

ON THE FORM OF THE CRANIUM AMONG THE  
PATAGONIANS AND FUEGIANS, WITH SOME  
REMARKS UPON AMERICAN CRANIA IN GENERAL. By PROFESSOR HUXLEY, LL.D., F.R.S.

Fig. 1.

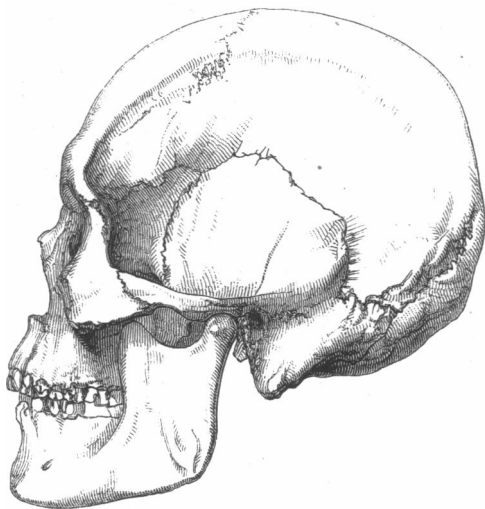
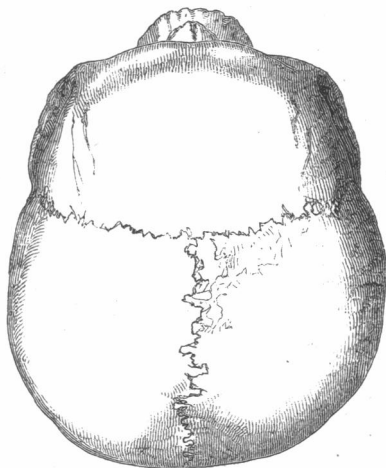


Fig. 3.



Figs. 1 and 3. Lateral and upper views of the skull of a Patagonian.

Fig. 2.

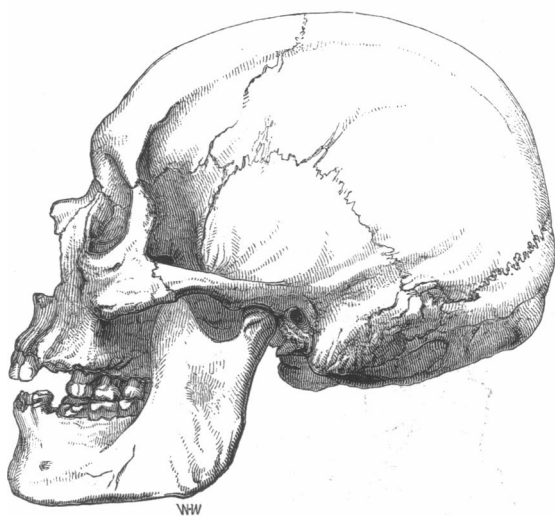
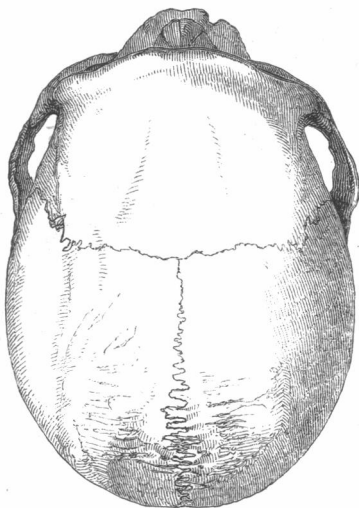


Fig. 4.



Figs. 2 and 4. Lateral and upper views of the skull of a Fuegian.

Fig. 5.

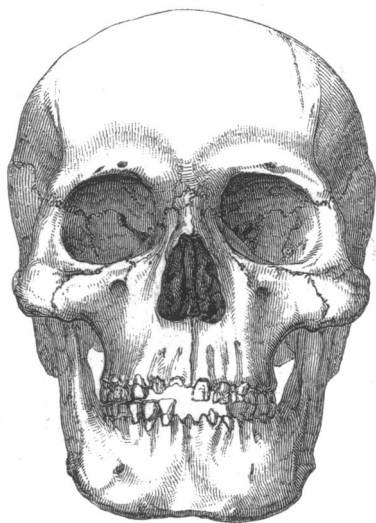
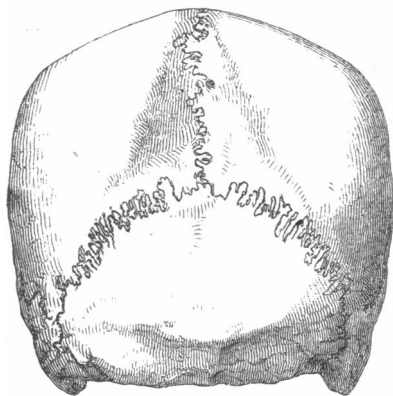


Fig. 7.



