



---

Recent Anthropometrical Work in Egypt

Author(s): David MacIver

Source: *The Journal of the Anthropological Institute of Great Britain and Ireland*, Vol. 30 (1900), pp. 95-103

Published by: [Royal Anthropological Institute of Great Britain and Ireland](#)

Stable URL: <http://www.jstor.org/stable/2842622>

Accessed: 14/06/2014 10:59

---

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Royal Anthropological Institute of Great Britain and Ireland is collaborating with JSTOR to digitize, preserve and extend access to *The Journal of the Anthropological Institute of Great Britain and Ireland*.

<http://www.jstor.org>

## RECENT ANTHROPOMETRICAL WORK IN EGYPT.

BY DAVID MACIVER, M.A.

[PRESENTED JUNE 12TH, 1900. WITH PLATES IX AND X.]

IN the following paper, which is a *résumé* of one read before the British Association at the Dover meeting, I wish to bring forward a somewhat new experiment. This experiment is the employment of anthropometry as an aid to the solution of historical and archæological problems. It is singular how rarely the archæologist makes use of anthropometry, although it might be supposed that the physical characteristics of a race were not less important in determining its origin and connections than the evidence of myth, language, custom, and æsthetic production, which is so freely and often so uncritically employed.

The chief reason for the neglect to which I have referred is probably to be found in the difficulty of dating the specimens. Measurements taken from various cemeteries of different periods and in different countries are of little value if they cannot be arranged in a definite sequence of time and put into relation with one another geographically and historically. Now it is precisely in this respect that the worker in Egypt finds himself in a peculiarly favourable position; so much so, indeed, that it may be fairly claimed that Egypt is the starting-point for all anthropometrical work which aims at establishing historical connections. For, owing to the progress which has been made within the last generation, it has become possible to date accurately every cemetery which is excavated. Professor Petrie, to whom so much of this progress is due, has from the first insisted upon the importance of measuring and comparing the skulls and the bodies found; and it is as a result of the work carried out in connection with his systematic excavations that there are at the present moment available series comprising over 1,400 examples, which are divided into eight periods according to their dates, and which range almost uninterruptedly through the whole length of Egyptian history from the neolithic age to the fall of the Roman Empire.

How great an advance this represents may be judged from the fact that the catalogue of the Royal College of Surgeons enumerates only thirty specimens. These, in the absence of any proof to the contrary, may be separated from one another each by a period of two hundred years, and may belong to three or four different race stocks. And yet from such slight material has been made the attempt to deduce the type of "Ancient Egyptian."

Before proceeding to any comparison between the various series to which reference has been made, it will be well to explain the new method upon which these measurements are now being published. In publishing a large number of measurements there are two objects to be aimed at; the first is to give all possible details, the second is to give them in a form which is intelligible and expressive and which enables them to be easily worked over. These requirements are not fulfilled by the methods which are ordinarily adopted. Of those in common use, the first method is to set out all the individual specimens one after another, accompanied by a list of their measurements. This is merely flinging a note-book into print, and leaves the whole work of tabulation to be done by the reader. The other is to arrange the indices in groups and to state how many examples fall within each group. This is occasionally misleading if the groups are not made close enough to one another to show the distribution of the examples. But even at its best this arrangement destroys as much as it preserves. The identity of the specimens is lost, and it is impossible to trace combinations of characteristics. It may, for instance, be stated that, as regards the cephalic index, a certain number of the specimens are narrow-headed and a certain number broad-headed; that as regards the nasal index a certain number have slender noses and a certain number have broad noses; and so on throughout the various measurements. But there is no possible way of discovering how these features are combined in the various specimens, whether the long head accompanies the slender or the broad nose, the straight or the projecting face. The reader is entirely precluded from inquiring whether there are any general rules of combination or whether there are not. He is, in fact, presented with a series of composite photographs, isolated and incapable of being compared together.

In setting out the measurements taken at Denderch in the season of 1898, I have therefore adopted a new method, which, while it is quite simple, combines the requirements of clearness and detail. The principle adopted is that of giving, as it were, a chart of the district of measurements within which the specimens are comprised (see Plate IX).

