

CHAPTER XII.

ETHNOLOGY.



HAVING in previous chapters discussed the general civilisation of the prehistoric inhabitants of Scotland, we now come to examine their physical characteristics, as disclosed by such fragmentary remains of their bodies as have survived to the present day, and the relation of these characters to those of foreign contemporaries, with the view of gathering some information regarding the part of the world from which our ancestors came, and the branch of the human family to which they belonged.

One of the most important facts inculcated by the science of anthropology is that racial characteristics are more persistent than the superficial varnish supplied by a sudden alteration in social environments, such as occurs when one nation conquers and governs another. In this way the interval of a few generations might suffice to bring about a complete change in the language and culture of a people; but such influences do not so readily affect the organic elements which determine the physiognomy, the stature, the conformation and proportions of the body, and the colour

of the skin, hair, and eyes. In support of this doctrine I might refer to the oft-quoted observation that the physical peculiarities of the old-world races of the Nile valley, as depicted on Egyptian tombs, have not materially altered during the last five thousand years. Applying these principles, even should they have to be greatly modified by the results of cross-breeding, to the inhabitants of the British Isles, we should naturally expect those of the present day to preserve some of the typical characteristics of their prehistoric forefathers. Although, in this case, we have no pictorial representations of the ancient Britons as a standard of comparison, there is still extant a remarkable description of them, which for our purpose is equally good. In his *Life of Agricola*, the Roman historian Tacitus thus writes: "Who were the first inhabitants of Britain, whether indigenous or immigrants, is a question involved in the obscurity usual among barbarians. Their temperament of body is various, whence deductions are formed of their different origin. Thus, the ruddy hair and large limbs of the Caledonians point out a German derivation. The swarthy complexion and curled hair of the Silures, together with their situation opposite to Spain, render it probable that a colony of the ancient Iberi possessed themselves of that territory. They who are nearest Gaul resemble the inhabitants of that country, whether from the duration of hereditary influence, or whether it be that when lands jut forward in opposite directions climate gives the same condition of body to the inhabitants of both. On a general survey, however, it appears probable that the Gauls originally took possession of the neighbouring coast. The sacred rites and superstitions of these people are discernible among the Britons. The languages of the two nations do not greatly differ. The same audacity in provoking danger and irresolution in facing it when present is observable in

both. The Britons, however, display more ferocity, not being yet softened by a long peace ; for it appears from history that the Gauls were once renowned in war, till, losing their valour with their liberty, languor and indolence entered amongst them. The same change has also taken place among those of the Britons who have been long subdued ; but the rest continue such as the Gauls formerly were" (chap. xi.)

The above statement I regard as a valuable landmark in British ethnology, as it discloses, at the very dawn of the historic period, the existence of two extremely different types of people in different parts of Britain. Although the evidence on which the historian assigns the one (Caledonians) to a German and the other (Silures) to a Spanish origin may not satisfy modern criticism, it does not follow that his conclusions are erroneous.

With regard to the early ethnology of Western Europe, I have elsewhere¹ attempted to establish the truth of the two following propositions : (1) that during the Quaternary period only dolichocephalic crania have been met with ; and (2) that the first appearance of a brachycephalic people on the scene was contemporary with the rudimentary development of the Neolithic civilisation of Europe. My concluding words on the subject were as follows : "From the amalgamation of these varied races the highly mixed populations of modern Europe can be readily accounted for ; but whether the brachycephalic people have been evolved from the older dolichocephalic types still remains a controverted problem. To my mind the glimpses which both archæology and human palæontology have given us of the career of man in Europe agree in support of the hypothesis that two peoples, long and widely separated, had come into contact in Southern France, and perhaps elsewhere, at the

¹ Prehistoric Problems, p. 160.

close of the Reindeer period. Of these the dolichocephalic were the oldest, and probably the direct representatives of Palæolithic man."

When these words were written there was no occasion to pursue the subject through Neolithic times, my task being then restricted to the remains of Palæolithic man, but now it forms the starting-point of our inquiry. Considering the rapidity with which craniological researches have advanced within recent years, and the large amount of materials now available for discussion, it will be necessary in this sketch to dispense as much as possible with technical and anatomical details, and to confine ourselves chiefly to results which we consider to be well founded on facts.

1. *Craniology.*

The first to make a definite statement based on anatomical data with regard to the prehistoric inhabitants of Scotland was Sir Daniel Wilson, who, as early as 1850, read a paper at the British Association on "The Existence of Primitive Races in Scotland prior to the Celtæ." Writing in 1863, he makes the following remarks: "The results of my first investigations into the physical characteristics of the earliest races of North Britain appeared to me sufficient to establish the fact that the Aryan nations, on their arrival, found the country in the occupation of allophylian races, by whom the wilds of Europe had already been reclaimed in part for the use of man. Still further, I was led to conceive—contrary to the conclusions of Continental investigators of the same evidence in relation to Northern Europe—that the earliest Scottish, and indeed British, race differed entirely from that of Scandinavia, as defined by Professor Nilsson and others, being characterised by the markedly

elongated and narrow cranium, tapering equally towards the forehead and occiput, already referred to here under the

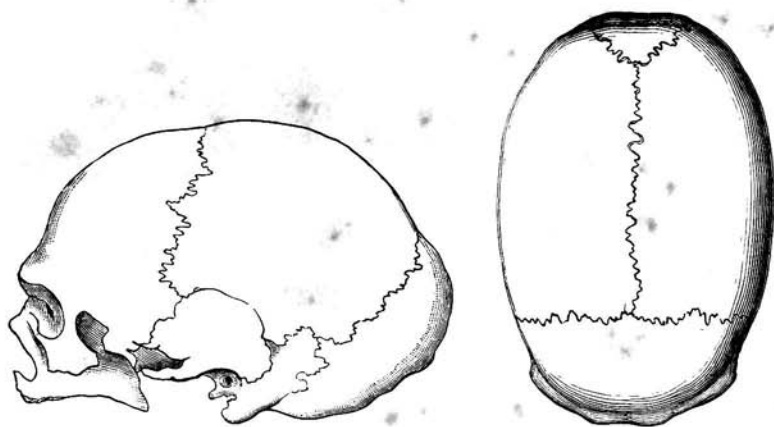


Fig. 258.—Two views of a skull from a cairn at Nether Urquhart, Fifeshire.

name of kumbecephalic or boat-shaped skull. It is a form by no means peculiar to Britain.”¹ As illustrations of the

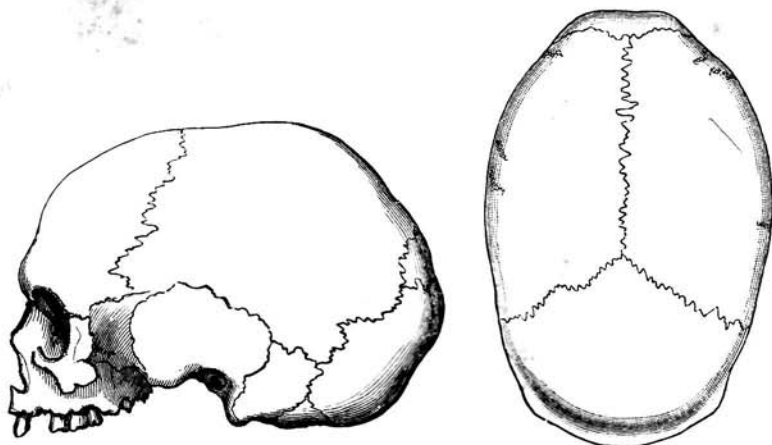


Fig. 259.—Two views of a skull from a stone cist at Cockensie, East Lothian.

kumbecephalic skull, Sir Daniel figures two crania (figs. 258 and 259), both from the National Museum of

¹ Prehistoric Annals, 2nd ed., vol. i. p. 249.

Antiquities in Edinburgh. One of these was "obtained from a cist discovered under a large cairn at Nether Urquhart, Fifeshire"; and the other from one of a "group of short stone cists, opened at Cockenzie, East Lothian." The cephalic index of the former is 70.7, and of the latter 75.7.

