, I have compared them with a corresponding number of Europeans, and have taken Italians as the only nation of which a sufficient number exist in the Museum to obtain a fair average of both sexes. This is owing to the College having a few years ago purchased the valuable collection of ancient and modern Italian and Greek crania, formed by Professor Nicolucci. From these I have selected forty male and twenty female crania from various parts of Italy, taken at hazard from the modern collection, regard only having been paid to their being adult and of no abnormal form. These were probably all from people of the least cultivated classes, and whose average height would not differ greatly from that of the Australian.

In general size, as estimated by the principal external diameters of the cranium, there is a wonderful similarity between the two races. The average horizontal circumference* of the Australians of both sexes is exactly 19·7 inches, while that of the Italians is 19·8 inches.† Though the average length, height, and breadth of each differ individually, these three mean dimensions added together come to exactly the same in both races, as the following table shows:—

| | Australian. | Italian. |
|----------------------|-------------|--------------|
| Average length | 7·2 | 6·9 |
| „ breadth | 5·1 | 5·5 |
| „ height | 5·1 | 5·0 |
| | 17·4 inches | 17·4 inches. |

* This is measured by a tape passed round the skull, just above the glabella, and over the most prominent part of the occiput—the line Op O in Fig. 1.

† The average for both sexes, where the number of skulls of each has not been equal, is obtained by adding together the average procured for each sex separately, and dividing the result by two; otherwise a preponderating number either of males or females in the series would have a disturbing effect upon the general average.

Yet the capacity of the interior of the cranial cavity is very different, the average of the Australians of both sexes being 74·7 cubic inches, or 1224 cubic centimetres, and that of the Italians 83·4 cubic inches, or 1367 cubic centimetres, giving an advantage of nearly 9 inches to the latter. This difference is accounted for partly by the greater thickness of the Australian cranium, but chiefly by its angularity, the upper lateral parietes being flattened and sloping from the median line above like the roof of a house, instead of having the round, dome-like form of the European cranium; being, in fact, as Professor Cleland expresses it, "ill-filled."

The average of the twenty-six Australian male skulls is 78·4 inches, or 1285 cubic centimetres; that of nineteen females, 69·7 inches or 1142 cubic centimetres. The highest male is 88·5 inches (1450 cubic centimetres), or less than the average male Italian (89·1 inches = 1460 cubic centimetres). The smallest of the Australian series (a female) is 62·9 inches, or 1030 cubic centimetres. The greatest care was used to ensure accuracy in the measurements, which were taken by the method to which, after many thousand trials, I have now given the preference—i. e. filling the skull with mustard seed and estimating the quantity by means of Busk's choremometer,* certain precautions being adopted which it would take too long to describe here. It is perfectly clear, then, that in cranial capacity, which is the most accurate way of estimating volume of brain, the Australian savage is very inferior to the Italian peasant.

The general form of the cranium seen from above (the *norma verticalis* of Blumenbach), is ordinarily estimated by stating the proportion which its greatest breadth in the parietal region (Fig. 3, P P) bears to its extreme length from before backwards (O Op), the latter being reckoned as 100. This gives the index of breadth, or latitudinal index, or, as it is often called, the cranial index.† According to the most convenient system of nomenclature, when the index is below 75 the skull is called *dolichocephalic*, or long-headed; when between 75 and 80, *mesocephalic*; when 80 or above, *brachycephalic*, or short-headed. The average length of the male Australian crania of this collection is 7·31 inches, the length of the female being 7·00. This diameter is taken from the *ophryon* of Broca (Fig. 1, Op) to the most distant part of the occiput (O), and does not include the projection of the glabella (G). The average breadth of the male is 5·18, of the female 5·06. The indices are more interesting than the absolute diameters, as they give an idea of the form of the skull. The average latitudinal index of the twenty-six male skulls is 71·2, of the nineteen females, 72·3; so that as a race, the Australians are strongly dolichocephalic. On analyzing the indices of the forty-

* G. Busk, "Note on a Ready Method of Measuring the Cubic Capacity of Skulls," 'Journ. Anthropol. Institute,' vol. iii. p. 200.

† Obtained thus: $\frac{\text{breadth} \times 100}{\text{length}} = \text{index}.$

nine skulls separately, I find that forty-five of them range between 68 and 74, which may thus be called the normal limits of variation. One is exceptionally low, viz. 67, making forty-six out of the forty-nine truly dolichocephalic. Three come into the category of mesocephaly, one having an index of 75, one of 76, and one the altogether exceptional index of 78. Of the genuineness of this last, I have, however, some doubts, as it presents some other aberrant characters. Excluding this, not one approaches the borders of brachycephaly.

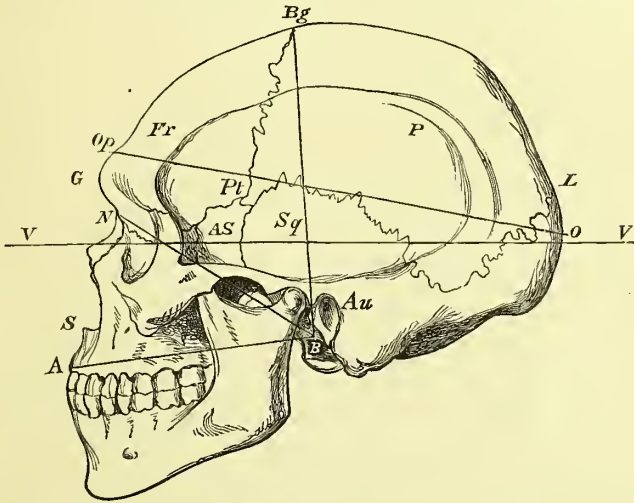


Fig. 1.—Side view of skull of male Australian.* V V. Horizontal line, corresponding with visual axis. A. Alveolar point. S. Spinal point, or base of nasal spine. N. Nasion, or centre of fronto-nasal suture. G. Glabella. Op. Ophryon, or centre of supra-orbital line. Bg. Bregma, or union of coronal and sagittal sutures. L. Lambda, or union of lambdoid and sagittal sutures. O. Occipital point. Au. Auricular point, or centre of external auditory meatus. B. Basion, or centre of anterior margin of foramen magnum. Pt. Pterion, or point where the frontal (Fr), parietal (P), squamosal (Sq), and ali-sphenoid (A S) bones meet.

It is interesting to find that other collections of Australian crania give closely similar results. Thus I found the average latitudinal index of ten male Australian skulls in the Army Medical Museum at Netley, to be 72. Broca gives 71.93 as the average of seventeen of both sexes at Paris, and Dr. Barnard Davis 72 as the average of twenty-three in his collection. From all these various data, there can be no doubt that it is a perfectly well-established fact, that the average cranial index of the skull of the Australians is 72, or slightly

* The figures are all from specimens in the Museum of the Royal College of Surgeons of England. They are drawn geometrically by means of Broca's stereograph, and reduced one-third.

less, and that they are, therefore, to be placed among the most dolichocephalic of races.

The Italians show in this respect far greater variation than the Australians, the extremes ranging between 71 and 91, the average of both sexes being as high as 80, or just within the compass of brachycephaly.

The height of cranium is estimated in various ways by different anthropologists, but the most convenient is the distance from the basion or anterior margin of foramen magnum (B, Fig. 1), to the bregma or junction of the coronal and sagittal sutures (Bg, Fig. 1). This dimension in the Australian skulls of both sexes in the College Museum is practically equal to the breadth. In the males it rather exceeds the latter, but in the females falls short of it. The average altitudinal index (ratio of height to length, the latter being 100) in the male is 72.0, in the female 71.1. The range of variation is greater than that of the breadth, being from 63 to 80. The average altitudinal index of ten skulls of males at Netley is 74, or rather higher than the College series—a circumstance probably due to the latter containing a number of skulls belonging to a peculiar tribe from the neighbourhood of Adelaide, of exceptionally depressed form, of which there are no representatives in the Netley collection.

Every Australian cranium yet examined, of either sex, is what Busk calls *phænozygous*—that is to say, in the *norma verticalis*, when held at arm's length and looked at with one eye, both zygomatic arches are seen at the same time. Of the Italian skulls, out of twenty females, only one is phænozygous, and that very slightly; out of forty males, eighteen present this condition. This depends upon the comparative development of the cranial parietes (Fig. 2, P P) and the zygomatic arch (Z Z), or cerebral *versus* muscular development. In the Australian crania it rather indicates narrowness of brain cavity, than any great size of the zygomata, for as a general rule the various ridges and processes for the attachment of muscles are not very strongly marked. The mastoid processes are not large, and the inion and occipital curved lines are moderate, the former in no case exceeding No. 3 of Broca's scale,* usually but No. 1 or 2 in the males.

On the other hand, every skull, without exception, male or female, has a prominent glabella. In the males it equals No. 3 or No. 4 of Broca's scale, rarely as low as 2; in the females 2 or 3. Even in the children's skulls this character begins to show itself.

The sutures of the cranium are generally less complex than in European skulls, and Wormian bones in the lambdoid suture are less frequent and more simple in character. Metopism,† or persistence of

* "Instructions Craniologiques et Craniométriques," 'Mem. de la Soc. d'Anthrop. de Paris.' T. ii. 2nd ser. 1875.

† One of the many convenient terms introduced by Broca into craniology See "Notions complémentaires sur l'Ostéologie du Crane," 'Bull. de la Société d'Anthrop. de Paris,' 20 Mai, 1875; and "Instructions Craniologiques et Craniométriques," 'Mem. de la Soc. d'Anthrop.' Tom. ii. 2nd ser. 1875.

the frontal suture into adult age (see Fig. 4), does not occur in a single instance; whereas out of the sixty Italian skulls, as many as ten are metopic, which nearly agrees with the statement of Broca, that in European skulls this feature occurs in one out of every seven. The condition of the sutures at the region of the skull, called the "ptereon" by Broca (the anterior part of the temporal fossa, near the great wing of the sphenoid bone, Fig. 1, P), is of some interest as a race-character. These conditions may be classified thus:—1. The squamosal actually coming in contact with the frontal (*Ptèreon retourné*, Broca). 2. The squamosal coming near the frontal (less than half a centimetre) "stenocrotaphitic" crania. 3. An "epipteric" bone, or small separate ossification developed at the upper end of the great wing of the sphenoid. 4. Neither of the above conditions present, but a simple spheno-parietal suture of more than half a centimetre in length, as in the skulls usually considered normal among Europeans (*ptèreon en H.* Broca). Comparing both sides of the whole number of Australians and of Italians examined, the relative frequency of the different conditions in the two races, reduced to terms of 100, is as follows:—

| | No. 1. | No. 2. | No. 3. | No. 4. | Total. |
|---------------------|--------|--------|--------|--------|--------|
| Australians | 9·1 | 37·3 | 14·5 | 39·1 | 100 |
| Italians | 2·5 | 14·2 | 10·8 | 72·5 | 100 |

The form of the skeleton of the face is, as has been mentioned before, extremely characteristic of race, though it has not usually received as much attention as it merits. The facial angle, as it is called, or angle formed by the profile of the face with a horizontal line, has certainly been very much talked about since the time when Camper first drew attention to its interest as a distinguishing character of higher or lower races. Many modifications of Camper's angle have been proposed, both as to the horizontal and the vertical line, and many methods of measurement have been adopted, none, however, so commodious as Broca's "median goniometer." Measured by this instrument, the angle having its apex at the "alveolar point" (anterior and inferior point of premaxillæ in the median line, Fig. 1, A) and one limb passing through the centre of the external auditory meatus (Au), and the other through the "ophryon," or centre of forehead, immediately above the glabella (Op), which may be called the ophryo-alveolo-auricular angle, averages in 42 adult Australian crania of both sexes, 64·5°, or 63·9° for the males and 64·8° for the females; in 60 Italians the average of both sexes is 68·0°, or 67·9° for the males and 68·2° for the females. The size of this angle, it will be observed, depends upon several distinct conditions of the skull, which are not directly related to each other; the chief of which are—(1) the prominence of the forehead, (2) the projection forwards of the upper jaw, and (3) the length of the face from above downwards. The difference of the angle in the two races is chiefly due to the second, for the Australian forehead, though considerably narrower than the European, is very nearly, if not quite, as prominent; the average distance between the basion and centre of the frontal bone (the frontal

radius) being almost exactly the same in both races. This is not surprising considering, as mentioned before, the actual height of the skull at the upper part of the frontal bone (bregma) measured from the basion is greater in the Australian than the Italian.

The prognathism or projection forward of the jaws is most readily estimated by comparing the distance from the basion to the nasion (naso-frontal suture), or the *basi-nasal length* (Fig. 1, B N), with that from the basion to the alveolar point, the *basi-alveolar length* (B A), both most easily measured with the sliding callipers. When the latter dimension considerably exceeds the former, the face is said to be *prognathous*; when the reverse is the case, it is *orthognathous*; when the two dimensions are equal or thereabouts, it is *mesognathous*.