Figs. 5 and 7. Facial and occipital views of the skull of a Patagonian.

Fig. 6.

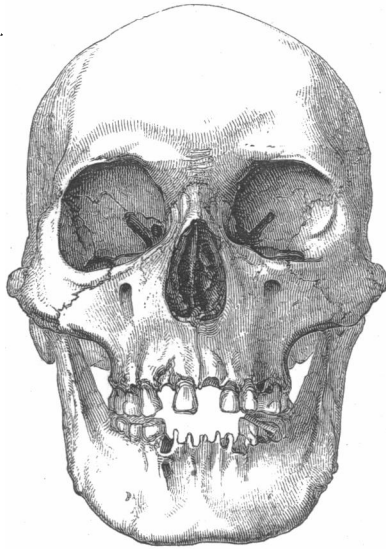
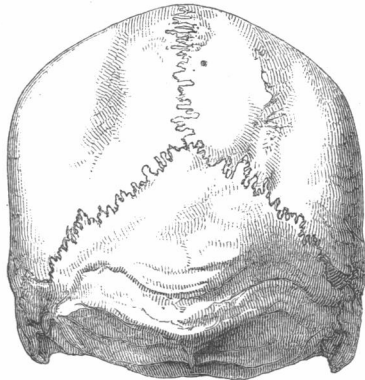


Fig. 8.



Figs. 6 and 8. The same views of the skull of a Fuegian.

DR MORTON, the well-known author of the *Crania Americana*, repeatedly expressed, and throughout his life adhered to, the opinion, that all the people of the two Americas, excepting the Esquimaux, have essentially one physical conformation, and

belong to one and the same stock. Thus in the posthumous papers published by Messrs. Nott and Gliddon, (*Types of Mankind*, 1854, p. 324), he writes:

"... The physical character of the American races from Cape Horn to Canada is essentially the same. There is no small variety of complexion and stature; but *the general form of the skull*, the contour and expression of the face, and the colour and texture of the hair, together with the mental and moral characteristics, all point to a common standard which isolates these people from the rest of mankind"

And at p. 325:

"Every one who has paid attention to the subject is aware that the Peruvian skull is of a rounded form, with a flattened and nearly vertical occiput. It is also marked by an elevated vertex, great interparietal diameter, ponderous structure, salient nose and broad prognathous maxillary region. This is the type of cranial conformation to which all the tribes from Cape Horn to Canada more or less approximate."

However, Dr Morton somewhat qualifies this expression in the succeeding paragraph:

"I admit that there are exceptions to this rule, some of which I long ago pointed out in the *Crania Americana*, and others have been recently noticed among the Brazilian Tribes by Professor Retzius."

This passage was written about 1851. But those who read what follows will hardly allow that it gives an adequate notion of the bearing of Retzius' labours upon American Ethnology, and especially upon Dr Morton's conclusions. At this time Retzius had, in fact, demonstrated beyond all question the total inaccuracy of these conclusions, so far as the form of the cranium is concerned, by a series of researches, the results of which, published at intervals from 1844 to 1856, appear in the following notices:

I. *Ueber die Form des Knochengerüsts des Kopfes bei verschiedenen Völkern*. Published in 1844. (Retzius' *Ethnologische Schriften*, pp. 27—40).

In speaking of America, Retzius remarks, p. 37:

"In no other part of the world does the shape of the skull show so many definite differences, in none more and greater extremes, and nowhere are the different nations so interspersed among one

another. Thus, a few years ago, I received from Professor S. Lovén the skull of a South Patagonian, which is remarkable for its length, depression and lateral compression. According to the account received this is the predominant form in southern Magalhaen's land, though, on the contrary, the nearest neighbours of this people, the Pampeans or Puelches, have short, broad and higher skulls."

On the following page, Retzius gives a table in which he classifies the Americans as follows:

*Gentes dolichocephalæ prognathæ.*

*Americæ septentrionalis.*

Greenlanders and Esquimaux. Kolusches.  
Cherokees. Chippeways. Iroquois. Hurons.  
Chickesaws. Cayugas. Ottigamies.  
Pottowattomies. Lennilenape. Blackfeet.