With regard to Professor Nilsson's views on the priority of a brachycephalic race in Scandinavia, it may be mentioned that he subsequently abandoned them, as at p. 121 of the third edition (1868) of his 'Primitive Inhabitants of Scandinavia' we find the following statement: "Some isolated brachycephalous crania have been occasionally found in our stone sepulchres; but it may be taken for granted that the people who constructed these sepulchres belonged to one of the dolichocephalous races which still inhabit the greater part of the country." Sir Daniel Wilson associated the British dolichocephalic race with the constructors of the chambered barrows in the south-west of England, and maintained that they were succeeded by a brachycephalic people, "among whom apparently the simple arts of the Stone period still prevailed; though in their later barrows, weapons and implements of bronze indicate their acquisition of the metallurgic art." Both these races he regarded as pre-Celtic. But, however this may be, it was inferred, from the data then collected, that during the later portion of the Neolithic period in Scotland there existed two races, differing widely from each other in physique, and especially in the form of the skull, the earlier of the two being dolichocephalic and the other brachycephalic. The tendency of subsequent investigations has been not only to confirm the truth of this hypothesis, but to extend its application to much wider areas, embracing the whole of Western Europe, as will be shown in the sequel.

Through the researches of Bateman,¹ Thurnam and Davis,² Busk,³ and others, archæologists have been long conversant with the great generalisation that the human crania from the chambered cairns of Wiltshire, Somerset, Gloucester, and some adjacent localities were, as a rule, dolichocephalic. The occasional presence of a brachycephalic skull in some of these cairns was easily explained on the supposition that the short-headed people appeared on the scene while their predecessors were still practising these methods of sepulture. The co-existence of these two types of crania in the round barrows of the Bronze Age goes far to support this view.

The ethnological doctrine thus formulated has been greatly strengthened by the researches of Canon Greenwell among British barrows, and the masterly monograph of Dr Rolleston on the prehistoric crania thus collected. In a couple of preliminary sentences Dr Rolleston puts the result of his cranio-logical investigations in a very striking light: "A cranio-grapher with Canon Greenwell's series before his eyes in a *coup-d'œil* view would be impressed with the fact that out of the series, two sets, the one by its length typically illustrative of the dolichocephalic, the other by its breadth as typically illustrative of the brachycephalic form of skull, could at once be selected, even by a person devoid of any special anatomical knowledge. An antiquary similarly inspecting this series with a knowledge of its archæological history would, if he separated it into two groups, the one containing all the skulls of the Stone and Bone Age, the other containing all those of the Bronze period, perceive that, while the latter group comprised both dolichocephalic and brachycephalic crania, and in

¹ Ten Years' Diggings, &c.

² Crania Britannica; Mem. Anthropol. Soc., vols. i. and iii.

³ Journ. Ethnol. Soc. Lond., 2nd Series, vol. vi.

very nearly equal proportions, none but dolichocephalic skulls were to be found in any set of skulls from the barrows of the premetallic period.”¹

According to Dr Thurnam's cranial statistics, the range of the cephalic index in sixty-seven skulls from long barrows was 63 to 79, and in seventy from round barrows 74 to 89. There was thus no dolichocephalic skull (*i.e.*, one with a cephalic index less than 74) in a round barrow, and no brachycephalic skull in a long barrow. It was on this evidence that the famous aphorism, “Long barrows, long skulls; round barrows, round skulls,” was founded. Later researches have, however, entirely disproved the idea that long skulls were confined to long barrows, for of the four typical long skulls from Canon Greenwell's collection of crania from the Yorkshire barrows, specially selected by Dr Rolleston for description and illustration, three were taken out of round barrows. But the really important part of the aphorism—*viz.*, that short skulls are not found in the earlier long barrows—has been confirmed by all subsequent researches. “It is undoubtedly an important fact,” writes Dr Rolleston, “that in no skull from any long barrow, that is to say, in no skull undoubtedly of the Stone Age, examined by us, has the breadth been found to bear so high a relation as that of 80 : 100 of the length; for this alone would suffice to show that Retzius's classification of skulls into two great divisions of dolichocephalic and brachycephalic cannot, even when taken to connote merely the strictest geometrical proportions, be summarily set aside as an artificial one.”²

Dr Thurnam gives the mean height of the dolichocephalic men of the long barrows at 5 feet 5.4 inches, and that of the brachycephalic men of the round barrows at 5 feet 8.4 inches. As Dr Rolleston's measurements are practically in accordance

¹ British Barrows, p. 627.

² *Ibid.*, p. 637.

with those of Dr Thurnam, we may accept it as a fact that the former were less in stature than the latter by about 3 inches. "To this I would add," writes Dr Rolleston,¹ "that whilst this very striking difference is brought out by taking the average length of the two sets of femora, a simple inspection of the two sets of bones puts them into even sharper contrast. The longer femora very often are also the stronger in a most marked degree, and amongst them are to be seen bones with muscular ridges, and processes indicating the possession by their owners of strength far exceeding that usually observable in the skeletons of the earlier race. In like manner other bones indicate unmistakably that the earlier was also the feebler folk as a whole, though humeri and femora are forthcoming from long barrows which show that men of great muscular power, even if not of great stature, were not wanting amongst the British tribes of the long-barrow period. In some cases the muscular ridges on the long-barrow bones are so well developed on comparatively ill-developed shafts as to suggest the idea of a poorly or only intermittently well-fed population which was constantly worked hardly. The large size of the deltoid ridge on some small humeri has suggested the perhaps fanciful hypothesis that the owners of such bones had been employed in lifting the stones of the huge barrows in which they were found entombed. The *linea aspera* on the femora of the British long-barrows examined by me never attains the enormous development which caused Professor Busk and Dr Falconer to call the femora from the Genista Cave at Gibraltar 'carinate,' and which has suggested the name 'fémur à colonne' to Broca and Topinard, for similar femora from early sepultures. In the absence of this peculiarity, as also of the fluting of the fibula and of the sabre-shape of the tibia which are found to accompany it,

¹ British Barrows, p. 654.

these skeletons contrast with many of the probably earlier skeletons described by the authors just referred to."

The truth of these general conclusions has been more recently confirmed by the results of Dr Garson's careful description of seven skeletons found in a round barrow (Howe Hill Barrow) in Yorkshire.¹ The average height of these skeletons was calculated to be 5 feet 5.4 inches. One of them was remarkable for its size, being, according to the lowest computation, 6 feet 3 inches, a height which corresponds precisely to the tallest long-barrow skeleton in 'Crania Britannica.' The cephalic index varied from 65.5 to 79.6, or an average of 74.7. "The skulls," says Dr Garson, "are in all respects similar to those of long-barrow specimens which have passed through my hands from different parts of the kingdom, but I have never examined a series of skulls in which there were such a large proportion of hyper-dolichocephalic specimens."

I may observe that the Howe Hill Barrow was explored by Mr J. R. Mortimer, whose experience in this kind of investigation is so well known. It measured 125 feet in diameter, 47 feet across its summit, and 22 feet in height. Inside the mound there was a central core, not, however, corresponding with its present centre, in which the primary interments were found. The portion outside this core contained mixed relics—British, Roman, and Anglo-Saxon—and may therefore be regarded as an addition to the mound in later times. "This inner mound," continues Dr Garson, "consisted of two layers, in the outer of which were found seven deposits of burnt bones, with flint and bone implements and a piece of a food-vase. In the inner or core of the barrow were numerous cremated deposits extending to half its thickness, but fewer in number below that. Towards the base line of the barrow and

¹ Journ. Anth. Institute, vol. xxii. p. 8.

in the central grave we have the skeletons placed in different directions, chiefly lying on one or other side, with the limbs drawn up towards the body. With them were found flint implements carefully manufactured, worked flints, and flakes, bone pins—some of which were burnt. With the primary interment at the bottom of the grave was a semi-globular vase of Kimmeridge clay, but no cinerary urns were anywhere found. The animal remains found in connection with the skeletons were those of fox (identified as such by Mr Newton), ox, deer, boar, and beaver. . . . From these data I think we have undoubtedly to deal with the remains of a Neolithic people, interred in an age before metal had been introduced among them.”

In Scotland some interesting discoveries of human remains have been made in the caves at Oban, which have been exposed from time to time along the foot of the cliff overhanging the ancient raised sea-beach, on which part of the town is built. These have been carefully examined and described by Sir William Turner.¹ Evidence of human occupation was found in four caves, consisting of a few flint scrapers and flakes, stone and bone implements, food-refuse, &c., all apparently of the same character as the relics found in the MacArthur Cave already described (p. 46). In one of these caves some fragments of pottery were found which Dr Joseph Anderson regards as resembling “in all their characteristics the cinerary urns of the late Neolithic period and of the Bronze Age.”

Among the human remains, besides those from the MacArthur cave, there was only one skull, that of a child, sufficiently preserved to admit of correct measurements being taken. The cephalic indices of these three crania were ascertained to be 75.4 (A) and 70.2 (B) for the two adults,

¹ Proc. Soc. A. Scot., vol. xxix. p. 410.

and 77.8 for the child. With regard to the physical characters of these cave-dwellers, of whom portions of about fifteen skeletons were here represented, Sir William makes some valuable observations. The skulls A and B "prove them to have been people with well-developed crania, dolichocephalic in form and proportions. . . . The great capacity of the skull B (figs. 260-262), which, in its uninjured state, had doubtless been capable of containing not less than



Fig. 260.—Profile view of skull B, MacArthur Cave, Oban.