The exact degree of gnathic projection is expressed by an index formed by the relation of the basi-alveolar (B A) to the basi-nasal length (B N), the latter, as the more fixed, being taken as 100. If the index is between 98 and 102, the face may be considered mesognathous; if below 98, orthognathous; if above 102, prognathous.

The Australians taken altogether come into the prognathous category, the general average of the indices of the adult skulls of both sexes, in which the face is preserved, being 104; that of the females alone being nearly 105, and that of the males 103. There is considerable individual variation. In seven cases out of the forty-two, B A is equal to B N, and in five it is actually less. Among the sixty Italian crania measured for comparison, there is also much individual difference, some few being prognathous, and six having the two dimensions equal; but taking the general average, orthognathism prevails, the mean index being 97. In a very well-formed English skull, the gnathic index is as low as 92.

The height of the face of the Australians is less than in the Italians; the length from the nasion to the alveolar point (N A) averages in the males of the former, 67 millimetres, in the males of the latter, 70 millimetres.

The nasal bones of the Australians are extremely characteristic, being remarkable among all races for their shortness, and for the depression of their upper part, which is sunk beneath the overhanging glabella. The importance of the general form of the nasal aperture as a race-character, was pointed out by the late Dr. Williamson, in his catalogue of the crania in the Army Medical Museum; but the readiest mode in which this may be estimated and expressed is one of Broca's numerous and valuable contributions to craniology.* His "nasal index," or ratio between the greatest width of the nasal aperture (Fig. 2, *nn*) and its height—including the nasal bones, and measured therefore from the nasion or centre of the fronto-nasal suture (N) to the lower border of the aperture or base of the nasal spine (S)—is one of the most useful of all the cranial indices in distinguishing races, and is of great assistance in forming an idea of the characteristic

* "Recherches sur l'Indice Nasal," 'Revue d'Anthropologie.' Tome i. 1872.

physiognomy of the individuals composing them. The most usual height of the nasal aperture is about 100 millimetres, the width about 50 millimetres; the index, consequently, 50. This may be taken as a general mean of all races, and thus individuals or races in which the index varies only slightly on each side of this figure (between 48 and 52) are called by Broca, *mesorhine*. Those in

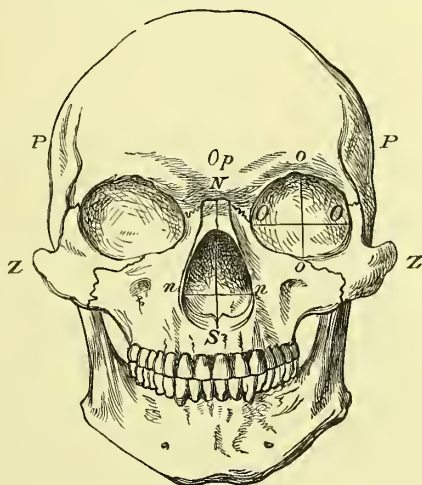


Fig. 2.—Front view of skull of Australian. P P. Parietal eminences. Z Z. Zygomatic arches. Op. Ophryon. N. Nasion. S. Spinal point. nn. Width of nasal aperture. O O. Width of orbit. oo. Height of orbit.

which the index is lower than 48, are *leptorhine*, or narrow-nosed; those in which the index is 53 or higher, are *platyrhine*, or broad-nosed. The Australians come decidedly under the latter category, the general average index of 41 crania of both sexes being 56·5.* Out of the whole number, 34 are platyrhine (more than half have an index between 54 and 58, the highest index being 69), 7 are mesorhine, and these nearly all on the platyrhine side, in one only does the index fall below 50, and not one in leptorhine. Indeed, a leptorhine Australian cranium would be as great a phenomenon as a brachycephalic one, and would require strong proof of its authenticity.† The females, on the whole, are rather more broadnosed than the males, their average being 57·6, that of the males being 55·8. The average nasal index of ten male Australian crania in the Army Medical Museum at Netley, is 54·8.

* This, as with the other general averages, is not the mean of the individual indices, but what is more accurate, the index of the means of the dimensions i. e. $\frac{\text{mean width} \times 100}{\text{mean height}}$.

† There is, however, one in the collection of the Anthropological Institute, which appears to be genuine. The index is only 46.

In the sixty Italian skulls, the average nasal index is 47, there being little difference between the sexes; they are, therefore, as a race, leptorhine, though approaching the confines of the intermediate category. There is, however, very considerable variation among them, as many as 8 being platyrrhine, 18 mesorrhine, and 34 leptorrhine; the highest being 58·3, the lowest 39·6.

The general character of the face depends much on the form of the orbit. In the Australians this is elongated and rectangular rather than round, and with the upper and lower border nearly parallel. The orbital index of Broca, or relation of the height (Fig. 2, *o o*) to the width (O O) of the anterior margin, measured according to the method for which I must refer to his memoir,* gives a good idea of its general shape. A low orbital index shows a wide and depressed orbit, generally overshadowed by a heavy superciliary ridge; a high index shows a round, open orbit. There is much individual variation in this character, as in all others derived from the cranium, in every race; but the averages often give useful differentiating characters. As with the other indices, it is convenient to group them into three—the high (*megaseme*), intermediate (*mesoseme*), and low (*microseme*), the limits of which are set by Broca at 89 and 83 respectively; 86 being taken as the general average of all races. The orbital index of the average male Australian of this collection is 81·8, of the female 82·9, or of both sexes together 82·3; so that taken all together, they are *microseme*. With regard to the variations, 15 out of the 42 are *mesoseme*, and the highest index among the males is 88·1, so that not one of this sex is *megaseme*. Two females, however, enter this category, having respectively indices of 89·7 and 92·1. This quite accords with the fact pointed out by Broca, that as a general rule the orbital index of the female is greater than that of the male; indeed, these Australians are in this respect exceptionally equal. The mean orbital index of the ten male Australians at Netley accords remarkably with that of those in the College of Surgeons' collection, being exactly 82·0. The Italians have a higher orbital index, and therefore rounder orbits than the Australians, the mean index being 86·0 for the males and 90·9 for the females.

The malar bones are remarkably small and weak in the Australians, the lower border especially is very little developed. They also slope away from the median line of the face, and the outer margin of the orbit, as best seen in the profile view of the face, is placed considerably behind the inner margin, offering the greatest contrast in this respect to the Mongolian type, which reaches its greatest development in the Eskimo. The malar bones of the European are deeper and stronger than the Australian, though they also slope backwards from the middle line.

The nasal spine is never large, usually No. 2 of Broca's scale,

* 'Recherches sur l'Indice Orbitaire.' Paris, 1876. Also 'Instructions Craniologiques et Craniométriques.'

or often No. 1, and in two cases it is obsolete, as in the apes. The lower margin of the nasal opening is not sharply defined, as in the European; but the floor of the nasal chamber passes gradually into the anterior or external surface of the alveolar process of the maxilla.

The palate, though varying in different individuals, is often of a form very rarely seen among Europeans, i. e. long and narrow, with lateral margins nearly parallel, and the anterior margin straight (hypsiloid). It has very seldom the even semicircular form (parabolic) seen in many other races.

Though the mandible or lower jaw varies in form in different individuals, when a considerable series is examined and compared with a corresponding series of Europeans, it will be seen that in the majority of the Australians the symphysis is shorter from above downwards, the mentum or chin more retreating, the horizontal ramus longer and lower, with its upper and lower margins more nearly parallel, the ascending ramus not so high, and broader from before backwards, and the coronoid process less developed. In all these characters, as in many of those of the cranium mentioned above, especially the relative smallness of the cranial cavity, the smallness of the nasal bones, the form of the lower margin of the nasal aperture, and the prognathism, the Australian presents some approximation towards the anthropoid ape.

The teeth of the Australian differ considerably, as has often been pointed out, from those of the European, and indeed from most other races, in their superior size, and in the more complete development of the cusps of the molars. In order to estimate with precision the difference in size, I have obtained the following average measurements from examples of both races expressed in millimetres; but as the teeth are lost in many of the skulls in collections, the numbers examined in both cases are not quite so abundant as might be wished:—

| | Male European. | Male Australian. | Female Australian. |
|---------------------------------|-------------------|---------------------|-----------------------|
| Width of upper canine | 7·50 | 8·54 | 8·33 |
| Length of three upper molars .. | 41·53 | 46·67 | 46·00 |
| Length of three lower molars .. | 45·85 | 51·43 | 49·67 |
| Breadth of second upper molar | 11·05 | 12·67 | 12·21 |

The third molars, or wisdom teeth, are more constant, earlier in appearance, and better developed, both as to crown and root, than in the European. There are very few instances in which these teeth are very small and single-rooted among the Australians, and fewer still in which they are absent.

The teeth generally, as with all savages, are remarkably free from decay, though as life advances they wear down from the attrition

occasioned by gritty particles in their food. But it is very rare to find skulls, even the oldest, in which any considerable number of teeth have been lost during life.

For an examination of the characters of the remainder of the skeleton, the materials at my disposal are, unfortunately, very insufficient. The attention of collectors has hitherto been concentrated too much on the skulls, and the preservation of complete skeletons, certainly a matter of greater difficulty, has been much neglected.

The bone, or group of bones, which next to the cranium is most likely to afford good differential characters for races, is the pelvis. The very striking difference between this part in all the apes and in man, would readily lead to the supposition that some difference might be found in it between the higher and lower races of the latter, and it is therefore natural that attention should be directed to the subject.

The most marked difference between the pelvis of man and that of the apes is expressed numerically in the "pelvic index," or relation between the antero-posterior to the transverse diameter of the brim, the latter being taken as 100. In various anthropoids this index ranges between 122 (orang) and 160 (chimpanzee) in the males, and somewhat less in the females. In the European males the average in sixty-three measured by Verneau,* was 80, which nearly corresponds with an average of eleven measured by myself, viz. 81. I have been able to measure eight male Australian pelvises, and find the average index is as high as 99.5, the numbers in the different individuals being respectively 108, 105, 102, 100, 98, 98, 95, and 90; the various Europeans ranging between 96 and 71. The pelvis of the negro has been shown by Vrolik and others to possess the same peculiarity of form. There are other characters of the pelvis, and also of the form and relative proportions of the bones of the limbs by which the Australian appears to differ from the average European; but I will pass them by for the present, as the number of individuals examined is really not sufficient to draw general conclusions from with safety, merely indicating that as far as they go, they appear to show that the Australian resembles the negro and differs from the European in the relative superior length of the second compared with the proximal segment of both limbs, or in other words, the radius and tibia, as compared with the humerus and femur, are relatively longer in the black races.

I must now bring to a conclusion this brief summary of the physical characters of the Australian aboriginal people, for, beyond an imperfect knowledge of their osteology, we have at present no information as to their anatomical structure. The past history of this race, absolutely unknown from documents or traditions of any historic value, is a most interesting subject for speculation. Whether they have, as some suppose, fallen from a higher state of civilization and structure, and have, by whatever cause, degenerated into their present

* 'Le Bassin dans les Sexes et dans les Races.' Paris, 1875.

condition, or whether they represent a phase in the history of mankind generally, both social and physical, once universal, now confined to the Australian continent, and thus offer a parallel to so many of the phenomena connected with the fauna and flora of that remarkable land—a land of living fossils, as it may be called—is at present a question which fails to be answered for want of sufficient data. It may be stated, as a simple matter of fact, and with only such weight allowed to it as to other negative evidence of the kind, that hitherto no remains of any race, presenting the characters of the Australian savage, or indicating so great a departure from the normal modern European standard, have been discovered in any European land. Even for a parallel condition of culture, we must go back to very early prehistoric times.

Whatever the past history of the race may have been, its future is no matter of speculation. On April 28, 1770, the day when Cook first landed on the Australian shore, its fate was determined, and that fate, whether for good or for evil, in the great and complex succession of events which combine to make up the history of the world and shape the future destiny of mankind, is *extinction*. The causes and methods of this extinction will be best illustrated by the story of a kindred and neighbouring people, with whom the event is already an accomplished fact.

To the south of the southern extremity of Australia, and separated from it by an interval of about 150 miles, lies the large island now called Tasmania, having an area equal to about three-fourths that of Ireland. It was discovered in 1642 by Abel Jansen Tasman, on his first voyage of exploration in the South Seas, and named by him Van Dieman's Land, after the governor of the Dutch East Indian possessions. It was then, and indeed until 1798, when its insularity was proved by Bass and Flinders, thought to be part of the mainland of New Holland or Australia. Tasman anchored in the bay, which he named "Frederick Henry," and though he inferred from various signs that the land was inhabited, he did not see any of the natives during his short stay. In 1772, the French navigator Marion du Fresne arrived with two vessels at the same spot visited by Tasman, and there, on the 4th of March, the first meeting of the aborigines with Europeans took place. The former came with confidence down to the French boats, bringing their wives and children with them, but in consequence of a misunderstanding a conflict took place, in which one of the natives was shot and the rest fled.