Thus, for instance, in comparing the length and the breadth of the skull the figures giving the length are written in a vertical line at the side, and those giving the breadth are written in a horizontal line along the top or bottom. The chart is thus divided up into chessboard squares, in which the specimens are pigeon-holed, each according to its measurements. Every specimen is given a particular number by which it is denoted all through the various diagrams; this, which may be called its "name-number," is always reserved for it, so that the identity of every specimen is preserved, and it is only necessary in order to find all its measurements to look for it by its number in the several diagrams.

It will be noticed that in Plate IX the figures at the side and along the top represent not the index, but the actual dimensions in centimetres and millimetres. This is done deliberately in order to show the size of the skull as well as the ratio of its parts. For it is one of the worst points in the system

of tabulating by groups of indices that specimens of which the actual dimensions are enormously different are placed within the same index group. Thus, to quote actual examples from the prehistoric series, one specimen measures  $196 \times 143$  and another  $179 \times 131$ . These give an almost identical index, and according to the method which is in common use would be put down in the same group in spite of a difference of 17 millimetres in length and 12 in breadth.

Again, it happens sometimes in comparing together series of different dates that the average index has not altered, but the average absolute dimensions have greatly increased or decreased in the intervening period. It is therefore on all grounds of paramount importance to give the absolute dimensions as well as the indices.

In Plate IX the indices are shown by the diagonal lines drawn across the chessboard squares. They are arranged at regular intervals, as the irregular divisions of Broca are inconvenient. As, however, the latter are so universally known, their place is shown by the broad brackets.

Such a chart as this gives, therefore:—

- (1) The absolute length.
- (2) The absolute breadth.
- (3) The cephalic index.
- (4) The dispersion of the specimens according to their absolute measurements.
- (5) Their dispersion according to indices.

All this is done within a very small space, and at the same time the identity of every specimen is preserved.

Such charts can be used in all cases where it is desirable to compare two measurements. Where, however, it is only wished to set out one class of measurement by itself, the "name-numbers" can be utilised in another way. They are put out in a line, each opposite to the measurement to which it belongs, and if attention is paid to the spacing, the length of these lines automatically registers the frequency with which any measurement occurs. Consequently a curve drawn through the extremity of these lines will answer all the requirements of the ordinary curve of frequency (Fig. 1).

It will be remarked that some of the "name-numbers" are written not horizontally but at an angle. This denotes that such specimens are not sexed with absolute certainty; as if the bones are broken it is often impossible to be quite assured of the sex by judging from the skull alone.

VOL. XXX (N.S. III).

VI-XII DYNASTY	
230	228
229	228
228	233
227	233
226	233
225	233
224	233
223	233
222	233
221	233
220	233
219	233
218	233
217	233
216	233
215	233
214	233
213	233
212	233
211	233
210	233
209	233
208	233
207	233
206	233
205	233
204	233
203	233
202	233
201	233
200	233
199	233
198	233
197	233
196	233
195	233
194	233
193	233
192	233
191	233
190	233
189	233
188	233
187	233
186	233
185	233
184	233
183	233
182	233
181	233
180	233
179	233
178	233
177	233
176	233
175	233
174	233
173	233
172	233
171	233
170	233
169	233
168	233
167	233
166	233
165	233
164	233
163	233
162	233
161	233
160	233
159	233
158	233
157	233
156	233
155	233
154	233
153	233
152	233
151	233
150	233
149	233
148	233
147	233
146	233
145	233
144	233
143	233
142	233
141	233
140	233
139	233
138	233
137	233
136	233
135	233
134	233
133	233
132	233
131	233
130	233
129	233
128	233
127	233
126	233
125	233
124	233
123	233
122	233
121	233
120	233
119	233
118	233
117	233
116	233
115	233
114	233
113	233
112	233
111	233
110	233
109	233
108	233
107	233
106	233
105	233
104	233
103	233
102	233
101	233
100	233

FIG. 1.—FEMUR MAN.