*Americæ meridionalis.*

Botocudos. Caribs. Guaranis. Aymaras.  
Huanchas. South Patagonians.

*Gentes brachycephalæ prognathæ.*

*Americæ septentrionalis.*

Natchez. Creeks. Seminoles. Euchees.  
Klatstonis.

*Americæ meridionalis.*

Charruas. Puelches. Araucanians.  
Modern Peruvians.

And he adds as doubtful, *Brachycephalæ orthognathæ*, the Aztecs in Mexico, and the Chincas in Peru.

II. *Beurtheilung der Phrenologie von Anatomisch-Ethnologischen Standpunkte aus.* Published in 1847. (Retzius, *Ethnologische Schriften*, pp. 70—85.)

"Among the *American* races of mankind both dolichocephalic and brachycephalic tribes occur.—Nowhere are such extreme forms to be met with as in the new world, many tribes producing them artificially. The greater part of the Canadian Indians are, so far as I know, dolichocephalic. In the United States both forms occur in different territories..... The Mexican Indians are, for the most part, brachycephalic. Many flatten the skull from behind forwards, whereby it often attains an unnatural shortness and height.....

"In Venezuela, Guiana, Brazil, Paraguay, and the neighbouring states, the dolichocephalic form again predominates. To this belong the Caribs, Botocudos, Guaranis, &c.....

"In Peru, the Incas, immigrants from Mexico, with especially short and flattened occiputs, are found, besides the Chincas or Yungas, whom Tschudi reckons among the aborigines of the country. According to the same author, there are dolichocephalic tribes, namely the Huanchas and the Aymaras, in Peru.....

"The Indians in all the rest of South America, namely the Araucanians in Chili, the Charruas, Puelches, &c. in Uruguay, the La Plata States and Magelhaen's land<sup>1</sup> are, so far as I can discover, all brachycephalic."

III. *Ueber die Schädel-form der Peruaner*. Published in 1848. (Retzius, *Ethnologische Schriften*, p. 94).

In this paper Retzius first describes five mummified skulls, which he considers to belong to the Incas, from a tumulus near Pisco, on the coast south of Lima in 13° 46' S, and 76° 9' W. All were short, with flat, steeply-inclined, occiputs. The one figured has the cephalic index 0·91.

Three skulls sent from Lima, two of which belonged to complete mummies, on the other hand, are dolichocephalic, that figured having an index of 0·76.

In conclusion, Retzius remarks, p. 98:

"In brief, the American peoples in general may, like the nations of the old world, be divided into two principal groups, into brachycephali and dolichocephali. To unite these forms under one group, as was formerly done with the Slavonians and Germans, for example, on grounds of philological affinity, is to stray beyond the region of safe natural history fact. Just as in the old world, the people belonging to these two classes, seem, in many localities, to have lived in small societies scattered among one another; while, in others, they were more sharply separated into larger and usually inimical nations, of which sometimes the one and sometimes the other had the upper hand.

"I have, indeed, received a very long and depressed skull of peculiar form, said to come from Magelhaen's land; but for the present I hold its origin to be uncertain. Subsequently I have learned from Fitzroy and Darwin's Voyage that even the inhabitants of Tierra del Fuego present the same brachycephalic form as the other Puelches, whence I conclude that this form predominates in the whole southern part of South America.

The brachycephalic tribes in America form an almost uninterrupted series through the whole western side of this part of the world as far as Cape Horn.".....

<sup>1</sup> This ascription of general brachycephaly to the people of Magelhaen's land is inconsistent with the opinion expressed in the preceding paper. See the third extract.

IV. *Bemerkungen ueber Schädel von Guarani-Indianern aus Brasilien*. Published in 1849. (Retzius, *Ethnologische Schriften*, pp. 112—117).

In this memoir the author describes five skulls of "Tapuios" (Tupayas), the mean cephalic index of which is 0·70. He mentions two others of quite the same form, and remarks (p. 116), that he has examined a number of Guarani and Carib skulls, and has never seen a round one. On the contrary, they are all elongated with a very projecting occiput.

Retzius remarks that the D'Orbigny's "Race Brasilio-Guaranienne," to which the "Tapuios," Guaranis and Caribs belong, extends from Guiana to Paraguay, and from the Antilles to the foot of the Bolivian Andes; and he suggests that the Aymaras, whom he regards as the primitive inhabitants of Peru, are of the same stock, laying some stress upon the resemblance between "Aymara" and the name "Aymores," which certain Boticudos give themselves.