The first Englishman who approached the shores of Tasmania was Captain Furneaux, of the 'Resolution,' who in March, 1773, having been accidentally separated from the ship of his commander, Captain Cook, coasted along the south and east shores of the island, but bad weather preventing him from landing, he saw none of the people, though he says the country "appeared to be thickly inhabited, as there was a continual fire along shore as we sailed."

On the 26th of January, 1777, Captain Cook, on his third voyage, entered Adventure Bay, Bruni Island, and then the intercourse between the English and the Tasmanians, so fatal to the latter, commenced. Cook thus describes them: "They were quite naked, and wore no ornaments, unless we consider as such, and as a proof of their love of finery, some large punctures or ridges raised on different parts of their bodies, some in straight and others in curved lines. They were of the common stature, but rather slender. Their skin was black, and also their hair, which was as woolly as that of any native of Guinea; but they were not distinguished by remarkably thick lips or flat noses. On the contrary, their features were far from being disagreeable. They had pretty good eyes; and their teeth were tolerably even, but very dirty. Most of them had their hair and beards smeared with a red ointment; and some had their faces also painted with the same composition."*

The next European visitors to Tasmania were the French Admirals D'Entrecasteux and Baudin, in 1792 and 1802; the latter being accompanied, as naturalist, by Peron, who has given us a full description, accompanied by the first published drawings of the people. These, however, are little better than caricatures.

In 1803, Van Dieman's Land was taken possession of by the English, and colonized by expeditions from New South Wales at two points, Port Dalrymple on the north, and Restdown, afterwards Risdon, on the Derwent, near the future Hobart Town. The latter settlement was formed by a military party and convict labourers, and here took place, in May, 1804, the first serious conflict between the natives and European invaders. A party of several hundred blacks—men women, and children—engaged, as it subsequently appeared, in a kangaroo chase, were suddenly seen running down the side of a hill towards the infant colony. The alarmed settlers, thinking they were about to be attacked by a strong force, without any parley, fired volleys among the harmless and unhappy natives, killing, it is said, as many as fifty before the rest could make their escape. After this, of course it was long before amicable relations could be re-established. In fact the "Black War," thus begun, ended only with the departure of the last natives from the island in 1835.† The usual difficulties which attend the colonization of a country already inhabited by a different race from the new comers, were aggravated in the case of Tasmania by the fact that a considerable proportion of the latter consisted of convicts of the most hardened and degraded type, who, frequently escaping from the European settlements, took to a roving and lawless life in the forests as bushrangers, or on the islands in the straits as sealers. From these men, utterly selfish, brutal, and cruel,

* 'Third Voyage,' vol. i. p. 96.

† I am indebted to the painfully interesting work, 'The Last of the Tasmanians,' by James Bonwick, for most of the facts mentioned in connection with this subject.

the natives in most cases first received those impressions of European civilization and character which all the endeavours of the more humane colonists and of the Government could never eradicate; and the injuries that were inflicted by them, led to reprisals upon the more peaceful and well-intentioned settlers, which rendered life, except in the immediate neighbourhood of the most settled districts, so insecure as sensibly to damage the prospects of the colony, and to cause an urgent cry for Government interference. It is stated by Mr. Calder* that "in the five years preceding the close of 1831, ninety-nine inquests were held on the bodies of white people killed by blacks, and of course there were many more who were not known; and in the same period sixty-nine Europeans were reported wounded in encounters with natives." Of the corresponding losses upon the other side it is not possible to form an estimate. An unsuccessful endeavour was made by the Government to divide the country between the two races by a line of demarcation, and a proclamation to that effect was issued on April 15th, 1828; but as there were no means of imparting a knowledge of its contents to those most concerned, who naturally imagined they had a right to wander at their free will through the land which was once their own, it led to no result. More severe measures were then tried, and on October 1st, 1830, martial law was proclaimed against the blacks throughout the island, and the famous operation of the "Line" commenced. The intention of this was to surround the whole of the native tribes by a military cordon, reaching across the island, and gradually to close upon them and finally drive them into Tasman's Peninsula, on the east side of the island, which has a narrow neck, scarcely a mile in width, which was afterwards to be guarded and fortified; and here they were to be kept, while the European population enjoyed their lands in peace. This great operation, which employed nearly the whole population, military and civil, for many months, and cost the colony, it is said, upwards of 30,000*l.*, resulted in the capture of a single black. When the line closed on the neck of the peninsula it was found that all the rest, active, supple, and naked, acquainted with the passes and byways of their accustomed hunting-grounds, had eluded the vigilance of their would-be captors. The original number of the natives appears by this time to have been greatly diminished. Those that had become partially civilized, and had attached themselves as labourers and dependents upon the European farms and families, were dying out, as such people always do, under the influence of the altered mode of life, and the habits (especially spirit drinking) and diseases acquired by contact with whites; and those that retained their original wild condition, were hunted from place to place, and harassed by perpetual skirmishes, not only with the English, but with each other; for when one tribe found its land occupied by the English it was driven into the

* "Some account of the Wars of Extirpation and Habits of the Native Tribes of Tasmania," *Journ. Anthropol. Inst.* vol. iii. 1872, p. 7.

territory of another, a serious matter to people with no resources for food but the chase in a country not abundantly supplied with wild animals. Under these depressing circumstances not only was the mortality of the adults great, but that of the children was greater still; and so it came about, as was ascertained by the events now to be narrated, though it was not suspected by the English colonists, that by this time the entire native population of the island had been reduced to little more than 300.

After the failure of the "Line," other methods were tried to secure the natives, chiefly the offer of rewards for individual captures, but the desired end was finally achieved in a manner almost unexampled in the history of such transactions. There was at that time living in Hobart Town a man of the name of George Augustus Robinson, a bricklayer by trade, of strong religious feelings, and of great enthusiasm for the cause of the oppressed blacks. He had for some time entertained the idea of gradually reclaiming and civilizing them by methods of conciliation; and he was well fitted for this object, having a remarkable natural gift for acquiring influence over them and gaining their confidence and esteem. He gathered round him at a place at Bruni Island, allotted him by the Government, as many as he could induce to adopt settled habits, taught them the rudiments of European education, and learned what he could of their languages and ideas. Believing that the only remaining hope for the savage tribes was to bring them under similar influences, he undertook, notwithstanding their exasperated state, to go among them, with a few English and native companions (among whom were the two by whose busts, now in many of our Anthropological museums, the features of the Tasmanian will be chiefly known to posterity, Wouraddy, and his wife Truganina, afterwards celebrated as the last survivor of the race), without arms of any description, and to persuade them, by promises of protection and good treatment, voluntarily to surrender their freedom. In the course of three years he actually succeeded in accomplishing his end. The last party of eight, consisting of one man, four women, and three boys (one of the latter being afterwards known as William Lanney, the "last man"), were taken at Western Bluff, December 28, 1834, and brought into Hobart Town, January 22, 1835, amid great rejoicings from the colonists. As the successive parties were brought in by Robinson, they were shipped off, first to Swan Island, then to Gun Carriage Island, and finally established on Flinders Island in Bass Straits. The whole number settled here scarcely exceeded 200. They were fed, clothed, and educated (most of them learning to read and write) at Government expense; but the unfavourable climate, total change of mode of life, absence of all the interests and excitements of the chase or of war, and home-sickness, told rapidly on their health. They died one after the other, until, in October, 1847, being reduced to forty-four in all—twelve men, twenty-two women, and ten children—this remnant, thoroughly tamed and not likely to occasion any further alarm to the English colonists, were once more

allowed to return to their native land. A reserve of 1000 acres was assigned to them at Oyster Cove, not far from Hobart Town, and here they were kept under superintendence. Their numbers, however, continued to decrease at the same rate as before, and they lived the degraded life common to half-reclaimed savages, without interests, occupations, or hope. In 1854, there were three men, eleven women, and two boys alive. On the 3rd of March, 1869, died the last male of the race, William Lanney, mentioned before. He had become a sailor, and had made several voyages in a whaling ship, but unfortunately had, like so many in his position, taken to intemperate habits. In June, 1876, died the last woman, Truganina, or Lalla Rookh, as she was afterwards called, the faithful companion of Robinson's conciliatory missions, and who had been, at least on one occasion, the means of saving his life.

I have given this brief outline of what may be called the political history of the Tasmanians, though perhaps departing in doing so from the general scope of the lecture, because of its completeness, and of the illustration it affords, in a concise form, of the almost inevitable results of the contact of two such absolutely different races as the English and the Tasmanian. The details of the history are saddening and painful in the extreme, and yet it would be difficult to say what the world has lost by the extinction of the Tasmanian aborigines.

It appears tolerably certain, from what has been mentioned before, that the Tasmanians were not a numerous race, the various estimates of the whole population of the island, at the time of its settlement by the English, ranging between 4000 and 7000; so they must have been very thinly scattered, and many large districts must have been quite uninhabited. Their isolation from all the rest of the world was more absolute even than that of the Australians, and they were consequently inferior even to them in all the arts of civilization. They possessed no boats by which the straits between Tasmania and the Australian land could be crossed, and they show no indications of ever having been visited by, or receiving any extraneous culture from, natives of any of the Pacific Islands.

Like the Australians, they were divided into numerous small tribes, each speaking a different dialect, as many as nine having been recognized. They had no fixed habitations, wore no clothes of any kind, did not cultivate the ground, or keep domestic animals, had no pottery, and no bows and arrows. They were inferior to the Australians in not knowing either the boomerang or the throwing stick, in having no shields, no dogs, and apparently not knowing how to procure fire as occasion needed, as they always carried with them burning torches of vegetable fibre, which it was the especial duty of the women to tend and keep alive.

It is difficult, indeed, to imagine human beings living in a lower social condition than that of the aboriginal Tasmanians, and yet the partial education which some of the race underwent before their final

extinction, showed that they possessed capacities, intelligence, and moral qualities, by no means inferior to those of many other of the uncivilized races of the world.

As might be supposed, the Tasmanians, having lived in all probability for a great length of time on a restricted portion of the earth's surface, under similar external conditions, and without any intermixture from any alien race, have developed, or at all events perpetuated, a very great sameness of physical characters; and have come to possess a peculiar structural type, by which, taken in its entirety, they can be distinguished from all other people.

It is greatly to be regretted that so little evidence of this has been preserved. Four complete skeletons* and less than thirty skulls, of both sexes and various ages, in this country, are all that we have by which to estimate their stature, proportions, and conformation generally. Their external appearance we judge of by descriptions, some portraits more or less indifferent in execution, some valuable photographs (though on too small a scale) of the latest survivors, and two excellent busts, before mentioned, of a man and a woman modelled by Mr. Murray, of Hobart Town. Of their remaining anatomical structure, nothing will ever be known; in fact we must now, when speaking of them zoologically, treat them as we do fossil animals, and rely chiefly on their bones for distinguishing characters; and the habit of burning their dead, which prevailed as long as they remained in their natural condition, renders these far scarcer than could be wished. It is greatly to be hoped, however, that the present occupiers of their land, who have profited so largely by their extinction, will spare no pains to search for, and secure to science, all that still remains of the race, which they or their predecessors have been the means of destroying.

The height of the Tasmanians is stated to have been somewhat below that of the Australians, but they were of rather stouter build, their bones being generally less slender. The average height of the three male skeletons in England is 5 feet $3\frac{1}{2}$ inches, that of the female 4 feet $7\frac{1}{2}$ inches. Of course these numbers are too small to place much value upon; but they do not differ greatly from Mr. G. A. Robinson's measurements of twenty-three Tasmanian men, whose height varied between 5 feet 1 inch and 5 feet $7\frac{1}{2}$ inches, the average being 5 feet $3\frac{3}{4}$ inches, and of twenty-nine women, who were between 4 feet 3 inches and 5 feet $4\frac{1}{2}$ inches, the average being 4 feet $11\frac{1}{4}$ inches. In colour, they were not unlike the darker complexioned Australians, but they completely differed from that race, or at least from the great majority of them, in the character of the hair, which was not straight, but crisp or frizzled. The women

* These have all been obtained and sent to England by Mr. Morton Allport, of Hobart Town. Two are in the Museum of the Royal College of Surgeons, one in that of the Anthropological Institute, and one in the splendid private collection of Dr. Barnard Davis, at Shelton, in Staffordshire.

used to shave or burn it off close to the scalp, but the men allowed it to grow long, when it assumed the form of small, corkscrew ringlets, which they were in the habit of covering with grease and red ochre, giving it the appearance of a mat or mop of red strings hanging over the head and neck. Naturally its colour was brown of the darkest shade, or what is usually called black. They had a well-developed beard and whiskers, of the same fine curly or "frizzly" nature. In the general character of the features, they do not appear to have differed much from the Australians, having similar heavy brows, short, broad noses, and wide mouths.