As a matter of practical convenience it should be stated that it is almost impossible to write the numbers sufficiently clearly to bear reproduction on a much reduced scale. It is well, therefore, to use type-printed numbers and to affix these to the paper in their places.

Tables on this model, which have been re-cast and arranged for publication by Professor Petrie, are now appearing in the "Dendereh" memoir of the Egypt Exploration Fund.

Passing now to the consideration of the various series, I shall deal only with three indices, the cephalic, nasal, and alveolar, as these have been found in other cases to be those most characteristic of race divergencies. For a complete comparative study of the periods it would of course be necessary to collate all the other measurements both of the head and of the limbs, and the full material for such a study is provided in the publication of the measurements. For a broad treatment, however, these three features may suffice.

In Plate X is shown a comparison of these three indices with their fluctuations, in the different periods. The first period, both in date and in importance is the "prehistoric." In this are included all examples antecedent to the fourth dynasty. At the present moment it is impossible to more accurately subdivide the prehistoric period, although it is hoped that Professor Petrie's classification of pottery will soon enable this to be done. The period, however, certainly includes two very different civilisations, and presumably, therefore, two different race-stocks. Thus the people of the earlier prehistoric time lived in a stone age, using implements of flint; were cannibals; manufactured a pottery of unequalled beauty of form; but had no system of writing and had made little advance in the arts of drawing and carving. The people of the later prehistoric time, on the other hand, began to use implements of copper; abandoned, if not cannibalism, at any rate the burial practices which give the clearest evidence of it; and, most important of all, employed an already elaborated system of hieroglyphic writing and showed considerable skill in carving. The line of cleavage between the two is plausibly placed at the beginning of the Egyptian dynasties—that is to say, about 5000 B.C. or a little later.

There is very good reason, therefore, for presuming the presence of two very different races in the Nile valley before the age of the pyramid builders; but until the pre-dynastic and the early dynastic periods have been accurately differentiated, we can only conjecture which of the two stocks, of which the skull measurements as well as the archaeological data give an indication, was the earlier and which was the later. In attempting to establish the characteristics of the prehistoric peoples, not only the anthropometrical material but also the portraits which they have left of themselves have to be taken into consideration. Such portraits are probably in the main, if not entirely, of the early dynastic period. Some are to be seen in *Nagada and Ballas* (Petrie and Quibell, London, 1895); others will be available when Mr. Quibell publishes the results of his excavations at Hierakonpolis.

The measured specimens come from two sites, viz., Nagada (1895) and Hou<sup>1</sup> (1899). Both show a very strongly dolichocephalic type, the median falling as low as 721 and 718; the nose is broad, especially at Nagada, and the profile fairly straight.

It is noticeable that throughout the whole historical series, down to the end of the eighteenth dynasty, the measurements of the women are much more consistent and show much less variation than those of the men. The cephalic index of the women remains almost the same throughout the whole 4,000 years. This fact is of considerable importance in making a conjectural division of the two prehistoric peoples. That series in the males which most nearly corresponds to the typical female measurement is likely, in the absence of contradictory evidence, to be the older, and the subsequent fluctuations in the measurements of the men would be due to causes which left the original type of women almost unaltered. Thus, in considering the nasal index, it is found that the nose is much broader in the men from Nagada than in those from Hou, but it is the broader nose which corresponds more nearly to that of the women, from which I deduce that the Nagada men, so far as the nose is concerned, represent the older stock, a belief which is confirmed by the fact that this type of nose is that which is in the most extreme opposition to the slender nose of the fourth dynasty. On the other hand, the median of the female alveolar index at Hou is as high as 977; in the men from Nagada it is 960, in the men from Hou 970. Here, therefore, in spite of the dangers of the cross-division, I believe that in respect of the alveolar index it is the men from Hou that represent the older stock. In the cephalic index the males of both series practically coincide.