V. In the letter to Dr Nicolucci (1852), (*Ethnologische Schriften*, pp. 120—124), Retzius writes :

"*En Amérique*: Toutes les races de ce continent peuvent être divisées en ces deux mêmes classes, savoir, en brachycéphales et dolichocéphales.

"*Les dolichocéphales* sont dominantes dans la partie orientale, savoir : Les Esquimaux, tous les Américains rouges, les Caraïbes dans la Guyane, les Guaranis au Brésil et au Paraguay, et les petites tribes des Huanches, originaires de Brésil.

"*Les brachycéphales* sont prédominants dans la partie occidentale, savoir : Les Caribiens, les Oregoniens, la plupart des Mexicains, les Chincas au Pérou, les Araucaniens, les Pampéens, les Patagonsiens et les Fuegiens."

VI. *Ueber den Schädel eines Pampas Indianers*. Published in 1855. (Retzius, *Ethnologische Schriften*, pp. 131—135).

In this Essay Retzius describes the brachycephalic skull (the index of which is about 0·88) of a Puelche Indian from the Pampas south of Buenos Ayres. These Indians, he says, extend far south into Magalhaen's Land. The figure of the skull *l. c.* pl. vi. fig. 7) shews that the occiput has undergone a certain amount of artificial flattening.

At the end of this paper the following passage occurs :

"On a previous occasion I drew attention to the general distribution of the brachycephalic and dolichocephalic Indian tribes in America ; the dolichocephalic predominating in the eastern, and the brachycephalic in the western parts of the immense American continent. Upon the eastern side we meet with dolichocephali in Labrador and in northern Canada, as Esquimaux ; further south as numerous tribes of so-called Red Indians ; formerly, in the West Indian islands as Caribs, and still as such in Guiana ; as Guaranis, in Brazil and Paraguay. On the western side, the inhabitants of the Kurile islands, and probably of all Russian America ; the Chenooks in Oregon, the Aztecs in Mexico, the Incas in Peru, the Araucanians in Chili, the Fuegians in Tierra del Fuego are brachycephalic. But in Magelhaen's land and in the Republic of Buenos Ayres all the Indian tribes are brachycephalic.

"On comparing the skulls of these opposed forms with those of other countries, it appears that the greater number of the eastern Indian tribes approach the Guanches of Teneriffe and the Atlantic people of Africa ; the majority of the western Americans, on the contrary, rather resemble the Malayan and Mongolian stocks.

"This division, however, cannot be maintained with perfect strictness. Many tribes have spread in opposite directions, as the dolichocephalic Aymaras and Huanchas in Peru, who probably migrated from Brazil, and as the Creeks, Natchez, and many other brachycephali, eastward of the Rocky mountains, who probably came from Mexico and California."

VII. The views here expressed are further developed in the eminent Swedish Ethnologist's last and most complete memoir, entitled *Blick auf den gegenwartigen Standpunkt der Ethnologie mit Bezug auf die Gestalt des Knöchernen Schädelgerüstes*, published in 1856. (*Ethnologische Schriften*, pp. 136—162).

In this Essay the author shews that Morton's facts are wholly inconsistent with his hypothesis, that the Americans are of one physical conformation. "Hardly in any part of the world are there such contrasted dolichocephalic and brachycephalic forms as in America," is the conclusion which Retzius draws no less from Morton's observations than from his own. He repeats the conviction, at which he arrived in 1842 (and which is unquestionably correct), that the Greenlanders and Esquimaux are dolichocephalic, and very different from the Mongols ; and he directs attention to the close resemblance

between the crania of the Esquimaux and of the Tunguses. Further, Retzius finds that the Chinese skulls very nearly approach those of the Tunguses and Greenlanders. In connexion with this subject he observes:

“According to this view, the stock to which the Esquimaux belong would only be Arctic in North America, but from its thinly inhabited area in the Islands of the Arctic Sea and the northernmost parts of America, it extends from west to east to China, of which it constitutes the proper Chinese population, which is to be carefully distinguished from the Tartar-Chinese.”

Retzius had not seen an Aleutian skull, but he is disposed to regard the Aleutians as the connecting tribes of the Asiatic and American branches of this stock.

Repeating his views as to the relationship between the Guaranis and the Guanches, Retzius extends them so far as to include the Berbers and the Copts, and even the Jews, in the same category (*l.c.* p. 154), and seems not indisposed to call to his aid the old speculation touching the Atlantis to account for the wide distribution of this “Guarani-Hebrew” stock.