The osteology of the Tasmanians has been described by Dr. Barnard Davis* and by Dr. Topinard,† from materials in the collections at Shelton and at Paris. The Museum of the College of Surgeons contains the largest series of skulls at present existing, but they have hitherto been but imperfectly and partially described. They are fifteen in number, of which three are young, and therefore not available for average measurements. Of the adult skulls, six appear to be those of men and six of women. The sexual characters are very well marked, the difference in size being particularly striking. There is no case of artificial or pathological deformation among them.

The crania have the general angular form, prominent median ridge above, and flattened upper parietal region noticed in the Australians, but their special character is a prominence of the parietal eminences, not found in any of the Australian crania, and developed to a greater or less degree in all, and giving a greater latitudinal index. This is even seen in the cranium of a young infant, the form of which is characteristically different from that of an Australian child of corresponding age. Most of the skulls of this series show the elevations and depressions of the surface pointed out by Topinard, as distinguishing the Tasmania crania in the Paris collection, for a description of which I must refer to the memoir cited above. Seen from behind, the skull appears pentagonal, though broader in proportion to its height than the Australian. The glabella is prominent, and overhangs the nasals in every case, even in the females, though to a less extent than in most Australians. The mastoids, inion, and other muscular ridges, are rarely much developed.

Having mentioned that there was no case of metopism or persistence of the frontal suture among the Australians, it is interesting to note that one of the Tasmanian skulls in the collection, that of an old woman, is metopic, and that the skeleton of an adult man in the Museum of the Anthropological Institute is in the same condition. With regard to the pterion (and this is important in relation to the formation of this region in the Mélanesians), in no case does the

* "On the Osteology and Peculiarities of the Tasmanians." Three Plates. 'Nat. Verhand. der Hollandsche Maatsch. der Wetenschappen,' 1874.

† "Étude sur les Tasmaniens," 'Mem. de la Soc. d'Anthrop.' t. iii. p. 307.

squamosal meet the frontal, though it comes very near it in fifteen out of thirty-four cases, and in fourteen epipterics bones are developed. In only five out of the thirty-four is the speno-parietal suture longer than half a centimetre.

The capacity of the Tasmanian cranium has been estimated, both by Barnard Davis and by Topinard, as somewhat greater than that of the Australian, and the measurements of this series lead to a similar conclusion. The average of the six male crania is 1309 cubic centimetres, or 79.9 cubic inches; that of the six females; 1135 cubic centimetres, or 69.3 cubic inches; the general average, 1222 cubic centimetres, or 74.6 inches. Of course these data are taken from too small a series to be regarded as more than approximations. They are somewhat lower than those given by both the authors just named, and though something may be due to difference of method of measurement, it is clearly not entirely so, as in other dimensions, in the estimation of which there is no difficulty, I find that my skulls are inferior to theirs. Thus the average horizontal circumference of the six males is 20.2 (the maximum being 20.4), while the skull at the Anthropological Institute is 21.3, the average of six in the Shelton collection 20.6, and the average of the six measured by Topinard is also 20.6.

As mentioned above, in consequence of the development of the parietal eminence, the latitudinal index is considerably greater than in the Australian. In my series it varies between 72 and 80, the average being 76.0. It is curious that this is exactly the same as the average of nine skulls at Paris measured by Topinard, but the fourteen in the Shelton collection give, according to Dr. Barnard Davis, a lower average, viz. between 73 and 74. The average altitudinal index is 72.8, or nearly the same as that of the Australians. Individually, in twelve out of fifteen crania is the height less than the breadth. The superior width of the skull lies wholly in the parietal region, the average frontal and zygomatic diameters not differing appreciably from those of the Australians.

Turning to the face, we find the principal features presenting a great resemblance to those of the Australians. The projection of the jaws, although in one instance it is so excessive as to disturb the average considerably (the index in this case being 113), is not generally so great as in the Australians—only four out of nine capable of being measured (a very insufficient number for obtaining an average of so variable a character) being within the limits of true prognathy, four being mesognathous, and one truly orthognathous (index 97), as defined above. The ophryo-alveolo-auricular facial angle gives an average of 67.8, or considerably higher than that of the Australian, almost as high, in fact, as the Italian. The face is short from above downwards, the measurement N A being less even than in the Australians (65 for the males, 58 for the females), and the malar bones are small, very shallow from above downwards, and retreating. The orbits are remarkably different in the two sexes; in the males they are low and elongated, with heavy overhanging supra-

ciliary ridges, having an average index of 76·3, lower even than the male Australians; while in the females they are more rounded and open, giving an average index of 85·4, the general average for the race being 80·8, or decidedly microseme. Broca gives the general average of the orbital index of the Tasmanian skulls at Paris at very nearly the same figure, viz. 79·33, but he did not find so great a discrepancy between the sexes.

The form of the nasal bones and of the nasal aperture is not very different from that of the Australians, and, as with them, there is no example of a leptorhine nose among them. Two are mesorhine and the remaining ten platyrhine, the average index of the twelve being 56·8, which accords remarkably with Broca's average of 56·92, found in eight specimens at Paris. The general average of this important index is practically therefore the same as in the Australian.

In the large size, and strongly pronounced character of the teeth, the Tasmanians resemble the Australians; in one point, however, they seem to differ, not only from that but from all other kindred races; and this is one which, I believe, has not been previously recorded. It is the tardy development and irregular position of the posterior molars. These teeth are generally of large size, but there appears to be too little room for them in the jaw, so that only in two out of eleven adult skulls in which their condition can be observed, are all of them normally placed; in all the others, one or more of the wisdom teeth are either retained beneath the alveoli, or are in oblique or irregular positions. This is the more remarkable, as I have never observed a similar condition in any single authentic Australian skull, although occasionally, as before mentioned, small and imperfectly developed wisdom teeth may be found among them.

In the three proportions of the skeleton, which have been mentioned, in which the Australian differs from the European, viz. the greater antero-posterior diameter of the pelvis as compared with its width, the greater length of the tibia as compared with the femur, and especially the greater length of the forearm as compared with the humerus, the few Tasmanian skeletons which I have examined agree completely with the Australian type. The average of the pelvic indices of the three male Tasmanian skeletons in this country is 93; that of the one female, 79.

It will be seen by a reference to the map, that Tasmania, Australia, and the large, numerous, and closely placed islands, which lie between the latter and the Asiatic continent, divide the two great water tracts, called respectively the Indian and the Pacific Oceans. The Pacific Ocean proper is studded over with an enormous number of islands, all, with the exception of the New Zealand group, of moderate or small size, and to which the term Polynesia is collectively applied. Although this ocean had been traversed several times by the enterprising Spanish, Portuguese, and even English voyagers of the early part of the seventeenth century, and the route from the west coast of America to the Malay Archipelago was well known, the discovery of the greater

number of the islands and the establishment of permanent relations with their inhabitants, was reserved for the numerous expeditions made at the latter part of the last century, which had for their special object the exploration of this then comparatively unknown region of the world. Among these the most memorable, both for the extent of new acquisitions to knowledge and for the importance of the results upon the world's history, were the three voyages of Captain Cook. At that time the observation was made, to quote the words of Forster, who accompanied Cook as naturalist in his second voyage, that there are "two great varieties of people in the South Seas—the one more fair, well-limbed, athletic, of fine size, of a kind, benevolent temper; the other, blacker, the hair just beginning to become woolly and crisp, the body more slender and low, and their temper, if possible, more brisk, but somewhat mistrustful. The first race inhabits Otaheite and the Society Isles, the Marquesas, the Friendly Isles, Easter Isle, and New Zealand; whilst the second peoples New Caledonia, Tanna, and the New Hebrides, especially Mallicollo." Subsequent observation has fully confirmed this division, and since the anatomical characters of the two races have been studied, it has been found that they show many strongly marked contrasts. This is seen especially when pure types of each have been examined, for, as might be expected, with races living in close proximity, often occupying the same small island, and prone to invade each other's territory, and to make extensive migrations by sea, a great mixture has taken place, not only along the boundaries of the respective regions inhabited by each, but even extending at certain points far into the interior. As it has become necessary to give distinctive names to these races, that of Polynesian, at first applied indiscriminately to the whole, is now usually restricted to the fairer race of Cook and Forster, while "Melanesian" has been invented for the darker race, although this word has frequently been used in a wider sense than I shall employ it here, to include Tasmanian, Papuan, and even Australian. "Papuan" is often also used as a race-designation for the people inhabiting the New Hebrides and adjacent islands; but the appropriateness of these terms will be better discussed after the facts at present known, connected with the structure and distribution of the races, have been stated.

The islands which at the present time are either wholly or mainly inhabited by the Melanesian race, are that group lying in the western part of the ocean, not far from the coast of Australia, and joining at their northern extremity to the great island of Papua or New Guinea, the principal being New Caledonia, the New Hebrides, the Solomon Islands, New Britain, and New Ireland, which form a nearly continuous semicircular chain embracing the north-east coast of Australia; and lying somewhat away from the rest, the Fiji group, the last but one of the annexations of the British empire.

The most southernmost and largest of these is New Caledonia, about 200 miles long and 30 broad. It was discovered by Cook in 1774 on his second voyage, and has recently been taken possession of

by the French, and used as a penal settlement. To the north and east lies the long chain of the New Hebrides, with the Santa Cruz Islands still farther to the north. These were first discovered by the celebrated Spanish voyager Quiros in 1606, who considered them to be part of a southern continent to which he gave the name of "Tierra Austral del Espiritu Santo"; the latter part of this name being still retained for the largest island of the group, 70 miles long by 25 broad. They were visited in 1768 by the French Admiral, Bougainville, who, besides landing on the "Isle of Lepers," did no more than discover that the land was not a continent, but composed of numerous small islands, which he named the "Great Cyclades." Cook, in 1774, made a complete exploration of them, and thought himself justified therefore in changing the name to "New Hebrides," by which they are now generally known. He visited and stayed some time at Mallicollo and Tanna, but was repulsed by the natives at Erromango; he also partially surveyed several of the other islands, and gave the name of "Sandwich" to one, now more generally known by its native name of Vati.

The New Hebrides, and the nearly adjacent Santa Cruz Islands, have not yet been annexed by any European power, but they have for some years past been visited by the crews of European vessels, actuated by very different motives, and producing very different effects by their visits on the natives. These may be divided into four classes—(1) traders in sandalwood; * (2) collectors of labourers for the plantations of Queensland, Fiji, &c., often no better than kidnapers: to repress and repair the infamous deeds of these two classes, came (3) officers of the English war vessels which cruise in those seas, some of whom, as Captains Erskine and Goodenough, have given interesting accounts of the condition of the islands; and (4) missionaries of various denominations. It is very unfortunate for the reputation of the Melanesians, that the most striking historical events connecting them with our country have been the murders of three most excellent men, who were zealously labouring for their welfare, the Rev. J. Williams, at Erromango, in 1839; Bishop Patteson, at Nukupu, in 1871; and Commodore Goodenough, at Santa Cruz, in 1875—all due, in great probability, to the irritation and suspicion caused by the behaviour of previous visitors of different character and motives. Captain Goodenough himself wrote, "It is remarkable that just in proportion to the amount of people who have been taken away as labourers, so are the natives inclined to assault Europeans. Where white men are least known, the people are most friendly." †

* One of these men, after he had taken in his cargo, was known to fire indiscriminately among the natives, in order to spoil the trade to those who should come to the island after him, and so keep up the price of the article.—Erskine's 'Journal of a Cruise among the Islands of the Western Pacific,' 1853, pp. 330 and 393.

† In historical justice, it should, however, be recollected, that Cook on his first visit to several of the islands of the Pacific was attacked by the natives, and only avoided bloodshed by abandoning the attempt to land.

The social condition of all the natives of these various islands when first discovered was greatly in advance of that of the Australians and Tasmanians, as the following extracts from Cook's account of his landing in New Caledonia, show:—"The ground near the village was finely cultivated, being laid out in sugar-canes, plantains, yams, and other roots; and watered by little rills, conducted by art from the main stream, whose source was in the hills. Here were some cocoanut trees, which did not seem burdened with fruit. We heard the crowing of cocks, but saw none. Some roots were baking on a fire in an earthen jar, which would have held six or eight gallons; nor did we doubt its being their own manufacture. * * * * The plantations were laid out with great judgment, and cultivated with much labour."