On the basis of this arrangement it would appear that the oldest prehistoric people were very long-headed and very broad-nosed, but had a comparatively straight profile. It has been suggested that there is a negroid strain to be observed in them, but if this be so it must be very remote, for though the nose is broad, it is not so broad as that of the negro, and the straight face of the prehistoric Egyptian is most unlike the projecting negro muzzle. It is an interesting coincidence, but probably nothing more, that the Hou series corresponds very closely in all three indices to the regrettably small series of Veddahs given in the catalogue of the Royal College of Surgeons, whose cephalic index is 711, nasal 503, alveolar 963.

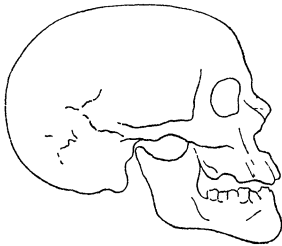
The negroes, it has been remarked, cannot have been the main source of the prehistoric Egyptian stock. An European origin is improbable, for the dolichocephalic peoples of prehistoric Europe seem to resemble it in nothing but the lowness of the cephalic index. There remain as possible places of origin North-Western Africa, East Central Africa, and Asia. The race-type of East Central Africa will be presently shown to have been radically different. Asia is not an impossible provenance, but North-Western Africa seems more probable.

There is a good deal to connect the prehistoric Egyptians with North-Western Africa (see *Nagada and Ballas*). The survival amongst the Kabyles of Algeria of a

<sup>1</sup> More accurately described as Abadtyeh. Results not yet published.

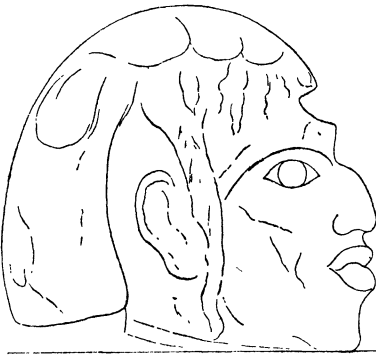


FIG. 2.



Prehistoric Egyptian Skull

FIG. 3.



Head of Libyan Chief.

FIG. 4.

pottery almost identical with a very characteristic and peculiar form of prehistoric Egyptian pottery is especially remarkable.

Of measurements of ancient and modern Algerians there are lamentably few which can be utilised. I defer discussion of these till another occasion.

In *Nagada and Ballas* was published an extremely clever comparison between the head of a Libyan chief from the temple of Rameses III at Medinet Habu and a very typical skull from the Nagada cemetery. The heads are here reproduced (Figs. 3-4). In both is seen the same long head, straight face, and aquiline nose. The head of another Libyan chief, after Wilkinson (Fig. 2), shows the length of the head still better, as there is no headdress, and the curls of hair follow the hinder projection of the skull. This second example shows a straighter nose than that of the Libyan from Medinet Habu, and the difference corresponds to one which I observed in measuring the Hou skulls, some of which seem to have had an aquiline and others a comparatively straight nose. It is worth remarking that the Libyan chiefs wear a long side-lock like the Horus-lock of Egyptian children and princes.

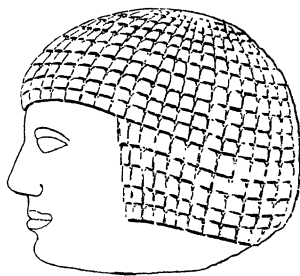
A reference to Plate X will show that at the close of the prehistoric period a most remarkable change takes place. The type of skull entirely alters. The cephalic index rises from 718 or 721 to 760, while exactly at the same time the nasal index sinks from the 530 of Nagada and 501 of Hou to 480. Such changes do not take place without a reason. There can be only one explanation, namely, that they were caused by the influx of a large number of foreigners of a homogeneous



stock. That is to say, the country was at this time invaded by a people with much less narrow heads and with much slenderer noses than their predecessors. The fact of this invasion is the most important result elicited by the comparison of these measurements. Archæology might guess at it; anthropometry, so far as present data go, has well nigh proved it.