Retzius next proceeds to develop his already hinted hypothesis respecting the relation of the American brachycephali to the people of the South Sea islands and of Asia (*l.c.* p. 155), without adding much new matter. One passage however must be cited:

“I have seen no skulls of Indians from Tierra del Fuego, but I have examined the excellent profile portraits given in Capt. Fitzroy’s ‘Voyage.’ From these portraits it is seen that the Indians of Tierra del Fuego, the Fuegians, are even more brachycephalic than the Pampeans.” p. 158.

Nevertheless, on the chart appended to the *Ethnologische Schriften* there is a small red spot on the south coast of Tierra del Fuego, which should indicate the presence of dolichocephali in that region.

Professor Wilson, in his recently published work, *Prehistoric Man*, entirely confirms the general conclusions of Retzius, with whose writings, however, he does not appear to have been fully acquainted.

He gives measurements of 37 skulls of Western Canada Hurons, obtained from "graves to the north of the watershed between Georgian Bay and lakes Erie and Ontario," (Tab. ix. p. 468), of 10 Iroquois crania (Tab. x. p. 470), of 32 Canadian Algonquins (Tab. xi. p. 471), of 30 New England crania (Tab. xii. p. 473), and of 23 Algonquin Lenape crania (Tab. xiii. p. 476), of 22 "American brachycephali" (Tab. vii. p. 461), and of 31 "American dolichocephali" (Tab. vi. p. 460); making 185 crania of the uncivilized North American tribes in all. To these, Prof. Wilson adds (Tab. viii. p. 464) the measurements of the heads of twelve living Algonquins. With two exceptions (Nos. 3 and 7) these last are brachycephalic, the average cephalic index of the whole twelve being 0·82–3, and I am at a loss to know why Prof. Wilson calls them dolichocephali (*l. c.* pp. 466 and 471), the cephalic indices which result from his own measurement of the longitudinal (L.D.) and parietal (P.D.) diameter being as follows :

No.	L.D. in.	P.D. in.	Index.
1	7·4	6·0	·81
2	7·1	6·0	·84
3	7·3	5·8	·79
4	7·5	6·1	·81
5	6·9	6·0	·86
6	7·1	6·0	·86
7	7·4	5·8	·78
8	7·2	5·9	·83
9	7·2	6·0	·83
10	7·3	5·9	·82
11	7·2	6·0	·83
12	7·4	6·6	·89

Similar errors have crept into his other tables. Thus, of his American dolichocephali, Nos. 2, 3, 5, 11 and 23 are brachycephali, and of the American brachycephali, Nos. 3, 4, 5, 6, 18, 21, 22 are dolichocephali. The Canada Algonquins are said at p. 471 to be all dolichocephali, but Nos. 1, 2, 3, 4, 5, 6, 17, 23, 25, 28 and 32 are brachycephali.

Revising Prof. Wilson's tables, I find that of the 197 crania referred to above, the measurements of which he gives, 145 are dolichocephali and 52 brachycephali. Almost all the skulls of the latter class are either Algonquin, Canada Algonquin, Algonquin Lenape, or belong to the following tribes, Muskagees, Dacotahs, Pawnees, Chetimachees, Chimayans, Osages, Creeks, Seminoles, Ottigamies, or Menominees. No Huron skull is brachycephalic, and only one Iroquois in ten, and that a female. Of the New England crania the same proportion, or only 3 in 30, are brachycephalic.

Prof. Wilson gives the measurements of 21 crania from ancient mounds and caves in the valley of the Mississippi. It does not appear that these have been subjected to artificial compression greater than that resulting from the use of the cradle-board, but they are all brachycephalic, and often eminently so, the average cephalic index being '87.

So far as these observations extend, therefore, they tend to the conclusion that the ancient inhabitants of the valley of the Mississippi were brachycephali, and did not artificially flatten their skulls; a conclusion which is in harmony with the character of the heads represented in the terra-cotta works of that people. All the ancient Mexican and central American terra-cotta heads I have seen represent strongly flattened skulls.

That some of the ancient inhabitants of Mexico had naturally dolichocephalic skulls appears obvious from Prof. Wilson's Table IV. p. 458; but it is not so clear that any of them were naturally brachycephalic, as Prof. Wilson does not give any critical account of the materials whence his Table v. was drawn up, or figure any of the skulls. What he terms a "normal" skull of a Peruvian child, (*l.c.* p. 451, fig. 60), is as obviously distorted by circular compression as the adult skull, (*l.c.* fig. 59), which he also appears to consider to be normal, and I therefore hesitate to accept his Tables II. and III. of measurements of brachycephalic and dolichocephalic Peruvian crania as evidence.