The condition of the other islands differed only in details. Their inhabitants possessed fixed habitations, thatched, and sometimes of more than one story, grouped together in villages: as just mentioned, they cultivated the ground, and they reared domestic animals, fowls, and in some cases pigs. They had large double canoes, 30 feet long, connected by a deck or platform, and with a lateen sail or sails, though of a more clumsy construction than those of the Friendly Islands, as the keen eye of the great navigator does not fail to notice. The men wore a girdle of bark or leaves, and the women a short petticoat. They had also earrings of tortoiseshell, necklaces or amulets and bracelets of shells and stones. They fought with bows and arrows, spears and darts. In many respects their moral character, as far as Cook was able to judge of it, contrasted favourably with that of the still more civilized and polished inhabitants of the Society and Friendly Islands, among whom he had just been sojourning. The New Caledonians were "not the least addicted to pilfering, which is more than can be said of any other nation of this sea." Some remarkable instances are related of the honesty of the people of Mallicollo, and the women were everywhere far more reserved and decorous in their behaviour than the true Polynesians.

Captain Goodenough estimated the population of the New Hebrides, Banks, and Santa Cruz Islands, in 1875, at about 70,000, but gives striking evidence of its rapid decrease since the establishment of regular intercourse with Europeans. Not a single island that he visited but presented the same appearance of diminishing population.

It is probable that the range of the Melanesian race was at one time more extensive than at present, and that they were settled in the islands where they at present dwell, and also in many others now occupied by Polynesians, before the arrival of the last-named race, who appear in many cases to have supplanted them. Even in the true Melanesian area, geographically speaking, there is a considerable infusion of Polynesian influence, apparent in the physical characters, customs, and language of the people. The inhabitants of some of the Loyalty Islands, near New Caledonia, for instance, are almost pure Polynesians, derived from an immigration which took place from Uea or Wallis Island in the beginning of the last century. Among the

New Hebridean Islands there are several Polynesian colonies of quite modern origin. In New Caledonia, according to Bourgarel,* the yellow race (Polynesians) number about one-fifth of the whole population, the black race (Melanesians) two-fifths, the remainder being formed by a mixture of the two. The chiefs, and what may be called the aristocracy of the island, mostly belong to the lighter race. On the other hand, traces of the former presence of a Melanesian population are found in some of the central and even eastern Polynesian Islands, as far, according to W. L. Ranken, as Niuc (Savage Isle), Penrhyn Atoll, and Rarotonga,† and in all probability in New Zealand. The different proportions in which the two races are mixed is one of the circumstances which has given rise to the diversities observed in the appearance and character of the inhabitants of many of the islands.

As there is every reason to believe that the Melanesians have been established in the islands they now occupy for an immense length of time, and as they are not naturally given much to rove from place to place, like their lighter-coloured neighbours the Polynesians, strongly marked, special characters have been developed in the inhabitants of the different islands; and it is probable that if sufficient materials were collected, we might be able to distinguish even by the skull alone the particular island from which it was derived. Those who doubt the value of the cranium as a race-character may be surprised at this assertion; but the very few and imperfect observations already made lead me to think that it is probably true. The fact that a skull brought from a particular island without any history, beyond its having been found there, presents characters unlike those generally associated with the inhabitants of that island, proves nothing, as it may have belonged to an individual of another race, who had found his way there by some accidental circumstance. The frequent occurrence of such a case, should convince collectors of the necessity of obtaining larger series from each locality than we are now at present contented with. The larger the series, the more chance is there of obtaining average characters of the predominating race, and of eliminating the influence of individual variations and accidental mixtures.

Unfortunately our knowledge of the distinctive characters of the people of the various islands of the New Hebrides and Santa Cruz Archipelagos is still most imperfect, and that of the Salomon Islands and New Ireland and New Britain even more so. It will be better, therefore, for the present purpose to group them all together, and attempt to describe the characters of what may be considered as the average or generalized Melanesian type.

In stature these people present considerable variation. Some, as

* Bourgarel, "Des Races de l'Océanie Française," 'Mém. de la Soc. d'Anthropologie de Paris,' vol. i. 1860.

† "The South Sea Islands," 'Journ. Anthropol. Inst.' 1877.

those of Mallicollo, are decidedly undersized; they are described by Cook as "a rather diminutive race," and by Goodenough as "a small, poor, weedy people." Cook says, "the people of Tanna are of middle size, rather slender than otherwise; many are little, but few tall and stout." Erskine says, "the people of Vati are of larger stature than the Tannese." Goodenough tells us, "the natives of Espiritu Santo are fine-looking men compared to those of Mallicollo, and reminded me of Fijians;" but we have no accurate measurements of any sufficient number, and there are no skeletons in any of the English museums.

Their head is narrow, the forehead especially, and often retreating. The brow is not so prominent as the Australian. The nose is narrow at the root, but broad below, with wide nostrils; its root is not so depressed as the Australian, and its dorsum is often prominent and arched. In many cases, especially among the northern islands, it assumes what is commonly described as a "Jewish form," arched, and with the tip prolonged downwards. So common does this form of nose appear, that it may almost be considered characteristic of the race. The whole face is rather "hatchet shaped," the sides sloping away from the middle line. The jaws are prognathous and the lips thick. The complexion, though often called "black," in common parlance, is really a dusky brown or chocolate colour. By the character of the hair they are distinctly separated from the Australians, the Malays, and Polynesians, and allied to the Tasmanians and the Negritos, or black people of the Malay Archipelago. On the head it is rather coarse, elliptical in section, and more or less closely curled or frizzled. When allowed to grow long, sometimes it hangs down in close spiral ringlets, as with the Tasmanians, but it more often forms a large fuzzy mop, standing out to a considerable distance all round the head, which remarkable *coiffure* frequently occupies a considerable amount of time and attention on the part of the owner to keep in order. Though the hair is always naturally black, or nearly so, its colour is often artificially modified by the application of caustic lime, made from burnt coral, and by various colouring agents—a practice common among the inhabitants of the Pacific, and which has given rise to reports of fair, brown, and red hair among them; whereas black, or the dark shade of brown commonly so-called, is the universal colour of all the races spoken of in this lecture, as of the great majority of the people of the world. The beard is generally well developed, as is the hair upon the limbs and chest.

My remarks upon the osteological characters of the Melanesians must, from the paucity of materials, be limited to the skulls, and chiefly to those in the collection under my charge. These are twenty-one in number, six from the Isle of Pines, a small island near the southern extremity of New Caledonia; three probably from Vati or Sandwich Island; eight from Mallicollo, collected by the late Commodore Goodenough, and by Dr. A. Corrie, Assistant Surgeon to the 'Pearl'; two from Vanikoro, and two from the Salomons. Crania from New

Caledonia have been described by Bourguet, and from the New Hebrides by Dr. Barnard Davis and Mr. Busk.

The skulls from Mallicollo all present a remarkable flatness of the frontal region, strongly suggestive of artificial pressure in infancy, such as is, or was formerly, practised by many of the Western Americans. It is not, however, the flattening produced by squeezing between two boards, as with the inhabitants of British Columbia, as there is no sign of counter pressure on the occiput, and no lateral bulging of the cranium. The forehead is simply depressed, the remainder of the skull retaining its normal form. This peculiar conformation of the head attracted the attention of Cook and Forster in the living people. The latter says: "In Mallicollo we observed that the greater part of the skulls of the inhabitants had a very singular conformation; for the forehead, from the beginning of the nose, together with the rest of the head, was much depressed, and inclining backwards, which causes an appearance in the looks and countenances of the natives similar to those of monkeys."*

No evidence has, however, yet been obtained of the existence of such a practice among the inhabitants, and no crania from any of the other islands yet examined present any sign of it. If it should prove to be a natural conformation, it will be one without parallel in any known race; if the result of custom, it will be very singular, as being peculiar to one out of hundreds of islands of the oceanic area.†

The average capacity of the eighteen Melanesian skulls in the collection which can be measured is 1320 cubic centimetres, or 80·5 cubic inches. This includes some females; but as there is some difficulty in distinguishing the sexes in several cases, I have taken them all together. It will be observed that this is higher than the average Australian *male* by about 2 cubic inches; showing, if so small a number of specimens can be relied upon, that the Melanesian, like his nearer relation the Tasmanian, is better endowed in this respect than his Australian neighbour.

The most striking general character of the cranial part of all these skulls is their great length and narrowness (see Fig. 3), the sides being remarkably flat, especially in the posterior parietal region. In this conformation they differ totally from the Tasmanians. The average latitudinal index among twenty skulls is 70·4, lower than the Australian, and in fact than any other known race; ‡ and among them are some of the longest and narrowest normal skulls known, one having an index as low as 62. The highest of the series is 75. The relative proportion of height compared to breadth in skulls of the New Cale-

* J. R. Forster, 'Observations made during a Voyage Round the World,' 1778, p. 267.

† Flattening of the occiput is not uncommon among the South Sea Islanders, as among many other races; but it is probably undesigned, and arises from the practice of keeping the infant lying on its back upon a hard board or pillow.

‡ It is singular that the Eskimo, though so widely different in many other characters, approaches nearest to the Melanesian in the lowness of the latitudinal cranial index.

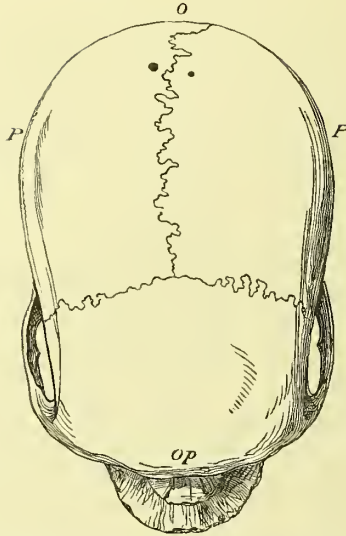


Fig. 3.—The upper surface of the skull of a Melanesian, from the island of Vanikoro, as an example of a dolichocephalic cranium, the relation of the greatest breadth (P P) to the length (Op to O) being as 70 to 100.

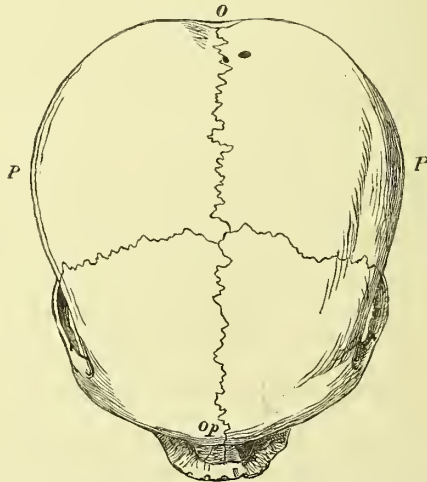


Fig. 4.—The upper surface of the skull of a Polynesian, from the island of Lifuka (Tongan group), a brachycephalic cranium, the relation of the greatest breadth (P P) to the length (Op O) being as 84 to 100. It also shows metopism, or persistence of the frontal suture.

donians has been already commented upon by Dr. Barnard Davis, who has applied the term "hypsi-stenocephalic" to them.* It is remarkable that in this series (none of which are from New Caledonia itself, though from neighbouring islands) the height of every skull, measured from the basion to the bregma exceeds the greatest parietal diameter, and the average altitudinal index is 74·6, or considerably greater than in either the Australian or Tasmanian. In six skulls of New Caledonians, apparently of the pure Melanesian race, in the Army Medical Museum at Netley, the average latitudinal index is 70·1, and the altitudinal index 73·9. These results nearly accord with those obtained from the larger collection at Paris, the respective indices of which, according to Broca, are 71·8 and 73·7, but these probably include some specimens of the mixed race.

In no race known does the condition of the pterion differ so greatly from the average of Europeans as the Melanesian. This is more especially seen in the Mallicollo skulls, where it is the exception for the squamosal not to join the frontal bone, as it does so in ten cases out of sixteen cases, and sometimes very largely. Among these eight skulls there are also two cases of metopism.

The face is generally short, shorter even than that of the Australian, but it has much the same general characters, as narrowness of the frontal region, and weak and retreating malars. The prognathism is almost always marked, the indices of the different skulls in which the bones of the face are sufficiently perfect to allow of measurement never falling below 100, and rising as high as 111 in two and 115 in one case, the average being 105·4. The nasal bones and the nasal aperture are short and broad, but the former have not the extreme reduction and flattening characteristic of the Australian. The index is invariably above 50; the lowest being 51·1 and the whole series averaging 54·9, or rather below that of the Australian.

In the form of the orbit the Mallicollo skulls differ considerably from the others, the upper margin being elevated, drawn back as it were by the depression of the forehead, so as to give an almost circular shape to the opening, as in the case of the deformed skulls of the ancient Peruvians, an argument in favour of the artificial origin of this conformation. The average of the orbital indices in the skulls from this island rises as high as 90, whereas in those from the other islands it is not higher than 81, much the same as the Australian. The prominence of the supraorbital ridges and glabella is occasionally strongly pronounced, but is not universal as in the Australians.