1730 c.c. of water, places it on a level with some of the most capacious skulls of modern Scotsmen which I have measured." The tibiæ of one skeleton at least were platycnemic, and one of the thigh bones was platymeric. As no thigh bone was entire, the data for determining the stature were unfortunately imperfect, but from the available materials, such as they were, the height of one was calculated to be about 5 feet 5 inches. Of course there is one objection to the validity of general conclusions drawn from the sepulchral

remains being applied to the Oban cave-dwellers, because we are not certain that they were the same people. In the MacArthur Cave the human remains were clearly subsequent to the time when the Troglodytes made it their home; but in the other caves this relationship has not been noted.

Sir William Turner has for many years devoted great



Fig. 261.—*Facial view of skull B.*

attention to Scottish anthropology, and most of the human remains found in prehistoric graves, &c., have passed through his hands. I am fortunate, therefore, in having in his recent Royal Institution lecture (March 26, 1897) the following summary of his observations on the prehistoric craniology of Scotland:—

“As similar physical conditions prevailed both in England

and Scotland during the polished Stone and Bronze periods, there is a strong presumption that the two races had, in succession to each other, migrated from South to North Britain. Unfortunately very few skulls have been preserved which can with certainty be ascribed to Neolithic man in Scotland, but those that have been examined from Papa Westray, the cairn

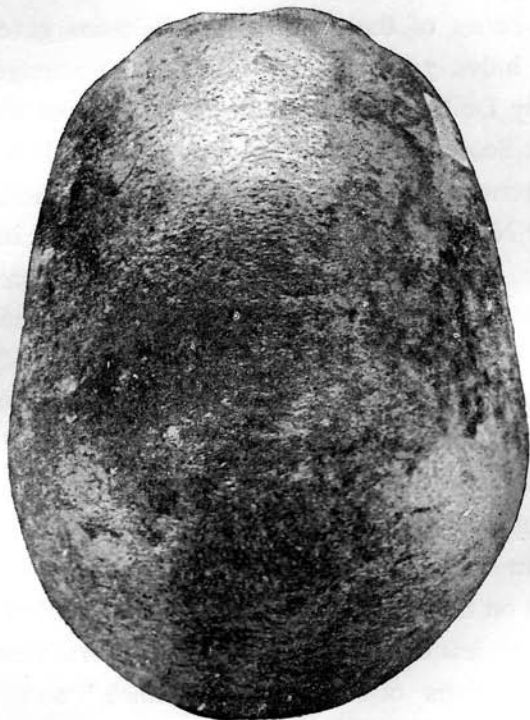


Fig. 262.—*Vertex view of skull B.*

of Get, and Oban, are dolichocephalic, and doubtless of the same race as the builders of the English long barrows.

“Seventeen skulls from interments belonging to the Bronze period have been examined by the author. The mean length-breadth index of twelve was 81.4, and the highest index was 88.6. In each skull the height was less than the breadth. In the other five specimens the mean index was 74; the

majority, therefore, were brachycephalic. In only one specimen was the jaw prognathic : the nose was almost always long and narrow ; the upper border of the orbit was, as a rule, thickened, and the height of the orbit was materially less than the width. The capacity of the cranium in three men ranged from 1380 to 1555 c.c., the mean being 1462 c.c. In stature the Bronze men were somewhat taller than Neolithic men. The thigh-bones of the Bronze-Age skeletons gave a mean platymeric index 75.1, materially below the average of 81.8 obtained by Dr Hepburn from measurements of the femora of modern Scots. The tibiæ of the same skeletons gave a mean platycnemic index 68.3—intermediate, therefore, between their Neolithic predecessors and the present inhabitants of Britain. Many of the tibiæ also possessed a retroverted direction of the head of the bone ; but the plane of the condylar articular surfaces was not thereby affected, so that the backward direction of the head exercised no adverse influence on the assumption of the erect attitude.”

An opinion to the effect that two similar races existed in Ireland, apparently simultaneously, was promulgated by Sir W. Wilde in 1844, and republished in 1851.¹ Though not then based on definite anatomical data, this opinion has since been more or less confirmed by various writers, among them being the authors of ‘Crania Britannica’ and Professor Huxley. The latter, after placing on record the specific points of some Irish skulls which he saw in the Museum of the Royal Irish Academy and in the collection of Trinity College, Dublin, thus sums up his remarks : “Sir W. Wilde speaks of long-headed, dark, Irish (Firbolgs) west of the Shannon, and of a more globular-headed, light-haired stock north-east of that river. But I imagine that by ‘globular-headed’ Sir W. Wilde means only that the people in question

¹ Beauties of the Boyne, second edition.

have broader heads than the others—not that there was any really brachycephalic stock in Ireland. At any rate, Sir William claims the Uley Barrow skull as that of a ‘fellow-countryman,’ and the cephalic index of this skull is only 71. And, according to Dr J. B. Davis, the mean cephalic index of fourteen male skulls from the old Abbeys of Mayo, Galway, Avonmore, and Kerry, is 75 ; that of thirty-two living men in Kerry being 77.6.”¹

“As the evidence stands at present, I am fully disposed to identify the ancient population of Ireland with the ‘long-barrow’ and ‘river-bed’ elements of the population of England, and with the long-headed, or ‘kumbecephalic’ inhabitants of Scotland ; and to believe that the ‘round-barrow,’ or Belgic, element of the Britannic people never colonised Ireland in sufficient numbers to make its presence ethnically felt.”²

Subsequent writers, though in perfect accordance on the main problem, have slightly diverged in their nomenclature. Professor Rolleston thus defines his position : “It will be convenient to begin by saying that I should speak of the crania of the long-barrow period, not as belonging to the ‘Iberian,’ as it is becoming the fashion to style them, but as belonging to the ‘Silurian’ type ; and the brachycephalic crania of the round barrow I should similarly speak of, not as belonging to a ‘Ligurian’ but to the ‘Cimbric’ type.”³ On the other hand, Professor Boyd-Dawkins adopts the term ‘Iberian’ as applicable to the dolichocephalic skulls of the Neolithic tombs of Britain, and regards their owners as a branch of the ancient Iberians, of which the existing Basques are a remnant.⁴

¹ *Crania Brit.*, Decade vi.

² *Prehistoric Remains in Caithness*, p. 127.

³ *British Barrows*, p. 630.

⁴ *Early Man in Britain*, p. 315.

Many anthropologists have directed attention to the survival of these two primary types of crania among the inhabitants of the British Isles, although mongrels, hybrids, and intermediate skull-forms have largely increased owing to inter-marriages, a better supply of food, and other modifying influences. Dr Beddoe has shown¹ that there is still a black-haired race in the west of England which, in their physical characteristics, corresponds with the description given by Tacitus of the Silures, and that they are shorter in stature and feebler in development than the fair races, while their skull-forms remain dolichocephalic.

Turning now to the prehistoric remains of Western Europe, we find the same duality of long and short skull-forms recorded by the most competent anthropologists. The celebrated Swedish anatomist Professor Retzius, finding that modern Scandinavians were a long-headed people, and that one or two skulls, found in graves of the Stone Age, were brachycephalic, propounded the theory that the original inhabitants of Scandinavia (autochthones) were a brachycephalic race, and that the dolichocephalic element was introduced into these lands by the Indo-Europeans or Aryans. This was the view to which Sir Daniel Wilson objected, as already mentioned, when advocated by Professor Nilsson. A vigorous effort was made at the time to apply this theory to the whole of Western Europe, but soon objections to it appeared from all quarters. At last, in 1865, Professor von Düben announced a discovery in Sweden which gave the final *coup de grâce* to Retzius's views, and brought the Scandinavian peninsula into line with the rest of Western Europe. This discovery was due to the investigation of a dolmen at Lutra, near Falköping, which contained 145 interments associated with grave-goods unmistakably of the

¹ Mem. Anth. Soc., vol. ii. p. 350.

Stone Age. Among the osseous remains in this dolmen there were thirteen entire skulls, and seven sufficiently perfect to furnish data for ascertaining the cephalic index. Of these twenty crania all but one were dolichocephalic, with an average cephalic index of 74.14.¹ Subsequently Von Düben announced at the International Congress of Archæology in 1874 that out of a hundred crania, found in graves of the Stone Age in Denmark and Sweden, examined by him, there were only twelve brachycephalic (five being from Denmark) showing a cephalic index of 84.2. In their anatomical characters they greatly resembled the present skull-forms of the Laplanders, but he hesitated to identify the prehistoric race with that people.