Retzius, on the other hand, figures two Peruvian skulls (Pl. v. fig. 6, "Aymara," iv. fig. 5, "Inca Peruviana") one dolichocephalic and the other brachycephalic, neither of which has been affected, to any important degree, by pressure.

Prof. Wilson fully confirms Retzius' statements respecting the skulls of the Esquimaux and Greenlanders, and adds proof of the important fact that the Tchuktchi of Eastern Asia are similarly dolichocephalic.

In 1866 Dr Meigs, of Philadelphia, published a paper entitled, "*Observations upon the Cranial Forms of the American Aborigines*," which acquires an especial importance from being based chiefly upon the study of Morton's collection. His most important conclusions in connexion with the subject of the present paper are the following :

"(1) That the crania of the aboriginal Americans are divisible into dolichocephalic, mesocephalic, and brachycephalic groups.

"(2) That the dolichocephali greatly preponderate in numbers over the mesocephali and brachycephali.

"(3) That, in the case of the Peruvian skulls in the Academy's collection, however, the short square heads are more numerous than the elongated forms.

"(4) That, in North America, neither the dolichocephalic nor brachycephalic tribes, when first known to Europeans, were restricted in their geographical distribution to any particular locality. While the former were scattered over the continent, through all degrees of latitude and longitude, the latter appear to have been, if we may judge from the specimens in the Museum, more numerous about the Great Lakes, at various places in the interior, in the south near the Gulf of Mexico, in the so-called Paduca area, and especially along the north-west coast. In general terms we may say that on the eastern or Atlantic side of the continent the dolichocephali appear to have prevailed, and on the western or Pacific side the brachycephali. This in a great measure seems to have been, and still is, the case in South America.

"(5) That long- and short-headed tribes, or races, are very commonly found throughout the two Americas side by side. In the extreme north, for example, dolichocephalic and brachycephalic forms are contrasted in the Esquimaux and their geographical neighbours the Konægi, or Kadiakian Aleutians, and again, in the far south, these diverse forms are exhibited in the Patagonians and Puelches.

"(6) That this contrast in cranial forms existed among the extinct races of America as it now does among extant tribes."

Dr Meigs, unfortunately, gives no numerical definition of what he means by dolichocephalic, mesocephalic, and brachy-

<sup>1</sup> *Proceedings of the Academy of Natural Science of Philadelphia*, May, 1866.

cephalic, but the general tenour of his observations is not the less clear for this uncertainty.

The extensive collection of American skulls which Dr Meigs studied, appears to have contained no original Patagonian or Fuegian skulls. Two casts are mentioned, one of the short and broad head of a Puelche girl, and the other of the long and cylindrical skull of a Patagonian. I suspect these must have been furnished by Retzius, in which case no dependence can be placed upon the authenticity of the second skull.

The great majority of the American skulls contained in the Museum of the Royal College of Surgeons have been artificially distorted. But in the following specimens distortion is either absent or slight in amount.

No. 5441.—The cranial part of a skull from the Saltpetre cave, Tennessee. Cephalic, index '73.

No. 5441 A.—The skull of a Messisague or Mohawk Indian, from an old battle-ground at Rice Lake. Cephalic index '73. The contour of this skull is, in many respects, like that of the Neanderthal fragment.

5441 B.—The skull of a Red Indian from Tennessee, figured by Mr Busk in the fifth volume of the *Natural History Review*. Cephalic index '75.

5414 P.—The skull of the squaw of a Creek Indian, Upper Mississippi. Cephalic index '74. This is an uncompressed prognathous skull with an elongated occiput.

5414 R.—The skull of a Chickasaw, Upper Mississippi. Cephalic index '78. This skull may have undergone a slight compression at the upper part of the occiput. It is prognathous.

The most interesting of these dolichocephalic skulls, in relation to the subject of the present paper, however, is that of a native of Tierra del Fuego, presented by the late Captain Fitzroy, and thus described in the *Catalogue* by Prof. Owen :

"5428. The cranium is sub-elongate, moderately expanded at the parietal bosses, with a narrow and protuberant super-occipital; the forehead is narrow and low. The glabella is prominent and the nasals are produced. The malars are moderately prominent; the jaws prognathous; the chin well-developed. The base of the skull

presents paroccipital protuberances, large styloid processes of the sphenoid, and small but distinct Eustachian processes of the petronal. Traces of the maxillo-premaxillary suture remain on the palate. The molar teeth are of moderate size, and are worn on the inner border in the upper jaw and on the outer border in the lower jaw."