It must remain for the present an open question whether this invasion coincided precisely with the fourth dynasty or slightly preceded it. I am inclined to believe the latter, and if this were the case the difference in the breadth of the nose between the Nagada and the Hou series would be explained. The Hou series would already show the influence of the new arrivals. Only future work can definitely settle the question, but it seems quite probable that this notable invasion, or perhaps a first wave of the great movement, slightly preceded the fourth dynasty, and coincided with the appearance of the earliest dynastic Egyptians and the introduction of copper and hieroglyphic writing. This newly introduced type continues unchanged during the fourth and fifth dynasties, with the exception of a curious drop in the alveolar index during the fifth dynasty, and it cannot be determined whether this is an accident or a general modification until more examples of the period are available.

If, now, the Egyptian wall-paintings be consulted for races which unite the necessary characteristics of a comparatively short head, a slender nose, and a straight profile, it appears that one, and only one, answers to the description. In this case, however, the resemblance is so close as to put the identification beyond doubt. The invaders of this period who ousted the Libyans were the people of Punt, or what we call Somali-land, including perhaps a strip of the opposite coast (see Figs. 5-6). Their features are well known from the representations of them at Deir-el-Bahri, and a comparison of the men there represented with statues of the fourth or fifth dynasty will convince any observer of the identity of the two stocks. This is not, of course, the first time that the resemblance of the Punt people to the early Egyptians has been pointed out, but it is only now, when the anthropometrical data have been brought to bear, that it has become possible to fix precisely the date of their entrance into the country.



Head of Nenkheftka. V<sup>th</sup> Dynasty.

FIG. 5.



Man of Punt.

FIG. 6.