According to Professor Huxley,² the ancient inhabitants of Switzerland, North Germany, and Scandinavia were almost wholly dolichocephalic, but the south-west Germans were less so. At the present time, 75 per cent of the modern Swiss and 85 per cent of the south-west Germans are brachycephalic, while among the Scandinavians few of the latter type are now to be met with. Hence it would appear that since the dawn of modern European civilisation, dolichocephaly has increased and brachycephaly has diminished with the latitude.

The earliest inhabitants of the Iberian peninsula were also dolichocephalic. The crania discovered in the prehistoric caves at Gibraltar, without reckoning one of the Canstatt type, supposed to be palæolithic, have been shown by Mr Busk to be not only of this character, but identical with those of the Basques, and similar to a series of crania taken from various caverns and dolmens in Andalusia.³ Opinions

¹ Congrès Internat., Paris, 1867, p. 380.

² *Loc. cit.*, p. 112.

³ International Congress, Norwich, p. 164.

tending in the same direction had already been expressed by other British anthropologists, as may be seen from the following remarks by Professor Huxley :¹—

“ But, if it be true, as I believe it is, that close craniological affinities unite the Hiberno-British long-heads on the one hand with the Scandinavians, is it not equally true that as close affinities connect the dolichocephali of our islands with a southern type? On this point I must again quote Dr Thurnam : ‘ During the last summer I had the advantage of examining the series of sixty Basque skulls, lately added to the collection of the Anthropological Society of Paris. I was at once struck with their great resemblance to the dolichocephalic skulls from the long barrows of this country, and this impression was much confirmed by the perusal of the two memoirs on these skulls by M. P. Broca, so rich in details necessary for the comparison before us.’

“ And Dr Thurnam is evidently inclined to carry on this line of affinity to the ancient Iberians and Phœnicians. I am by no means disposed to stop even here. The same form of skull appears in the ‘ type grossier ’ of the ancient Egyptian : I suspect it will be found in the inhabitants of Southern Hindustan ; and it is finally traceable to Australia, the natives of which country, as I have already pointed out, in the largely developed *probole*, the wall-sidedness, pentagonal *norma occipitalis*, prognathism, and strong brow-ridges, and even in the remarkable vertical depression exhibited by some extreme forms of their skulls, come nearest to the ancient long skulls of Europe.”

The *Kjökkenmöddings* near the villages of Salvaterra and Mugem, in the valley of the Tagus, Portugal, were described by MM. C. Ribeiro and F. de Paula e Oliveira at the Lisbon meeting of the International Congress of Anthropology and

¹ *Loc. cit.*, p. 130.

Prehistoric Archæology in 1880. It had been ascertained, in the course of some extensive excavations, that the people who amassed these shell-heaps lived in the earliest Neolithic period; but the most interesting feature of the investigations was the discovery of upwards of a hundred interments at various depths in the *débris*. It does not appear that any grave-goods had been associated with them, and the relics collected were of a very rude and primitive character. The osseous remains were much decayed, and the skulls distorted, probably by the pressure of the *débris*; enough, however, remained to show that they represented two races—one dolichocephalic and the other brachycephalic. Some of the crania were at once recognised by M. de Quatrefages, and other anthropologists present at the Congress, as belonging to the types of Cromagnon and Furfooz. Of the latter, only two specimens were in the series, all the others being dolichocephalic. One of the former showed a very high cephalic index (86.90), and the latter varied from 71.11 to 75.56. From the slender character of the bones in general, these primitive fishermen of Mugem were judged to have been of small stature.

On examining a series of skulls found in sepulchral caverns, dolmens, and other burial-places of the Neolithic Age, the same duality of type was observed as in those from the kitchen-middens of Mugem, in all of which dolichocephaly still retained its predominance. Characteristic specimens of both long and short skulls were also recognised in a collection from the dolmen of Licêa, the caverns of Casa da Moura, Monte Junto, and Carvalhal. Only one series of skulls—viz., those from the caverns of Cascaes—were exclusively dolichocephalic, with an average cephalic index of 74.

It is, however, in France and Belgium that craniological deductions bearing on the Neolithic races of Western Europe

have attained their highest significance; and hence it becomes necessary to review the anthropological materials within this area more in detail than those already commented upon.

In 1868 the skeletons of three men, a woman, and a child were discovered in the rock-shelter of Cromagnon, in the valley of the Vézère, Dordogne. These skulls were all dolichocephalic, but one of them, known as that of the "old man of Cromagnon," was remarkable for its size and fine proportions, having, according to Broca, a capacity of 1590 c.c. (96.99 inches), and a cephalic index of 73.6. This rock-shelter had for a long time been a rendezvous for reindeer-hunters, who left evidence of their visits in a mass of accumulated *débris*. It seems, however, that these human remains were not embedded in this *débris*, but lay on the surface in a recess under the overhanging rock, and that, at the time of their deposition, this recess had been concealed by heaping up a portion of the palæolithic rubbish which had previously accumulated on the site. It would thus appear to have been an interment which, possibly, had been made long after the reindeer-hunters ceased their visits to the locality. Hence there is a diversity of opinion as to the chronological horizon of the Cromagnon skull, some regarding it as Palæolithic and others as Neolithic. Similar mistakes have often occurred, more especially in the earlier stages of anthropological research. One well-known instance is the Grotte d'Aurignac, which, though long accepted as a sepulchral cavern of the Palæolithic period, is now regarded as Neolithic. Skulls of the Cromagnon type found on the great station of Solutré have also been described by MM. Ferry and Arcelin,¹ and the authors of 'Crania Ethnica,' as relics of the Quaternary period, but now the larger portion of

¹ International Congress, &c., Norwich, p. 319.

them are shown to be Neolithic.¹ Among eighteen crania from this station the cephalic index ranges from 68.3 to 88.3, and of these, thirteen are below 80 and five above it. I cannot help thinking, therefore, that Solutré, like Mas-d'Azil, the Grotte de Reilhac, the hut habitations at Campigny, the rock-shelter of Schweizersbild, as well as many others, belongs to a transition period which connected the Palæolithic and Neolithic civilisations; so that we can hardly doubt that there has been a direct continuance of human life in Europe from the first appearance of Palæolithic man up to the present day.

One of the most useful of recent contributions to pre-historic craniology is a statistical list drawn up by M. Philippe Salmon² of the Neolithic crania of Gaul, recorded up to 1895, giving the localities and circumstances in which they were found, the names of the anthropologists who measured and described them, and the sources of their publication. The cephalic indices are arranged under three columns according as they are dolichocephalic (76 or under), mesaticephalic (76 to 80), or brachycephalic (80 and upwards). The number of stations thus tabulated is 140, consisting of sepulchral caverns (41), dolmens, tumuli, &c., together with a few sporadic finds in the soil. The total number of skulls measured is 688, being 397 long, 145 medium, and 146 short, or 57.7, 21.1, and 21.2 per cent for the three different grades into which they were classified. In looking carefully into the various details of these crania some striking results are brought out, the importance of which can hardly be over-rated. Thus there are some large stations, especially among the sepulchral caverns, which contained only dolichocephalic crania, while others seemed to have been restricted to brachycephalic types. A large majority of them, however, included

¹ *Revue Mensuelle*, 1894, p. 113.

² *Ibid.*, 1895, p. 155.

long, intermediate, and short types of skulls in various proportions. The two most remarkable stations which contained only long skulls are the caverns of l'Homme Mort and Baumes-Chaude, both situated in the department of Lozère. The details of their exploration and osseous contents have been recorded by Drs Broca and Prunières.

In the cavern of l'Homme Mort there were nineteen skulls sufficiently well preserved to furnish the necessary measurements. Of these the cephalic indices of seventeen varied from 68.2 up to 76.7, and the other two were 78.5 and 78.8. There were, therefore, no brachycephalic skulls at all in this sepulchre, so that the race appeared to have been comparatively pure. It may also be mentioned that some of the crania had been trepanned—a feature which, though at first overlooked, subsequently became the subject of much interest to anthropologists. The animal remains were those of the Neolithic epoch, but among them were none of the reindeer, horse, ox, or stag. Among the relics were a lance-head and a portion of a polished stone axe. Drs Broca and Prunières were of opinion that the individuals whose remains had been consigned to this ossuary belonged to an intermediate race, who flourished in the transition period between the Palæolithic and Neolithic civilisations, and thus became connecting links between the people of the reindeer caves and the dolmens.