This cranium is represented in Figs. 2, 4, 6 and 8. Its cephalic index is '74. It has not been distorted by pressure, and in its length, in the projection of the occiput, the width of the inter-zygomatic diameter (5·8 in.), the depth of the nasal depression, and the projection of the nasal bones, it presents no small resemblance to the skull of an Esquimaux.

Many of the other bones of the skeleton of this Fuegian are in the collection. The measurement of the principal bones of the limbs compared with the corresponding bones of an Esquimaux, are as follows :—

	Femur.	Tibia.	Sum of Femur and Tibia.	Humerus.	Radius.	Sum of Hu- merus and Radius.
Fuegian	16·6	13·8	30·4	11·85	9·5	21·35
Esquimaux	16·75	12·8	29·55	11·35	8·2	19·55

Thus the femora of the two are nearly equal; but the leg of the Fuegian is nearly an inch longer, owing to the greater length of the tibia. And the Fuegian's arm is nearly two inches longer, in consequence of the still more remarkable brevity of the radius in the Esquimaux.

However, it would appear that, in accordance with the statements of voyagers, the stature of the Fuegian was not very different from that of the Esquimaux.

When my friend Dr Cunningham, now naturalist on board H.M.S. Nassau, sailed for South America, I requested him to avail himself of any opportunity that might present itself for procuring Patagonian and Fuegian skulls. He has been good enough to bear my wish in mind, and not long ago I received a Fuegian and two Patagonian skulls which had been sent home by him, and which, in accordance with Dr Cunningham's desire, were placed at my disposal by the Hydrographer.

The cranium of the Fuegian was found "lying partially immersed in a pool of water" at Philip Bay, and is in a good

state of preservation, except that the nasal bones and the mandible are absent.

The cephalic index of this skull is  $\cdot 78$ ; so that it is broader than that figured. But as the last molar has not been cut, it is the skull of a young person, and many circumstances lead me to think it may be that of a woman.

It is a curious circumstance that in this skull, as in that in the College of Surgeons, there are very large and prominent "paroccipital processes," which, as the remains of the cartilage which tipped them shews, would have become considerably longer had the owner of the skull reached maturity. The face is distinctly prognathous.

The Museum of the College of Surgeons contains two undoubted Patagonian skulls, brought by the late Admiral Fitzroy from Port Melo on the east coast of Patagonia. They are described in the Catalogue as Male (No. 5426), and Female (No. 5427). The skull 5426 has the cephalic index  $\cdot 87$ . It exhibits no more indications of occipital pressure than might arise from nursing. The skull 5427 is more flattened in the occipital region, and there are numerous Wormian bones in the lambdoidal suture. Its cephalic index is  $\cdot 96$ ; and (though I have no doubt that the skull was primitively broad) I am disposed to ascribe this excess of breadth over No. 5426 to artificial distortion arising from the use of the cradle-board. In fact, Fitzroy, in his *Narrative of the Surveying Voyages of H.M.S. Adventure and Beagle*, Vol. II. p. 154, says of the Patagonians:—

"While infants are suckling, the mothers use frames or cradles in which their charges are carried about; they are made of flat pieces of wood, with a few semicircular guards of lath or thin branches, whose ends are fixed into holes in the wood. In such frames, between pieces of guanaco skin, the babies are placed; and while travelling these cradles are hung at the mother's saddle-bows."

For the opportunity of examining a third genuine Patagonian skull, I am indebted to Higford Burr, Esq., to whom it was intrusted by Captain Watson. It was found in a tumulus near the river Chupa, in latitude  $43^{\circ}$  S., longitude  $67^{\circ}$  W.

This skull is represented in Figs. 1, 3, 5 and 7.

The occiput is slightly flattened, especially on the right side,

but the distortion is not greater than might be produced by nursing. The cephalic index is '89.

Of the two skulls sent from Patagonia by Dr Cunningham, one was found "sticking out of a sand-bank in Gregory Bay;" the other was procured in the course of "digging a hole for a flagstaff in the neighbourhood of direction Hills." The latter skull is, unfortunately, very fragmentary, and appears to have undergone *post mortem* distortion. But the former is nearly perfect, though it wants the lower jaw.

This skull (which is that of an adult male) shews very distinct evidence of artificial distortion. Not only is the occiput much flattened and unsymmetrical, but the very retreating forehead has such a surface as appears to me could only have been produced by the application of a frontal compress or bandage. Under these circumstances, the cephalic index ('81) is of doubtful value as an indication of the primitive form of the cranium.