The lower jaw, in some cases, presents most of the marks of inferiority of character which have been pointed out when speaking

* 'On the Peculiar Crania of the Inhabitants of certain Groups of Islands in the Western Pacific,' 1866. *Natuurk. Verhand. van de Hollandsche, Maatschappij der Wetenschappen te Haarlem*, xxiv. Deel.

of the Australians. The teeth have unfortunately been lost in the greater number of the crania of this series, so that I am not able to give average measurements of any value; but they do not appear generally to have been so large and well developed as in the Australians. In one skull from the Isle of Pines, the third molars are misplaced, as was found to be so frequently the case with the Tasmanians.

People having very much the same physical characters as the Melanesians inhabit the islands of the Louisiade Archipelago, those of Torres Straits, and a very considerable part of New Guinea, and even some of the islands farther west, as Aru, Timor, Gilolo, &c. The exploration of New Guinea in an ethnological sense is only now commencing, and promises a most interesting future. The greater part of the island is certainly inhabited by a dark-skinned race, with crisp or frizzled hair; indeed the name by which they are frequently known, "*Papuans*," is said to allude in the Malay language to the latter peculiarity. It is, however, very doubtful whether they all possess the uniform characters of the genuine Melanesian. In a collection of skulls lately presented to the Museum of the College of Surgeons from the east end of the island, by Dr. P. Comrie, late of H.M. ship '*Basilisk*,' while some present the characteristic form of that race, others are short and round, and have facial characters indicating either Polynesian, Malay, or Negrito mixture. The same appears to be the case in other parts of the island.

The Museum of the College contains seven skulls of adult males from islands in Torres Straits, chiefly Erroob or Darnley Island, collected by Mr. Jukes during Captain Blackwood's Survey in 1842-46, and by Mr. Huxley in Captain Owen Stanley's Survey in 1847-50. The average cranial capacity of these skulls is 1340 cubic centimetres, or 82 cubic inches; the average latitudinal index, 72.6; the average altitudinal index, 75.6; gnathic index, 105; orbital index, 84.2; and nasal index, 52.8; so that except that the last measurement is somewhat lower (but it is only taken from five skulls, the other two having the face damaged) and the breadth rather greater, there is little to distinguish them from the New Hebrideans. In culture these people are quite on a par with the last, and contrast strongly with the Australians with whom they come in contact at Cape York.

The inhabitants of the Admiralty Islands to the north of New Guinea, on which no European landed until it was visited by the '*Challenger*' in March, 1875, appear to belong to the same race, according to an interesting description of them by Mr. H. N. Moseley,* but their cranial characters have not yet been described.

Black-skinned people, with close curly hair, have long been known to exist still farther to the west of the Malay Archipelago, in the Philippines, the Andamans, and even the interior of the Malay Penin-

* "On the Inhabitants of the Admiralty Islands," '*Journal of the Anthropological Institute*,' May, 1877.

sula. As long as very little was known of their anatomical conformation, they were confounded with the Melanesians, and the name "Negrito," first applied to them by the Spaniards in Luzon, has often been used for all the people having these two characters, dark complexions and frizzly or woolly hair, throughout the Indian Archipelago and Pacific Ocean, even as far as Tasmania. More complete information has, however, shown that the blacks of the western and northern Malay region differ in many characters from the Melanesians, and I shall follow Quatrefages in restricting the term "Negrito" to them.

They are found at present in the most unmixed condition in the Andamans, a chain of long, narrow islands, in the Bay of Bengal, about 20 miles in breadth and 140 in length, and divided by several narrow channels. These islands were surveyed in 1789 by Lieut. Blair, of the East India Company's Service, and a penal settlement founded upon them, but this was abandoned a few years afterwards; and the islands were not visited by Europeans again until in 1857, after the Indian Mutiny, a commission, consisting of Drs. Mouat and Playfair and Lieut. Heathcote, was sent to examine them, and in consequence of their report, Port Blair was established as a convict settlement for our Indian possessions.

The islands were inhabited by a peculiar race of people, who must have lived in them for a great length of time, with very little, if any, admixture from other races, and have consequently acquired strongly marked and very uniform characteristics. Their warlike disposition, notwithstanding their diminutive size, and their implacable hostility to strangers who were led by accident or design to their shores, have been the chief causes of their isolation. The earliest accounts that were published of their condition led to the belief that their moral and social organization was upon the lowest scale, and that they were among the most degraded of mankind; but the larger experience which has been acquired since the establishment of the settlement, the elaborate memoir of Quatrefages,* containing references to all that had previously been written, the more recent information furnished on personal observation by Day,† Dobson,‡ and others, and the very detailed account of the customs and arts of the Andamanese lately transmitted to the Anthropological Institute, with a large collection of their weapons and manufactures, by Mr. Man, has caused a considerable modification of this idea.

The numerous photographs which have been taken and sent to this country give a very good idea of their external physical characters, and a close examination of them shows that the resemblance to African negroes, which appears to strike everyone who sees them

* "Étude sur les Mincopies," 'Revue d'Anthropologie,' tome i. p. 37, 1872.

† 'Proc. Asiat. Soc. Bengal,' June, 1870, p. 153.

‡ 'Journal of the Anthropological Institute,' vol. iv. p. 457.

for the first time, is rather superficial, and depending much upon colour and the character of the hair, though, by the way, this last is seldom seen, as both men and women have an almost universal custom of keeping the head closely shaved. When the hair does grow, however, it is found to be as finely frizzled as that of the most "woolly-headed" African. A specimen sent home by Mr. Man, for which I am indebted to General Lane Fox, is smaller in transverse section and more flattened than that of any Melanesian or Papuan which I have examined, and very nearly as much so as the hair of the Bushmen of South Africa. Whether the men are full-bearded I cannot say, as the face is always as carefully cleared of hairy appendages as the scalp. The head is very short and round, the forehead flat and tolerably full; the space between the eyes wide; the nose small, straight, and not very broad. In photographs of the full face of Australians, Melanesians, and African negroes, the width between the outer margins of the *alæ nasi* is usually fully one-third of the whole breadth of the face, sometimes more, rarely less, corresponding to the platyrrhine character of the nasal aperture. In the Andamanese it is scarcely more than one-fourth, as in the mesorrhine races. The jaws are not particularly prominent, nor the lips developed and everted to anything like the extent of the African negro, scarcely more, in fact, than in most Malays. The chin appears rounded and well formed.

These characters are taken, as I have said, only from the inspection of photographs, but they are strongly confirmed by examination of the actual crania. The number of specimens available till the last few years were very few, but now is rapidly increasing, and I hope in a short time, through the kind assistance of Dr. J. Dougall, Surgeon-Major, H.M. Madras Army, Senior Medical Officer at Port Blair, to have materials enough to draw up a complete account of their osteology. At present I will only indicate some of the more important points regarding the cranium, founded on the examination of nine specimens, two belonging to the Middlesex Hospital Museum,* one in the Army Medical Museum at Netley, and six in the Museum of the College of Surgeons. Of these, five are males and four are females. As the numbers are so nearly equal, and the differences between them are not great, they may be taken together in the following average measurements. In accordance with the diminutive size of the race (for the men are said to average somewhat under 5 feet, and the women less), the crania are of very small general size, the average circumference being 471 centimetres, or 18.5 inches, and the average capacity 1184 cubic centimetres = 72 cubic inches, the highest being 1280 = 78, the lowest 1100 = 67. The antero-posterior diameter averages 164 centimetres, or 6.5 inches. The breadth of the skull in the parietal region considerably exceeds the Tasmanian, giving a latitudinal index which varies in the nine

* These were described by Mr. Busk, in 'Trans. Ethnol. Soc.' June, 1865.

skulls under consideration between 77 (which is quite exceptional and perhaps somewhat malformed) and 85, the average being 81·7. This is corroborated by the measurements of four skulls of Mincopies (as the Andamanese are sometimes called) in the collection of Dr. Barnard Davis, the average of the indices of which is 81; so we have here a truly brachycephalic race. Exactly contrary to what obtains among the Melanesians, the height is in every case less than the breadth, the average altitudinal index being 77·7. This relation is more due to the breadth being excessive than to the skull being low in proportion to length, as it will be seen that the last-named index is higher than that of any other of the races we have hitherto considered. The general contour of the cranium is more rounded and "well filled" than in any of those races. The forehead is flat, the glabella very little developed, and with no marked depression beneath. The nasal bones are straight and tolerably well formed, the aperture of moderate width, the nasal index varying between 47 and 53, the average being 50·6, so that they are distinctly mesorhine. The orbits of the males and females appear to differ nearly as much as in the Tasmanians, the index of the former being 85·6, of the latter 90·7. Some few of the crania show a considerable amount of alveolar prognathism, but generally much less than in any of the other black races. The average is only 100·3, so they may be considered as a race to be mesognathous. The whole profile of the face, from the middle of the forehead to the alveolar margin, is remarkably straight.

People of small stature, with dark skins, round heads, and curly hair, apparently allied to the Andamanese, have been found in either a pure or mixed state in the interior of the Malay Peninsula (where they are called Semangs), in several of the Philippine Islands (called Aetas), in Formosa, and even as far north as the Japanese island of Kiou-siou. Their range appears formerly to have been more extensive, as they are supposed to have contributed something to the very mixed population of the mainland of Southern India, and their influence may be traced without much doubt into New Guinea, and even Borneo. All these indications appear to show that the present scattered and isolated Negrito populations, chiefly inhabiting comparatively inaccessible regions in the forest-clad mountain ranges in the interior of the islands, are the remnants of a race which once spread over a wide area of south-eastern Asia, but have been gradually dispossessed of their territory by the encroachments of other races, especially the Malays, of whom I must speak next. The whole of the evidence which has at present been collected on this subject will be found in the great work 'Crania Ethnica' of Quatrefages and Hamy, now in the course of publication.

The Malays at present occupy the southern half of the Malay Peninsula, and almost the whole of the Archipelago which is not still in possession of the darker, frizzled-haired people already spoken of. Though a totally distinct race, and when pure presenting most

opposite physical characteristics to the latter, a great mixture has occurred at many points where they inhabit common ground, and it is often difficult to determine which element prevails most strongly in some of the islands near the junction of the territory mainly inhabited by each. I should also mention that there is some evidence of the existence of a third race, in the island of Gilolo and elsewhere, which appears to possess the characters of neither Malay, Negrito, nor Melanesian, or such as would probably be derived from a blending of either; but very little is at present known about them.*

Mr. A. R. Wallace, whose great opportunities of studying the appearance and character of the Malay race are so well known, has given the following graphic description of them:—†

“The true Malay race, as distinguished from others who have merely a Malay element in their language, present a considerable uniformity of physical and mental characteristics, while there are very great differences of civilization and of language. They consist of four great and a few minor semi-civilized tribes, and a number of others who may be termed savages.”

1. Malays proper, inhabiting the Malay Peninsula, and almost all the coast regions of Borneo and Sumatra.

2. The Javanese, Java, part of Sumatra, Madura, Bali, and Lombock.

3. The Bugis, Celebes.

4. The Tagalas, the Philippine Islands.

The savage Malays are the Dyaks of Borneo, the Battaks and other wild tribes of Sumatra, the Jakuns of the Malay Peninsula, &c.

“The colour of all these varied tribes is a light reddish-brown, with more or less of an olive tinge, not varying in any important degree over an extent of country as large as all Southern Europe. The hair is equally constant, being invariably black and straight, and of a rather coarse texture, so that any light tint, or any wave or curl in it, is an almost certain proof of the admixture of some foreign blood. The face is nearly destitute of beard, and the breast and limbs are free from hair. The stature is tolerably equal, and is always considerably below that of the average European; the body is robust, the breast well developed, the feet small, thick and short, the hands small and rather delicate. The face is a little broad, and inclined to be flat; the forehead is rather rounded, the brows low, the eyes black, and very slightly oblique; the nose is rather small, not prominent, but straight and well shaped, the apex a little rounded, the nostrils broad and slightly exposed; the cheek bones are rather prominent; the mouth large, the lips broad and well cut, but not protruding; the chin round and well formed.

“In this description there seems little to object to on the score of

* See Hamy, “Les Alfours de Gilolo,” ‘Bulletin de la Société de Géographie,’ Mai, 1877.

† ‘The Malay Archipelago,’ vol. ii. p. 270.

beauty, and yet, on the whole, the Malays are certainly not handsome. In youth, however, they are often very good-looking, and many of the boys and girls, up to twelve or fifteen years of age, are very pleasing, and some have countenances which are, in their way, almost perfect. I am inclined to think they lose much of their good looks by bad habits and irregular living. At a very early age they chew betel and tobacco almost incessantly; they suffer much want and exposure in their fishing and other excursions; their lives are often passed in alternate starvation and feasting, idleness and excessive labour—and this naturally produces premature old age and harshness of features.