The crania recorded from the station known as Baumes-Chaude were found in two natural caverns distinct from each other, but opening on a common terrace. They contained a vast collection of human bones, representing some 300 individuals; but both were regarded by the investigators as the continuation of the same family burying-place, which, indeed, had not been altogether abandoned till the beginning of the Bronze Age, as one of the skeletons in the upper

deposits had beside it a bronze dagger. In one of these caverns only chipped flints, rude implements of horn, &c., were discovered; but in the other there were a few arrow-points, a bead, some roundlets of deer-horn, &c., which suggested some progress in culture. The crania measured and classified in M. Salmon's list from the Baumes-Chaudes ossuary amount to thirty-five, and all of them are dolichocephalic, the indices varying from 64.3 to 76.1. The average height of this race was calculated to be 1.61^m or about 5 feet 3½ inches. As examples of further sepulchres of this unmixed race the following may be mentioned: the cavern of Avigny (Seine-et-Marne), the Baoussé-Roussé caves at Mentone, the cavern of Cravanche (Haut-Rhin), the dolmen of "la Justice" (Seine-et-Oise), &c.

On the other hand, in the cavern of Tertre-Guerin (Seine-et-Marne) only two skulls were found, and they were of a highly brachycephalic type, with cephalic indices of 86.6 and 91. In striking contrast to the preceding caves, the archaeological remains in this sepulchre comprised polished stone celts, with and without horn-casings, together with various other relics indicating an advanced Neolithic civilisation. The people here represented would appear, from the characters of the bones, to have been strong and muscular. Only a few of the leg-bones were platycnemic, the olecranon fossa of the humerus was pierced in the proportion of 24 per cent, and the face was prognathous. They also practised trepanning, as a portion of an aged man's skull contained a round, highly bevelled aperture which bore evidence of having been made while the individual was in life.

As examples of sepulchral caverns in which brachycephalic crania formed the majority, a series of caverns at Hastière in Belgium may be mentioned. Of thirty-three skulls from this locality measured by Professor Houzé, six were dolicho-

cephalic (71.6 to 76.9), eleven mesaticephalic, and sixteen brachycephalic (80 to 88.4).

Artificial caves used for sepulchral purposes have also been discovered in several departments of France—more especially those with chalky formations, as the Marne district. Here, upwards of a dozen stations, each containing a number of artificial caves excavated in the flanks of low hillocks, have been most successfully explored by Baron de Baye. Among some hundreds of interments, over 120 crania, including various trepanned specimens and cranial amulets, have been collected, and are now preserved in the Château de Baye. Associated with them were a number of implements, weapons, and ornaments of Neolithic types—such as stone axes and their handles, arrow-points (some chisel-shaped), flint knives, bone pointers, polishers, beads and pendants of amber, bone, stone (one of callais, like those in the tumuli of Brittany), fossil shells, teeth, &c. Of the crania, forty-four were submitted to Dr Broca for examination, and are thus classified: dolichocephalic (71.6 to 76.7) fifteen, mesaticephalic seventeen, and brachycephalic (80 to 85.7) twelve. Dr Broca recognised in these human remains the products of the union of two races analogous to those of Furfooz and Cromagnon—the latter having already been identified by him as of the same type as the dolichocephalic people of l'Homme Mort and Baumes-Chaudes.

I may observe that the interesting caves of Petit-Morin¹ are supposed to have been constructed in imitation of the dolmens, as they were preceded by an entrance passage and occasionally a vestibule, from which a low door, closed with a stone slab, led to the sepulchral chamber. Baron de Baye thinks that some of them had been used as habitations for the living, before being appropriated to the dead,

¹ L'Archéologie préhistorique, par le Baron de Baye, 1888.

as they had sometimes niches and shelves cut out of the solid chalk walls, on which various industrial relics had been deposited. A rudely executed human figure with a bird-like nose, two eyes, a necklet and breasts, together with the form of a stone axe in its handle, were sculptured in relief on the wall of the vestibule of one of the larger caves. This cave appeared to have been much frequented, as the threshold was greatly trodden down by the feet of visitors. M. Cartailhac explains this peculiarity by supposing that it was a place for temporarily depositing the dead before being transferred to their final resting-place. All these caves contained abundance of relics characteristic of an advanced Neolithic civilisation without any trace of metals, and the surrounding neighbourhood is rich in flint objects of that period.

From a careful study of the geographical distribution of the 140 Neolithic stations annotated by M. Salmon some interesting deductions have been drawn, among which the following may be noted :¹—

1. The departments to the south-west of a line drawn from Normandy to the sources of the Garonne are those least affected by the brachycephali ; and it is remarkable that the area thus circumscribed virtually coincides with that of the dolmens and megalithic monuments of France.

2. To the north-east of this line the brachycephali and mesaticephali are in greatest abundance at two points, thus indicating that they entered the country by two routes—viz., one *viâ* Belgium, and the other *viâ* Savoy, the Alps, and the Danube.

3. The steady increase in the numbers of mesaticephalic crania found in the later Neolithic stations up to the Bronze Age, when, of course, the innovation of cremation puts a stop

¹ See articles by M. Georges Hervé, *Revue Mensuelle*, 1894, pp. 105, 393.

to all such craniological researches, is accounted for on the hypothesis that a brachycephalic race, or races, hailing from Eastern regions, socially amalgamated with the indigenous population of Western Europe.

Dr Verneau, who has spent some years investigating the anthropology of the Canary Islands, has traced the Cromagnon race through Spain, Algiers, and Morocco to the Guanches of these Atlantic islands. He finds that this people retained their racial purity, amidst a Stone-Age civilisation, up to the fourteenth century, when, in the course of their struggle for freedom against the Spanish and Portuguese, they became extinct as a separate race. Sir William Dawson, in a paper on "The Physical Characteristics and Affinities of the Guanches," associates the Guanches with the Neolithic people of Western Europe, "the men of the Polished Stone and early Bronze Ages, of the long barrows and cromlechs, and of the Swiss lake habitations, as well as with the Iberian races of France and Spain and the Berbers of North Africa. The crania of those races, as tabulated by Quatrefages, are those which most nearly approach to our specimens from the Canaries, and their arts and habits and state of civilisation in early times are also those which afford the best terms of comparison." Of ten skulls of this race from the island of Teneriffe, in the Redpath Museum, Montreal, the average cephalic index was 76.4, and that of one specimen from the Canaries 75.8—figures which show a considerable amount of intercrossing since the Reindeer period in France.

At the dawn of the Neolithic period there were thus two well-defined races—dolichocephali and brachycephali—inhabiting Western Europe, not, however, isolated, but mixed in different proportions in different localities. The former were well built, but somewhat short in stature compared with modern Europeans generally. They occupied the western

shores of the Mediterranean, from which they radiated to the Canaries, the British Isles, Sweden, North Germany, and Central Europe. Eastwards, on the south of the Mediterranean, they embraced the ancient Lybians and probably the Neolithic Egyptians (the New Race of Dr Flinders Petrie). According to Professor Sergi,¹ these dolichocephali occupied Italy prior to the incoming of the Celts and Etruscans. Also Professor Bogdanow, in a paper contributed to the International Congress of Archæology held at Moscow in 1892, maintains that the most ancient race in Central Russia was dolichocephalic. The results of a series of careful measurements of crania collected from the *Kourganes* (tumuli) showed that long, short, and intermediate were in the proportions of 47, 14, and 39 per cent.

These dolichocephali in France varied considerably in size. The mean height of the men of the cavern of l'Homme Mort was 5 feet 3½ inches, that of the old man of Cromagnon 5 feet 11½ inches, and that of one of the skeletons from the Baoussé-Roussé caverns at Mentone a little over 6 feet. Of course these measurements are only approximations, and other anthropologists give them at a little less.² They had the following general characters: the skull dolichocephalic; large, well-developed forehead, and somewhat prominent eyebrows; the limb-bones indicated great strength, being thick and solid, with strongly marked muscular impressions; the tibia was generally platycnemic, the fibula grooved, and the femur showed a prominent *linea aspera*.

The brachycephali were also short, some of the typical specimens of the "race of Furfooz" being little over 5 feet. The skull was broad and the face long, with well-marked prognathism. The flattening of the tibia (platycnemism) was

¹ Monist, vol. viii. p. 161.

² Formation de la Nation Française, p. 319.

less pronounced than in the long-headed race, but the olecranon fossa was frequently pierced. Towards the end of the Neolithic period these anatomical characters (which are regarded as indicating a low type) became less frequent. Thus out of twenty tibiæ, or shin-bones, from the artificial caverns of Petit-Morin only four were platycnemic, of sixteen fibulæ only six retained the special groove, and of twenty femora only five had a well-marked *linea aspera*.