The supraorbital ridges are very strongly marked, their real prominence being much exaggerated by the retreat of the forehead. There are no distinct paroccipital processes. The crowns of the teeth are ground down quite flat.

Although the two skulls sent by Dr Cunningham are from Patagonia, it does not absolutely follow that they are Patagonian in the ethnological sense. The Caribs were great voyagers, and some may have strayed as far south as the coast of Patagonia, and left their bones in a sand-bank.

The facts which have been adduced, however, clearly tend to the conclusion that brachycephaly obtains among the Patagonians, and dolichocephaly among the proper Fuegians; and therefore that these two types of cranial conformation exist side by side at the southern extremity of America.

There are only two undistorted or little distorted crania of 'Guarani' Indians in the Museum of the Royal College of Surgeons. Of these, No. 5405, the skull of a Macusi from Guiana, has the cephalic index '81. No. 5406, the skull of an Arawack, also from Guiana, has the cephalic index '80. These two skulls, therefore, though actually brachycephalic, are close to the boundary between brachycephaly and dolichocephaly, and

differ very widely in degree from the more brachycephalic Patagonians.

I do not know that any satisfactory evidence exists as to the natural form of the skull in those North American tribes, such as the Chenooks, in which it is artificially flattened. Leaving these out of consideration, strongly marked brachycephaly seems to be restricted in the New World to (1) the ancient inhabitants of the Mississippi Valley, the so-called "Mound-builders"; (2) the Patagonians, and more or fewer of the Southern Americans westward as far as Peru.

Strongly marked dolichocephaly, on the other hand, is found universally among the Esquimaux; greatly predominates among the Northern Red Indians, and the northern inhabitants of South America; and (if one skull is sufficient evidence), is met with in so much of Tierra del Fuego as is inhabited by Fuegians.

Confining ourselves to people with black hair, and yellowish, reddish, or olive brown complexions—not differing more widely from that of the Americans than the Americans do from one another—we find that dolichocephaly is continued by the Tchuktches (Wilson), the Tunguses (Retzius), the Japanese, the Ainos and the Chinese, into Asia, and terminates at undefined points on the northern and eastern shores of that great continent.

Brachycephaly of a marked kind predominates in the Aleutian Islands (Von Baer), but is probably not to be met with on the Asiatic coast of the Pacific and Indian oceans more northward than Siam, or more southward and westward than the valley of the Ganges.

Westward and northward from Siam, so far as our information at present goes, people with yellowish-brown complexions, black hair and brachycephalic skulls, extend across central Asia to Lapland. Southward and eastward they abound in the Malay Archipelago, and may be traced into the Samoan islands and the Sandwich islands in Polynesia.

From China and Japan southward and eastward dolichocephalic people with black hair and yellowish or reddish brown

complexions are to be found (as Dyaks) in Borneo. The cranial characters of the Battas of Sumatra are not sufficiently known. Probably they will be found to be dolichocephalic like the Dyaks; and I believe in all the Micronesian and Polynesian islands—constituting the entire population of some of them, such as New Zealand.

Westward, dolichocephaly combined with yellowish or reddish brown complexion and black hair, appears in a marked form among the inhabitants of the Canary islands, of Cis-saharal Africa, and of Egypt; and, not improbably, in former times, extended much further to the north and west than at present.

On either side of the vast belt of people with black hair and eyes, complexions varying from yellow to olive-brown, and skulls of the most extreme proportions—which has thus been traced in occupation of the Americas, of the greater part of the Pacific islands, of Asia, of northern Africa, and perhaps of southern and western Europe, we find other stocks, in some of which the characters of the skull are as apparently variable as in these; while in others, the skull has a singularly unnatural form.

Thus, northwards, in western Asia, in Europe, and sending offshoots into northern Africa and Hindostan, are the Xanthochroi, with fair skins, light hair, and blue eyes; who offer in the Scandinavian and in the south German the extremes of dolichocephaly and of brachycephaly.

On the south, on the contrary, the dark-skinned people with black wavy hair, and black eyes, who primitively inhabited Australia and the Dekhan, are, I believe, invariably dolichocephalic.

The people with black, crisp, or woolly, hair, and black eyes, who inhabit Ultra-saharal Africa, and sundry islands in the Indian and Pacific oceans, and are known as Negroes, Negritos and Bushmen, are almost as invariably dolichocephalic. At least, I know of not more than two or three cases in which the cephalic indices of these people have reached or slightly exceeded 80.