“The Malayan race, as a whole, undoubtedly very closely resembles the East Asian population from Siam to Mandchouria. I was much struck with this, when in the island of Bali I saw Chinese traders who had adopted the costume of that country, and who could then hardly be distinguished from Malays; and, on the other hand, I have seen natives of Java, who, as far as physiognomy was concerned, would pass very well for Chinese.

“It appears, therefore, that whether we consider their physical conformation, their moral characteristics, or their intellectual capacities, the Malay and Papuan [i. e. Melanesian] races offer remarkable differences and striking contrasts. The Malay is of short stature, brown-skinned, straight-haired, beardless, and smooth-bodied. The Papuan is taller, is black-skinned, frizzly-haired, bearded, and hairy-bodied. The former is broad-faced, has a small nose, and flat eyebrows; the latter is long-faced, has a large and prominent nose and projecting eyebrows. The Malay is bashful, cold, undemonstrative, and quiet; the Papuan is bold, impetuous, excitable, and noisy. The former is grave, and seldom laughs; the latter is joyous, and laughter-loving—the one conceals his emotions, the other displays them.”

There is certainly no very great uniformity in the characters of the skulls in our collections which are said to belong to Malays. But at present craniology is labouring under a great disadvantage, owing to paucity of materials and want of accuracy in the indications as to the precise origin of the specimens with which we have to work, and hence is open to the criticisms which Wallace and others have bestowed upon it, as in the work just quoted. If we group in one category a varied series of skulls from the Malay Islands, which may be composed in greater or less proportion of true Malays, of Negritos, of Melanesians, of Chinese, Spanish, Dutch, and even English, we shall have much difficulty in assigning to them any common distinctive characters. Endeavouring as much as possible to avoid this source of confusion, I have selected seven male skulls, which appear to me to be characteristic of the Malay race in its purest form, and from them have taken the following averages. In general conformation they present as great a contrast to the Papuan or Melanesian type, as has been noted in the external and mental qualities of the respective races. On the other hand, their resemblance to the Negrito

skulls is very singular: except in size, many of the Malay and the Andamanese skulls are wonderfully alike.* In capacity these skulls average 1424 cubic centimetres, or 86·9 cubic inches, or considerably higher than those of any of the races hitherto spoken of, and nearly equal to that of the Italians. They are all more or less short and round, the average latitudinal index being 81·4, so that they are equally brachycephalic with the Andamanese. The height is in every case less than the width, the average index being 76·4. The sutures are generally very complex; the pterion in no case shows a union of the squamosal and frontal bones so common in the Melanesian; the forehead is flat and smooth, without projection of the glabella or supraciliary ridges; the nasal bones are flat and straight, the aperture mesorhine, the average index being 50·5; the orbits are fairly round, the average index being 90 (megaseme); the malar bones are large and prominent, the lower part especially projecting forward, quite differently from that of the Australian and Melanesian; the outer margin of the orbit is placed on a much more forward level than in those races, causing the whole face to be broader and flatter. This is a character which allies the Malays with the Mongolian people of the continent of Asia, in whom it is very strongly pronounced. The face is rarely prognathous, usually the reverse, the average index in these examples being 98·2; so that, taken together, they come into the mesognathous category. The palate is short and round, and the teeth small. Of the remainder of the skeleton I have nothing of any value to add from my own observation.

The last, and perhaps in some respects the most interesting and important, of the races of which I shall have to speak this evening is the one which has been called Malayo-Polynesian, Brown Polynesian, Mahori, and simply Polynesian. It is the one which, with, as before indicated, a certain proportion of admixture of the Melanesian race, and with considerable local variations, forms the native population of all the remaining islands scattered over the vast area of the Pacific Ocean. These islands, roughly speaking, form a triangle, with the Sandwich or Hawaiian group, Easter Island, and New Zealand at the three corners, at a distance of 5000 miles apart. Notwithstanding the apparent isolation of many of these, mere little specks as it were in an illimitable expanse of ocean, the greater number of them were when first discovered by Europeans in the last century inhabited; and what is more remarkable, inhabited by people having a great similarity in appearance, in social customs, and in language, so much so that no competent observer who has studied them closely appears to doubt that they must have had a common origin, and that whatever diversities they may now present must be due to local conditions or

* Wallace has already remarked that the Negritos "in most important characters differ more from the Papuan than they do from the Malay." *Op. cit.* vol. ii. p. 278.

admixture with other races. The carefully preserved traditions of the people all tend to the same conclusion. The researches of Hale, attached to Commodore Wilkes' exploring expedition, followed out most ably by Quatrefages,* have even led to the construction of a map, on which are indicated the routes by which the different islands have been peopled, and the dates at which the various emigrations took place have been approximately settled from computations based upon the genealogies of the reigning chiefs. Although much of this is of course mere conjecture, it has only been arrived at after a very full and careful collection of traditions, language, customs, and physical characters of the inhabitants of a large number of the islands, and it forms a valuable basis for future researches into the subject. According to the view of Hale, adopted and modified by Quatrefages, the Polynesians came originally from the Malay Archipelago. The island of Borou is fixed upon by the last-named anthropologist for their last point of departure, though their earlier home may have been somewhere in the mainland of Asia, where probably the kindred race from which the modern Malays are derived was also developed. They proceeded eastward, passing to the north of New Guinea and the Salomon Islands, which they probably found already inhabited by the black population, and on which they could not effect a landing, and settled in the Samoan and Tongan Islands, where their descendants still exhibit the purest type of the race. These islands, and especially Savaii, or Havaii, as it is called in all other Polynesian dialects except the Samoan which alone pronounces the sibilant, became centres, as the population increased, for emigration, which, as these people, like the Malays, are able navigators, was readily accomplished. This accounts for the name Havaii recurring as the native designation of the Sandwich Islands, and for the general tradition in New Zealand and elsewhere of the ancestors of the present inhabitants having come from an island of that name.† For the facts which have been collected bearing upon the details of these migrations, I must refer to the works just mentioned.

The social condition of the Polynesians when first discovered was somewhat in advance of that of the Melanesians. They lived in villages composed of large, airy, thatched houses, cultivated bread-

* 'Les Polynésiens et leur Migrations,' Paris, 1866.

† In Cook's account of his first visit to New Zealand (in 1770) he says:—"Having now given the best account in my power of the customs and opinions of the inhabitants of New Zealand, with their boats, nets, furniture, and dress, I shall only remark that the similitude between these particulars here and in the South Sea Islands [i. e. the Society Islands] is a very strong proof that the inhabitants have the same origin; and that the common ancestors of both were natives of the same country. They have both a tradition that their ancestors, at a very remote period of time, came from another country, and, according to the tradition of both, that the name of that country was *Heavije*; but the similitude of the language seems to put the matter out of doubt." 'Voyages by Hawkesworth,' vol. iii. p. 473, 1773. This, it must be observed, was written before the discovery of the North Pacific Havaii (Cook's Owyhee), or the Samoan Savaii or Havaii.

fruit, cocoa-nuts, plantains, yams, shaddocks, sweet potatoes, and sugar-cane. As domestic animals, they kept pigs, fowls, and dogs. They mostly wore some kind of clothing, generally made of a kind of cloth manufactured from the inner bark of a tree. The practice of very elaborate and artistic tattooing of the skin prevailed extensively. They had no metals, and generally no pottery, but used stone axes, shells, gourds, &c., for domestic purposes. Their weapons were bows, spears, and clubs. Their large and finely built canoes excited the admiration of so good a judge as Cook, and their skill in handling them gained for one group the title of "Navigator Islands" from the French Admiral Bougainville. They were governed by chiefs, and had an hereditary aristocracy, who preserved their pedigrees with great care, and they possessed many complex social customs, among which that of the "taboo" was one of the most influential in its effects on their daily life.

The agreeable and courteous manners of these people, and their docility and generosity, always impress those who come in contact with them, although when excited, as in the not infrequent wars among themselves, they are capable of great cruelty, and human sacrifice and cannibalism prevailed extensively in many of the islands. Indolence, and a considerable laxity in several points of social morality, are also among their failings. As is well known, they have shown a great aptitude to adapt themselves to the external usages at least of European civilization, and the primitive, picturesque, if barbarous mode of life is everywhere rapidly giving way to an imitation of English or American institutions, dress, and customs. Hawaii, which exactly one hundred years ago came for the first time in contact with European influence, by its accidental discovery by Cook on his way to explore the north-west passage by Behring's Straits, has now, though still under native rule, its constitutional government by king, lords, and commons, its churches, its schools, its newspapers, and, as announced within the last few days, its railway.

With the disappearance of the ancient customs, strange to say, the people are themselves disappearing. All accounts tell us of a steady diminution of the population, not only in islands where, as in New Zealand, Europeans have invaded and practically annexed the land, and so curtailed the means of subsistence of the natives, but even in others where the original independence has been retained, the introduction of European institutions and customs, good and bad, and especially of diseases before unknown in those seas, appear to have a blighting effect upon the vitality of the islanders. We all remember how virulently destructive was measles, accidentally introduced among our new fellow-subjects in the Fiji Islands a very few years ago; and pulmonary consumption, apparently unknown in former times, now occasions an immense mortality. The cause of the rapid diminution of the Polynesian population is, however, too large and complex a question to be discussed here; the fact is, however, well attested. As an example, in the Hawaiian Islands, leaving out of the question the probably

exaggerated estimate of Cook, since a regular census has been established, the population has diminished from 130,000 in 1832 to 60,000 at the present time.

Nearly all who have had personal opportunities of observation, agree that the inhabitants of the Samoan or Navigator Islands, and of the neighbouring Tonga or Friendly Islands of Cook, may be looked upon as the most typical representatives of the Polynesian race; and I shall therefore speak of their physical characters first. They certainly present the greatest contrast to the Melanesians, and perhaps the greatest resemblance to the Malays; indeed, the Rev. S. J. Whitmee, who lived many years in Samoa, and has studied the natives with great care, says, in an interesting article in the 'Contemporary Review' for February, 1873, that morally, intellectually, and physically, the description given by Wallace of the Malays (quoted above) applies exactly to the Samoans, with the only difference that the latter are a people of much larger stature, a circumstance which he attributes to their more abundant supply of food. Commodore Wilkes thus describes the Samoans:—"The average height of the men is 5 feet 10 inches, and some of the chiefs, whose limbs are well rounded, would be called fine-looking men in any part of the world. Their features are not in general prominent, but are well marked and distinct, and are all referable to a common type. The nose is short, and wide at the base; the mouth large, and well filled with large and white teeth, with full and well-turned lips; the eyes black, and often large and bright; the forehead narrow and high, and the cheek bones prominent. It was observed that some of them had the eyes turned up at the outer corner, like the Chinese. Of beard they have but little, but their hair is strong, straight, and very black. The general form of the skull is broad and short, and it is highest near the crown." The colour of the skin, as in other Polynesians, is yellowish or light brown; sometimes as light as that of Southern Europeans, but varying somewhat according to the habitual exposure to the atmosphere and sun and other causes.

The Museum of the College contains, unfortunately, only five crania of Central Polynesians on which to found a description of the race characters; but they agree so well in all their principal features, that I think it probable that they are fair specimens of the type. Of these three are Samoan, one Tongan, and one from St. Augustine's Isle, in the Ellice group. They are all adult males.

Their average capacity is 1420 cubic centimetres, or 86·7 cubic inches. They are all round skulls (see Fig. 4), the indices of breadth varying between 77 and 88, the average being 82·2. The height is either equal or less than the breadth in each case, though they may generally be described as high skulls, the average index being 77·8. In no case does the squamosal meet or even approach near the frontal, and none has epipteric bones. They are all phænozygous, but very slightly so. The forehead is flat, the glabella not greatly developed, the face long and straight; the nasal aperture narrow, the nasal index

varying between 39·3 and 46·3, the average being 44·3; the orbits round and high, the average index being 92·8. The jaws in three cases are mesognathous with indices of 99, 99, and 100 respectively; but one is remarkably orthognathous, with an index of only 92; this may, however, be an exceptional case: the other cannot be measured. The malar bones are greatly developed, as in the Malay, presenting a marked contrast to those of the Australian. The size and forward position of these bones are among the features by which they can be most readily distinguished from European skulls. The lower margin of the orbit, and the long axis of the orbital aperture instead of being nearly horizontal, as in the Australian and Melanesian, are inclined downwards at the outer side. The palate is short and semi-circular; the teeth not particularly large. It will be seen that in all their essential features these skulls resemble those of the Malays. They are, however, rather larger, and especially higher; the face is longer and somewhat less prognathous, and the nose is narrower.