How many different races occupied European lands at the commencement of the Neolithic period it is difficult to determine. According to Professor Kollmann there were at least four types to start with, a number which he arrives at by dividing the dolichocephali and brachycephali each into two varieties of long-faced and short-faced¹—types which he recognises among the population of Europe at the present time. In order therefore to follow with some degree of intelligence the development of civilisation which followed the amalgamation of these primary Neolithic races, we have to consider various collateral sources of information.

The contact of these different races was, in the first place, by land routes, and the first important result was to spread a knowledge of agriculture and of a few domestic animals among the autochthones of Western Europe, who, owing to a change of climate, had now lost the reindeer and other big game on which their livelihood depended.

2. *General Anthropological Data.*

But craniology, though a most suggestive and valuable guide in racial investigation, is not alone sufficient to determine the ethnical problems which now crowd the Neolithic horizon. Skeletons do not reveal to us anything of the

¹ Congrès Internat., 1892, p. 253.

colour of the skin, hair, or eyes of the individuals who owned them ; nor of the language they spoke, nor of the religious ceremonies they enacted, nor of the implements, weapons, ornaments, and clothing, by means of which they fulfilled their destinies in the organic world. Yet, on all these problems, important information has been gathered. Through successive generations these Neolithic races have transmitted their physical characteristics to the inhabitants of the present day, probably with little change as regards the colour of the hair and eyes. But the puzzling fact is that we find fair and dark dolichocephali, as well as fair and dark brachycephali. If, as has sometimes been assumed, the Troglo-dytes of the Reindeer period of France are correctly represented by the Esquimaux of the present day, who are small and dark, it may be fairly inferred that the former were also small and dark ; but among the early dolichocephali of Central Europe there have been found skeletons of men over six feet in height. Had we positive evidence that these exceptionally tall men were fair-haired, many of the anthropological difficulties now surrounding the prehistoric ethnology of Europe would be entirely removed, as the more modern Gauls, with their great stature and blond appearance, could be thus readily accounted for.

Of the marvellous results of linguistic research, which carries us back through the flotsam and jetsam of a common Aryan language to a remote past, I cannot here give even a meagre sketch. Since the days when the common belief was that the dispersion of mankind was due to the confusion of language at the tower of Babel many theories as to the origin of the Aryans, their primitive home, religion, and civilisation, have been propounded and abandoned. Professor Max Müller, discrediting the Mount Ararat hypothesis of Blumenbach and Cuvier, has traced this mythical people to

“the sources of the Oxus and Jaxartes, the highest elevation of Central Asia.” Subsequently, after some lively controversies, based on the phonetic laws of speech and the detection of loan words, Professor Penka and other philologists have transferred the origin of the Aryan languages into Europe, fixing on the Scandinavian peninsula as the exact locality of their primary development. Canon Isaac Taylor maintains, both on anthropological and linguistic grounds, that the Aryans were “an improved race of Finns,” and so he places their primitive home somewhere in Lithuania. Their social condition he thus describes: “It appears, therefore, that prior to the separation of the Aryan and Finnic races they were acquainted with copper and probably with gold, but their tools were chiefly of horn or stone. They sheltered themselves in huts, and were clad in skins, but there is no evidence that they possessed the art of weaving. They knew how to kindle fire; they could count up to ten, possibly up to a hundred. They had personal names, while family relationship and marriage were fully recognised. They were acquainted with the sea, and may have been able to cross lakes or rivers in canoes made of hollow trees. They caught salmon and used salt, and gathered bitter herbs for food, or more probably for condiment. It does not appear certain that they grew grain or were acquainted with the rudiments of agriculture, the name of the Finnic plough, *kar*, the crooked branch of a tree, being only doubtfully connected with the Aryan plough. They collected honey, from which they produced an intoxicating drink, and made a sort of soft cheese, like curds. They possessed herds of domesticated animals, which were tended by herdsmen, and were kept in fenced enclosures. These animals were probably goats, swine, reindeer, and geese, and possibly oxen; but the dog, the sheep, and the horse

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seem to have been as yet untamed.”¹ As the starting-point of Neolithic civilisation this is surely primitive enough, but yet it is quite in accordance with archæological evidence.

That philologists have established some kind of radical connection between the Indo-European languages, mythology, and religion is undoubted; but how this bond of brotherhood has been acquired, whether by migratory races, or successive waves of civilisation emanating from one or more common centres, seems to me to be still *sub judice*. However this may be, the social and intellectual influences which were introduced or developed in Central Europe ultimately led to extensive migrations towards the less inhabited portions of Europe, and these carried with them the rudiments of progressive civilisations. Besides the primary land routes, the discovery of the means of intercourse by distant sea voyages soon disseminated the germs of the earlier civilisations of the eastern seaboard lands of the Mediterranean to various points on the European coast. Even then, and for many centuries later, the British Isles and the entire Atlantic coast of Europe were *terra incognita*, yet we are certain that the Celtic language, which was then spreading over these regions, emanated from the same fountain-head as Greek and Latin.

But, among the collateral materials bearing on the life-history of prehistoric man, those which directly or indirectly spring from his religious beliefs are the most important. A vague fear of the potency of the unseen powers of nature led to the belief in spirits and in a future life, in which the disembodied spirit after death continued its existence. These ideas naturally engendered great reverence for the dead, and the earliest evidence of religiosity shows itself in the inhumation of the dead body, accompanied by such objects as were

¹ Journ. Anth. Institute, vol. xvii. p. 269.

supposed to be useful on the journey to the unseen world. The evolutionary stages from simple inhumation to incineration involved, however, a considerable interval of time, during which there is evidence to show that funereal rites of various kinds were performed in Western Europe which disclose a progressiveness in religious ideas. The culmination of these rites was the process of cremating the body, so as to liberate the spirit more quickly from its earthly abode. The practice of depositing the dead body in a mortuary till the flesh was decomposed, and then burying the bones, seems to have been by no means uncommon in France. This is evident from the disconnected manner in which the bones were placed in their final resting-place, but yet they were often systematically arranged in layers one above the other, and separated by beds of ashes or flat stones. For these and other curious customs in the cult of the dead, as well as for various methods of hastening the natural process of removing the flesh from the bones, I refer my readers to M. Cartailhac's excellent work, 'La France Préhistorique.' That cremation was at first merely used as an adjunct in the later stages of natural decomposition is highly probable; and hence it may be argued that it had its development on French territory. It is, however, generally regarded by archæologists as the product of a religious custom which emanated from Eastern lands. But where it originated is involved in as much mystery as the Aryan question itself. During the Stone Age inhumation appears to have been practised all over Europe, with the exception of a few localities, mainly in France, which show traces of cremation. In Petit-Morin several of the sepulchral chambers contained bodies that had been cremated, and among the pottery there were two vases with calcined human bones. More singular still, there were a few human skulls stuffed with the bones of apparently young

children.¹ Besides the sculptured goddesses, trepanned skulls, and cranial amulets, it appears that the stone axe was an object of worship in these caves. During the Bronze Age cremation was more common than inhumation in the east of Europe, and this ascendancy was kept up in the early Iron Age; but in the West, inhumation, with a few local exceptions, was always the predominant custom. In the early Roman period cremation was the rule, both at Rome and in the Roman provinces, but later inhumation was restored. The introduction of Christianity into Western Europe caused cremation to disappear, but it lingered among the Saxons, Slavs, North Germans, and Scandinavians till the early Middle Ages. (For prehistoric trepanning see 'Preh. Problems,' c. v.)

In Scandinavia, according to Montelius,² Worsaae, and others, cremation came into use only in the second Bronze Age. M. Worsaae thus refers to the introduction of the custom: "The mere influence of culture from the south or the east, without any accompanying influx of population, would hardly have induced the warlike occupants of the North to change their funeral customs in every respect, and to such an extent. Naturally the old-fashioned interment of the unburnt body must have continued simultaneously with the more modern cremation. But that the latter custom at last generally prevailed is evident from the fact that in the grave-mounds smaller graves with burnt bodies are commonly deposited in the upper part of the mound, while the larger graves with unburnt bodies are found below. Independent graves with burnt bodies are, moreover, found throughout the North in great numbers. Comparatively speaking, the graves from the later Bronze Age are far more numerous in the Baltic lands and in Denmark than in the rest of Europe."³

¹ *Archéologie préhistorique*, p. 120.

² *La Suède préhistorique*, p. 41.

³ *Danish Arts*, p. 79.