When a typical Polynesian, as a Samoan cranium, and a typical Melanesian, as one from the New Hebrides, have once been compared and contrasted, they can be recognized at a glance; as they differ quite as much as does the external appearance of the people. Some skulls which were presented many years ago from the island of Lifu (Loyalty group) by Dr. George Bennett, are most characteristically Polynesian—the nasal index alone would separate them from the Melanesians, among which they would be arranged geographically; and this perfectly accords with what we know of the external characters and history of the people to whom they belong, the Loyalty Islands having been colonized, as already mentioned, some 150 years ago from Wallis Island, in Central Polynesia.

It is very interesting to observe the physical evidence of the gradual blending of the two different types in different proportions in regions where, on other grounds, they have been supposed to be intermixed. Thus among skulls brought from the Fiji and most of the neighbouring islands, some are purely Polynesian, some as purely Melanesian, others presenting a combination of characters. Professor Rolleston has been kind enough to allow me to examine a series of crania lately acquired by the University of Oxford from the Central Caroline Islands, inhabited by a population generally admitted to present the characters of a mixed race. These skulls exactly corroborate this view. All the principal cranial indices are intermediate between those proper to the Melanesian and those belonging to the Polynesian type.

The Maoris, or native population of New Zealand, if true Polynesians, as is usually supposed, have departed considerably from the Samoan type. They are darker in colour, have usually more curl in their hair, stronger beards, more prominent and aquiline noses, longer heads (the average cranial index of all that I have measured being 75), rather lower orbits (89), and slightly wider though still leptorhine noses (47). It is possible that this change of type may have taken

place simply as the result of three or four centuries' isolation under different conditions, and is therefore something similar to that which appears to be in process among the English in North America; but it is very suggestive of an admixture of Melanesian blood, as every one of the points mentioned form an approximation more or less pronounced towards that race. Although it has been doubted by some authors, it is asserted by others that there are Maori traditions indicating the existence of an aboriginal population, though probably not a numerous one, upon the islands before they were invaded from Rarotonga in the beginning of the fifteenth century. If this were the case they were probably Melanesians, and their absorption into the ranks of the conquering race would cause the physical changes noted above.

However this may be, the present Maoris are a fine race, tall, muscular, and well built; brave, active, and intelligent; "in truth," as Sir David Wedderburn remarks, "as near an approach to the ideal of a 'noble savage' as has ever existed in modern times."* Notwithstanding this, and the great aptitude some of them have shown for adopting the habits of European civilized life, several being already members of the legislative assemblies in New Zealand, and one having at present a seat in the cabinet, their extinction under English influence appears to be coming on as certainly as that of their very inferior Tasmanian and Australian brethren. Their numbers in 1849 were estimated by Sir George Grey at 120,000, ascertained by census in 1858 at 56,000, and in 1874 at 45,470, all but 2000 being inhabitants of the North Island.

The Maoris themselves are guilty of having exterminated in a very ruthless and complete manner, even within the present century, a kindred race. The history of this transaction illustrates very well on a small scale one of the processes by which the ethnology of the Polynesian Islands, and indeed, we may say, of the whole world, has been gradually modified. In 1835 a party of New Zealand natives, finding themselves short of room in their own country, probably either directly or indirectly through the encroachments of European settlers, resolved to seek their fortunes elsewhere, and chartering an English brig, sailed for the Chatham Islands, which were then inhabited by a people called Morioris, a branch of the Polynesian stock, but who having long lived on a small and not very productive island, were inferior in physique and warlike acquirements to the Maoris. The invaders had, therefore, little difficulty in taking possession of the islands, and in a few years had destroyed and eaten most of the original inhabitants, and reduced the rest to slavery. At the present time, according to Mr. E. A. Welch, the islands are inhabited by as varied and motley an assemblage of people as can well be imagined:—Morioris, Maoris, Kanakas, Negroes, Chinese, Spaniards, Portuguese, Danes, Germans, English, Irish, Scotch, Welsh,

* "Maoris and Kanakas," 'Fortnightly Review,' June, 1877.

Yankces, natives of South America, a Manilla native, a Laplander, a Russian Finn, a half-caste native of New Holland, &c.*

As far as we know, the Eastern Polynesians, the Hawaiians, Marquesans, and Tahitians, do not differ materially in their physical characters from the Samoans. The Marquesans were described by Cook as "without exception the finest race of people in this sea. For fine shape and regular features, they perhaps surpass all other natives." I wish that I could give some details of their cranial conformation from actual observation, which would corroborate or modify the ordinary view of their origin and affinities, but I have not hitherto had an opportunity of doing so. Dr. Barnard Davis has a magnificent series of 116 crania of Kanakas, or natives of the Hawaii or Sandwich Islands, and gives their latitudinal index in his valuable "Thesaurus" at 80, which nearly corresponds with that of the Central Polynesians. It will be interesting to see whether the facial characters also agree.

In bringing to a conclusion this very slight and superficial sketch of the anthropology of an immense region of the earth's surface, I may be expected to say something as to the meaning attached to the word "race," so frequently used. It is better to confess at once that it is extremely indefinite and arbitrary, than to attempt to give an accurate definition. To such groups as I have spoken of under this designation, some anthropologists would apply the term "species." Although this word has not now the definite signification that was formerly attached to it, yet having some experience of its customary use among zoologists, and looking from a purely zoological point of view at the distinguishing characters of these types, races, varieties, or whatever we like to call them, I certainly cannot apply the term species to them in the same sense in which it is ordinarily used in zoology; much less can I believe in the view of the separate and distinct origin of any of these races.

The attempt to form a precise and harmonious scheme of classification is here, as elsewhere, beset with insurmountable difficulties. The endless gradations of distinctive characters can only be most rudely expressed in our artificial systems. We may speak of branches and sub-branches, varieties and sub-varieties, races, species, &c.; but these all are attempts to express degrees of difference connected by endless intermediate conditions, and passing insensibly from one to the other. The first and lowest degree or indication of race characteristics in man, is seen in the inherited traits of various members of a family, or tribe; the next in the more strongly marked and more permanent characters seen in the inhabitants of some district, especially where distinction of language interposes a barrier to communication and intermarriage. Where there are few natural or artificial barriers to mutual and extended intercourse, the characteristics of the different

* E. A. Welch and Barnard Davis, "The Morioris or Native Race of the Chatham Islands," *Journ. Anthropol. Soc.* Nov. 1869, p. 97.

families or tribes become blended, and an absence of uniformity and an irregularity or variety in characters is produced. On the other hand, isolated groups of people tend to uniformity of character in some special direction. Certain peculiarities become in the course of ages more and more pronounced, and the longer time that this process continues, the more permanent and indelible do such peculiarities become, and the more stable is the type produced; exactly as is well known to be the case with the different breeds of domestic animals. This applies not only to the bodily, but also to the intellectual and moral qualities. As the necessity for depending for very existence on the acuteness of the perceptive organs may, in some races, during the course of generations increase the powers of vision and smell, and modify the anatomical structure of the organs by which these senses act, so also may certain mental and moral characteristics in the course of time become stamped more or less firmly upon all members of the race.

The view of this great question, which appears to be most philosophical as well as most consistent with facts, is that which is intermediate to the two extremes held by certain anthropologists; viz. that of the inherent, radical, and impassable distinction between the different groups of man and that of the perfect equality and identity of all mankind. The theory that an Australian or a Polynesian merely requires to be educated and placed in the same circumstances with a European to be his equal in maintaining his position in those circumstances, or *vice versá*, ignores the teachings of physiology. He can no more be expected to do so than the foal of a cart-horse, with any amount of training which may be bestowed upon him, can be expected to win the Derby. But just as the cart-horse and the thorough-bred have been developed from one original stock, and will unite and produce intermediate forms, and will without selective breeding revert to some common form, so it is with the races of man, however much this may be disputed by the extreme school of polygenists.

This being the general view of the position of these races, the divisions we make are necessarily arbitrary, and have no natural barrier between them, and no strict equivalency, and the nature of our classification will depend upon what characters we lay most stress upon as indications of affinity. We see already in the subjects of this course very striking characters, those of the hair and of the form of the skull, not correlated, as in the Andamanese and Melanesians. The various groups of men upon the world, whether originally all straight-haired or all frizzly-haired, must, it has been argued, have separated at some time into two primary divisions, the *Leiotrichi* and the *Ulotrichi* of Bory de St. Vincent, a view to which Professor Huxley is inclined to give much weight. This would be a simple starting point for our classification. But on examining other characters, some of which seem equally important, difficulties arise. First let us take the case of the Australians. Their general aspect, all their cranial and skeletal characters ally them so closely to the Melanesians, and

also to the African negroes, that it is extremely difficult to suppose that so many coincidences could have arisen in two stocks which had already diverged so far as to fix permanently the distinctive characteristics of the hair. Again, take the Negritos of the Indo-Malayan Archipelago. Here we have a woolly-haired people, with scarcely any of the osteological and perhaps cerebral characteristics of the other negroid races. The alternative supposition that woolly hair could have originated independently, upon different branches of straight-haired races, is also beset with difficulties. It is clear, however, that setting aside the doctrine of separate creation, one or other of these events must have taken place; but which is the more likely is impossible, in our present state of knowledge, to decide.

Very much still remains to be done with regard to the history of man in the part of the world we have been considering this evening, both in the confirmation or amendment of the truth of these general conclusions, and in the completion of the various details. And now is the time, if ever, when it must be done.

Many of these people have lived in their sea-girt homes, isolated from the rest of mankind, for ages untold, and with probably little or no change in their habits or physical characteristics. Among others, the movements, migrations, and interchange of ideas and customs, and progressive improvements, which have taken place have been of the most partial, slow, and gradual character. But within the lifetime of some still among us, a marvellous transformation has been wrought among them. It is scarcely a hundred years since the veil of darkness and mystery which enshrouded these regions was uplifted, and the very existence of most of the races of which I have been speaking was first revealed to the civilized world. It is only within the present century that the great movement has taken place, the rush of the Anglo-Saxon race into the islands of the Pacific, which is rapidly shaking to the foundations all the old ethnological landmarks, and, with accumulating speed, sweeping away, not only the characteristic customs, traditions, and languages of the people, but even the very people themselves. In another half century, the Australians, the Melanesians, the Maoris, and most of the Polynesians, will have followed the Tasmanians to the grave. We shall well merit the reproach of future generations if we neglect our present opportunities of gathering together every fragment of knowledge that can still be saved, of their languages, customs, social polity, manufactures, and arts. The preservation of tangible evidence of their physical structure is, if possible, still more important; and surely this may be expected of that nation, above all others, which by its commercial enterprise and wide-spread maritime dominion has done, and is doing, far more than any other in effecting this destructive revolution.

[W. H. F.]

TABULAR OUTLINE OF THE PRINCIPAL PHYSICAL CHARACTERS OF THE RACES TREATED OF IN THIS LECTURE.

| Race. | Stature. | Colour. | Hair. | Beard, &c. | Capacity of $\frac{1}{8}$, in Cubic Inches. | CRANIUM. | | FACIAL INDICES. | | |
|--------------------------------|----------------|-------------|-------------------|----------------|--|-------------------------|------------------|------------------|---|----------------|
| | | | | | | Index of Breadth. | Index of Height. | Gnathic. | Orbital. | Nasal. |
| A AUSTRALIAN | Medium | Blackish | Straight or Waved | Well developed | 78 | 72 Dolichocephalic | 72 | 103 Prognathous | $\frac{\text{♂ } 82 \text{ ♀ } 83}{82}$ Microseme | 57 Platyrrhine |
| TASMANIAN | Medium | Blackish | Frizzly | Ditto | 80 | 76 Mesoceph. | 73 | 103 Prognathous | $\frac{\text{♂ } 76 \text{ ♀ } 85}{81}$ Microseme | 57 Platyrrhine |
| MELANESIAN | Variable | Blackish | Frizzly | Ditto | 80 | 71 Dolichoceph. | 75 | 105 Prognathous | $\frac{\text{♂ } 81}{81}$ Microseme | 55 Platyrrhine |
| NEGRO . . | Very Small | Black | Very Frizzly | ? | 74 | 82 Brachyceph. | 78 | 100 Mesognathous | $\frac{\text{♂ } 86 \text{ ♀ } 91}{88}$ Mesoseme | 51 Mesorrhine |
| MALAY . . | Small | Light Brown | Straight | Nearly absent | 87 | 81 Brachyceph. | 76 | 98 Mesognathous | $\frac{\text{♂ } 90}{88}$ Megaseme | 50 Mesorrhine |
| POLYNESIAN | Tall or Medium | Light Brown | Straight | Scanty | 87 | 82 Brachyceph. | 78 | 98 Mesognathous | $\frac{\text{♂ } 93}{88}$ Megaseme | 45 Leptorrhine |
| ITALIAN (added for comparison) | Medium | White | Straight or Waved | Well developed | 89 | 80 Meso. or Brachyceph. | 73 | 97 Orthognathous | $\frac{\text{♂ } 86 \text{ ♀ } 91}{88}$ Mesoseme | 47 Leptorrhine |

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