According to Professor Boyd-Dawkins, cremation was introduced into Britain simultaneously with a knowledge of bronze. "The invasion of Britain by the bronze-using Celtic tribes," he writes, "is marked by a striking change in the customs of burial, which probably is the sign of the introduction of a new faith. In the Neolithic age the dead were interred surrounded by the implements, weapons, and ornaments for use in the future life. In the Bronze age the dead were burned,—were purified by being passed through the fire, along with their possessions. Cremation, however, did not altogether abolish the older practice of inhumation. It is evident that both were carried on simultaneously, from the researches of Thurnam in the south of England, Bateman in Derbyshire, and Greenwell in the northern counties. The one may have been connected, as Dr Fred. Wiberg suggests, with the worship of fire, and the other may have been employed by the descendants of the Neolithic Britons from the force of habit, and from its cheapness by the poorer classes."¹

The following remarks by Canon Greenwell on the relative frequency with which these different modes of interment were practised by the Yorkshire barrow-builders are the most authoritative records we have on the subject: "As marking the relative general proportion of burnt to unburnt bodies in the barrows I have opened on the wolds, it may suffice to mention that out of 379 burials, only 78 were after cremation, whilst 301 were by inhumation, which gives nearly 21 per cent for burials of burnt bodies. And to show that in the wold-barrows bronze is by no means more commonly found with burnt bodies than with unburnt, out of fourteen instances where I have discovered bronze articles associated with an interment, it was only in two that the body had been burnt. The proportion, therefore, is that about 4 per cent

¹ Early Man in Britain, p. 366.

of unburnt bodies, and about $2\frac{1}{2}$ per cent of burnt bodies, had articles of bronze accompanying them. This question partly resolves itself into another, whether, in the main, the round barrows of the wolds belong to a time before the introduction of bronze. As the subject will be considered more at length in the sequel, it is sufficient to remark here that I see nothing to imply that they are the burial-places of a people unacquainted with bronze, and my own impression is that, as a rule, they date from a time after its introduction.”¹

But, according to the same authority, these burial customs varied in different localities. For example, the extensive investigations of Mr Atkinson in Cleveland, and a series of barrows near Castle Howard, yielded nothing but burnt bodies. “In Derbyshire the proportion is slightly in favour of unburnt bodies; in Wiltshire burnt bodies are as three to one unburnt; in Dorsetshire as four to one; and in Cornwall cremation appears to have been by far the most common usage. In the counties of Denbigh, Merioneth, and Caernarvon, cremation seems to have been almost universal. In Northumberland I have disinterred 71 bodies, and of these 45 were after cremation and 26 by inhumation.”²

As regards Bronze Age burials in Scotland, Sir W. Turner, in his lecture at the Royal Institution, writes as follows: “From an analysis of 144 localities in Scotland of burials which may be associated with the Bronze Age, and which included about 400 distinct interments, it would appear that in 51 of these localities the bodies had all been cremated; in 60 they had been buried in stone cists; in 15 the same mound or cemetery furnished examples of both kinds of sepulchre; and in the rest the kind of interment was not precisely recorded.”

That cremation was a foreign importation into the British

¹ British Barrows, p. 19.

² Ibid., p. 21.

Isles cannot be gainsaid. When once introduced it seems to have spread among their entire habitable portions with wonderful celerity—a fact which suggests its religious character. If the date of this remarkable movement could be definitely ascertained, it would present the nearest approach to a chronological *datum* line that can be found among the different elements which the successive waves of Continental civilisation have washed to our shores. Its progress from Central Europe westwards was so rapid that it overtook, and passed by the way, many of the slower influences which were travelling in the same direction. Thus when the people of the round barrows of Yorkshire lived, both cremation and the bronze industry had already extended to that part of Britain, for, as we have just seen, Canon Greenwell regarded the round barrows, whether they included burials after inhumation or cremation, or with or without bronze objects, as of the same age. Indeed, so far as available evidence has been adduced, it would appear that the only sepulchral remains, proved to have been older than the custom of cremation, are the chambered cairns in the south-west of England. When, however, the analogous cairns of Argyllshire, Caithness, and the Orkney Islands were constructed, the religious wave had already enveloped North Britain. Hence, though generally destitute of bronze relics, these structures were really contemporary with the Bronze Age burials elsewhere in Britain. The same thing has occurred in several localities in France. Thus M. du Châtellier has shown that, out of 145 tombs of the Stone Age in Brittany, 20 contained inhumed and 72 cremated bodies, while 31 were associated with charcoal, and 22 were of an indefinite character. Finistère alone yielded 58 burnt out of 69 interments.¹ The explanation of these and other similar instances

¹ La France préhistorique, p. 272.

is that in out-of-the-way localities, such as the western shores of Brittany and the Highlands of Scotland, the Stone-Age civilisation lingered longer than in those situated on the main routes of commercial intercourse. It was about the middle of the Bronze Age (some five or six centuries B.C.) that cremation was adopted in Sweden, but as the route by which bronze entered that part of Europe was by the Danube, and therefore different from that by which it reached Britain, there can be no chronological comparison between these events in the two countries.

3. *General Conclusions.*

Such is a brief statement, for it is too meagre to be called a review, of the different aspects and channels through which the early ethnology of the British Isles has to be investigated. The latest researches in anthropology, archæology, religiosity, and linguistic science are requisitioned to throw their flash-light on the ways and means by which our prehistoric forefathers foregathered in various contingents of different degrees of civilisation on our primeval shores. But notwithstanding the abundance of materials which has accumulated around these diversified standpoints, and the conspicuous talent of many of the investigators who have entered on this fascinating field of research, the conclusions hitherto formulated on the subject are still far from being satisfactory. When, however, we find distinct currents, though only discernible through mere waifs and strays, all tending in the same direction, we are encouraged to feel some degree of confidence that in following them we are not led by an *ignis fatuus*.

It may therefore serve some useful purpose to state more precisely and categorically how the general results at which we have arrived in regard to Western Europe become appli-

cable to the prehistoric inhabitants of the British Isles, so far as they are known to us at the time of the Roman occupation.

In early Neolithic times the southern parts of Britain and Ireland were peopled by immigrants from the adjacent Continent, commencing probably when there was a direct land communication between the latter and Britain. The physical characteristics of these invaders were — short stature, strong muscular frames, dark hair and eyes, and dolichocephalic heads. They were a religious people, as even then they buried their dead, the chiefs and persons of social distinction being consigned to great chambered cairns and dolmens, which formed family burying-places for several generations. The subsequent incomers would carry with them further elements of progressive civilisation, as well as whatever changes in their personal physique became developed through the crossing of the different races.

The next great landmark in the peopling of these islands of which we have evidence was the appearance of a brachycephalic and somewhat taller race, who brought with them a knowledge of bronze. This metal was, however, only sparingly used, the objects known in the earliest period being confined to small hand-daggers, pins, and a few trinkets. Almost coincident with this great event in the progress of British civilisation came the remarkable religious movement which manifested itself in the sepulchral rite of cremation. There can be no doubt that these innovations were due to the stream of immigrants to our shores, but from what particular localities we are unable to say. They appear to have been cross-breeds which had sprung up somewhere in Central Europe, and formed the van of the so-called Aryans, generally known to us under the name of Celts. The physical characteristics, especially the complexion, of these early

Celts have been long a matter of controversy—some regarding them as dark and others as fair. So far as I can judge they belonged to the fair stock, and had more or less red or yellow hair. Having conquered the previous inhabitants, they amalgamated with them and ultimately spread over Ireland and Scotland, where their characteristic sepulchral remains are largely to be found. Meantime, the chambered cairns had been gradually discontinued, and inhumation in short cists or urn burials, with or without mounds and other external indications, had taken their place. In Ireland, however, it would appear that these sepulchral innovations had made slower progress than in Britain, for when the inhabitants of the north of this island began to cross over into Scotland to the adjacent shores of Argyll, they still adhered to the system of burial by chambered cairns, notwithstanding that cremation was then a common practice over the larger portion of Scotland.

The third wave of westward civilisation, which carried with it new elements of culture and industry, was that known in this country as “Late Celtic,” corresponding to the “Mar-nian,” or “La Tène,” period of Continental antiquaries. Chronologically, this period is roundly defined by the three, or perhaps four, centuries immediately preceding the Christian era. The main body of immigrants of this movement were not the same as those of the Bronze Age, as they belonged to the “Galli,” or Gauls of classical authors, and probably the Belgæ of Cæsar. They do not appear to have extended their authority over the whole of Britain, as the north and west of Scotland, as well as parts of Wales and Cornwall, were unaffected by them; nor did they occupy Ireland. But the art and industrial elements which they introduced found much favour among the inhabitants, and spread to Ireland and Scotland, where they took deep and permanent root. As

special memorials of their presence in Britain we have a number of cemeteries (Aylesford urn burials, a cairn at Mold, Flintshire, the Yorkshire tumuli, &c.), the Hunsbury Camp, and the lake-village of Glastonbury. The special characteristics of this art have already been described, and need not be further referred to here; but for the physical character of these invaders we are on the *terra firma* of history, as both Germans and Gauls are depicted by ancient writers as being tall and fair-skinned, with large limbs, blue eyes, and reddish-yellow hair. Strabo (v. 2), in referring to the Britons, says that they were "taller than the Kelts, with hair less yellow, and slighter in their persons." Cæsar (v. 12) states that the maritime portion of Britain was inhabited by those who had passed over from the country of the Belgæ for the purpose of plunder and making war (see p. 5). The farthest north of the Late Celtic tumuli hitherto discovered in Britain were in Yorkshire, so that these Belgic immigrants will scarcely account for the existence of the red-haired Caledonians, who, in the judgment of Tacitus, were more like the Germans than the southern fair people. Hence the Caledonians of that historian must have belonged to the earlier Celts, or have entered the country as a colony from German lands. One of the Late Celtic skulls found in a tumulus at Arras in Yorkshire, described and figured by Dr Thurnam, has a cephalic index of 73.7. As this is regarded as a typical specimen, we have to note the remarkable fact that, while the early Celts were brachycephalic, the late Celts were dolichocephalic.

Looking at these general deductions from the linguistic point of view, we find that at the time of the Roman conquest there were two main dialects spoken in the British Isles—viz., Gaelic and Cymric—both being branches of a common Celtic language which had its home in Central Europe. The former survives in the modern Gaelic of the Highlands of Scot-

land, the Manx in the Isle of Man, and the Irish, which still lingers in some of the western counties of Ireland. The latter is represented by modern Welsh, the ancient Cornish (now extinct), and the Breton, still spoken in parts of Brittany. Gaelic was introduced into Britain about the same time as bronze, whence it spread, along with the Celtic invaders, into Ireland. It was followed, in the course of some centuries, by the Cymric, a branch of the same speech, and then the language of the Gauls of history, but greatly modified by the intermixture of races and the wandering tendencies of the Celtic tribes on the Continent. The immigrants of this second invasion called themselves Brythons, and as we have seen that they were the introducers of the Late Celtic art, they may be associated with the development of the early Iron Age in Britain. Professor Rhys, taking advantage of the accident in Celtic phonology which led them to substitute a *p* in words in which their predecessors used a *q*, characterises the two, in accordance with this shibboleth, as Q Celts (Goidels) and P Celts (Brythons).

As to the speech of the indigenous, or Iberian, inhabitants with whom the first Celtic invaders (Goidels) came into direct contact there is little known. Professor Rhys and other philologists profess to see its fossil remains in a few non-Aryan words.¹ That a non-Celtic language was prevalent among the common people in the vicinity of Inverness, in the sixth century A.D., has often been suggested by the fact recorded by Adamnan—viz., that Columba, while on his mission to Brude, King of the Picts, addressed the natives by means of an interpreter. The Picts are also included by Bede among the five British nations (Angles, Brythons, Scotti, Picts, and Latins) in whose languages Christianity was taught in his time. I do not, however, think that on such evidence

¹ See Proc. Soc. A. Scot., vol. xxxii. pp. 324-398.

we can regard the Pictish language as the lineal descendant of the pre-Celtic, or Euskarian, which, in the time of Cæsar, was spoken in Aquitaine and Spain, and is still represented by the modern Basque. That the Pictish language had been considerably modified by the pre-Celtic speech there can be little doubt. But the difference between the Celtic speech of Columba and that of the northern Picts may be only dialectical—the mere accumulated accretions and modifications of one common speech acquired while moving in different paths and different environments. Columba's mother-tongue reached him by a circuitous route through Ireland, while the Pictish came direct through Britain, so that after such a long separation, representing many centuries, we need not wonder that the two languages were not interchangeable when they met in the Highlands of Scotland, though at the starting-point they may have been the same.

When North Britain was invaded during the first century of the Christian era by the Roman legions the country was inhabited by a mixed population, among whom the Caledonians attracted attention on account of their tall stature and reddish appearance. Brythons were pushing northwards, Norsemen had probably even then found a permanent footing on its eastern shores, and Goidelic immigrants from Ireland had for centuries kept up intercourse with its western islands and mainland. Thus the dawn of our history reveals the fact that three different streams of immigrants had then reached the shores of North Britain. It took some time, however, for these peoples and their various culture elements to make much progress northwards; and as each succeeding wave travelled faster than its predecessor, it is probable that the duration of the pre-Roman periods in these out-of-the-way regions was considerably shorter than in the southern parts of the island. This view partly accounts for the inter-

mingling of relics usually regarded as characteristic of the three ages of Stone, Bronze, and Iron, which is so frequently to be met with in the north of Scotland and in Ireland. If Tacitus is correct in his assertion that at the battle of Mons Graupius the Caledonians were provided with long swords, short targets, and armed chariots, it is quite clear that they were then in the early Iron Age, and that Gaulish influence had already reached them through the Brythons. Although metallurgy and all its appurtenances had been an exotic growth, it is proved, from the frequency with which moulds and casting materials have turned up, that the bronze industry was carried on throughout various parts of the country.

To describe the influence of Roman and Anglo-Saxon civilisation in moulding the subsequent destinies of the Scottish people lies within the sphere of the historian: I shall not, therefore, encroach on materials which will be, more or less, utilised by other writers of the series to which this volume may be regarded as an introduction. For the same reason, antiquities referred to in the Scottish annals have not been discussed in these prehistoric sketches, with the exception of works of defence and lake-dwellings, which, in their general aspects and associations, are more allied to the prehistoric than to the historic materials.

Ireland seems to have been peopled by the same races as Britain, as, from the earliest period of which we have any knowledge, it contained a dark and a fair stock. Its language was that of the Goidels—the first Celtic invaders—and it continued unaffected by the Cymric and all subsequent linguistic elements till superseded in comparatively recent times by the Teutonic tongue.

On comparing the present population of Western Europe with the earlier races, notwithstanding the extensive changes due to the spread of civilisation, the greater intercourse

between nations, the intrusion of the Teutons into Britain, and political dislocations, the dark and fair people still retain relatively the same geographical distribution as in proto-historic times. The fair folk cluster around the German Ocean and eastwards along the shores of the Baltic to Asia, while the dark occupy a more southern zone on both sides of the Mediterranean. All statistics go to prove that the tendency has been to increase the number of people with intermediate skull-forms (mesaticephali), a fact which may be partly explained by the intercrossing of the original brachycephali and partly by the steady advancement of brain-matter.

The greatest difficulty in all these anthropological researches is to account for the origin of the blond element among the earlier races. According to Professor Huxley, the fair whites (Xanthochroi) and dark whites (Melanochroi) of Britain are distributed now very much the same as they were in the time of Tacitus. From these and other facts he formulated the following conclusions: "(1) That the Melanochroi and Xanthochroi are two separate races in the biological sense of the word race; (2) that they have had the same general distribution as at present from the earliest times of which any record exists on the continent of Europe; (3) that the population of the British Islands is derived from them, and from them only."¹

There is one feature of the ethnological question which, being of a practical character, cannot fail to interest those who think they can distinguish, through the gossamer of language and tradition, the blood and civilisation of the various races who have, from time to time, found a permanent home within the British Isles. Perhaps few anthropologists have ever seriously considered the slender grounds

¹ Collected Essays, vol. vii. p. 262.

on which the term "Celtic" is applied in modern times to sections of the population of these islands. If the linguistic fragments still extant are to be taken as evidence of the distribution of Celtic influence, they would restrict the latter to the very same geographical areas which the racial evidence marks out as non-Aryan or pre-Celtic. No greater contrast between existing races is to be found than between the present inhabitants of the Aran Isles, in Galway Bay, and those of County Kerry, in Ireland. They are probably the purest breeds of the Xanthochroi and Melanochroi to be found in Western Europe, but yet they are both within the modern "Celtic Fringe." The truth is, that between language and race there is no permanent alliance. Many of the most sentimental and patriotic Scotsmen of the present day are Teutons by blood, while still more have pre-Celtic blood coursing in their veins; and the same may be said of Irishmen. And what a picture of mistaken identity do so many Englishmen present when, with the physical qualities of low stature, long heads, and dark eyes, they boast of their Teutonic origin! To console readers who may not find themselves labelled by nature among any of the original types which enter into our common nationality—neither dark nor fair, long nor short, dolichocephalic nor brachycephalic—but among the larger category of well-developed mongrels, let me assure them that no special combination of racial characters has ever yet been proved to have a monopoly of intellectuality and virtue.