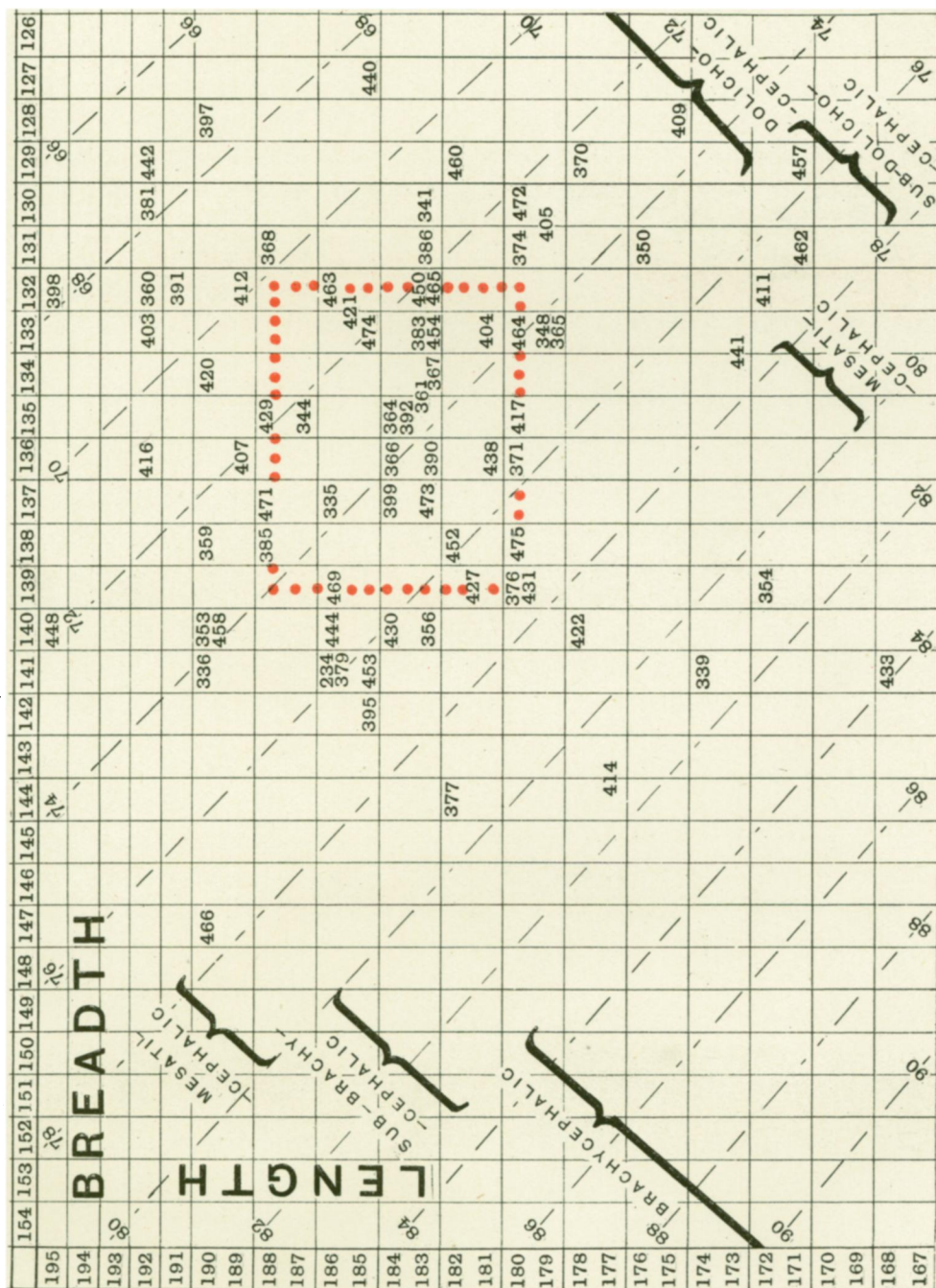


The next period, sixth to twelfth dynasties, presents a difficult problem. The measurements show a broad nose, not, indeed, as coarse as that which has been provisionally assigned to the *earlier*, but practically identical with the *later* prehistoric, accompanied by a cephalic index which is neither of the narrowest nor of the broadest headed type, but exactly half-way between the two. If the skull breadth alone were taken into account, nothing would be easier than to suppose that this is the mathematically exact result of mixing the two preceding stocks. It is with the nasal index that the difficulty arises. Should it be shown that the earlier prehistoric nose is that which prevails at Hou, there is no alternative but to suppose that the Libyan stock was very strongly reinforced by a new influx between the sixth and twelfth dynasties. This is possible in view of the discoveries made in the season of 1898-99. If, on the other hand, the opinion which has been advanced in the earlier part of this paper prove correct—viz., that it is the men of Nagada who exhibit the original type of nose peculiar to the Libyans, and that the nose as it appears at Hou is the result of an admixture of the Punt people already beginning a little *before* the fourth dynasty—then the case is altered. It would then follow that the nose of the sixth to twelfth dynasties showed a measure almost precisely half-way between the coarsest Libyan nose and the slender nose of the people of Punt. That is to say, the nasal index would give a result exactly analogous to that given by the cephalic index, and would show a compromise between the two originally so divergent types.

What, then, is to be said of the twelfth to eighteenth dynasties, where the slender nose reappears in its most extreme form? It is evident that the compromise established in the immediately preceding period has broken down, the fusion of the two types has been interrupted. The nose index sinks to 476, and the cephalic index to 730. This indicates a new disturbance, but let it be noticed that it is not due to the reinforcement of either of the already existing races. Had it been that more Libyans entered the country, the nasal index would have risen instead of falling; had it been that more Puntites came up from the south, the cephalic index would not have fallen, but would have risen as it did in the fourth dynasty. Here, therefore, it is a new people which appears; it is a third element which enters into the formation of the "Ancient Egyptian." The new people combines a head nearly as narrow as that of the Libyans with a nose as slender as that of the Puntites. They may have been allied either to the dolichocephalic races of Europe or to those of Asia. It is a very significant fact that the period of this second great invasion coincides with that historically ascribed to the Hyksos.

This, then, was the chief movement which appears in the dark period between the Middle and the New Empire. It does not, however, follow that in this troubled time there were not other race disturbances in Egypt, but it is probable that none was so strong as this, as none has left its traces so clearly marked on the anthropometrical chart.

The eighteenth dynasty itself shows some further slight modifications which

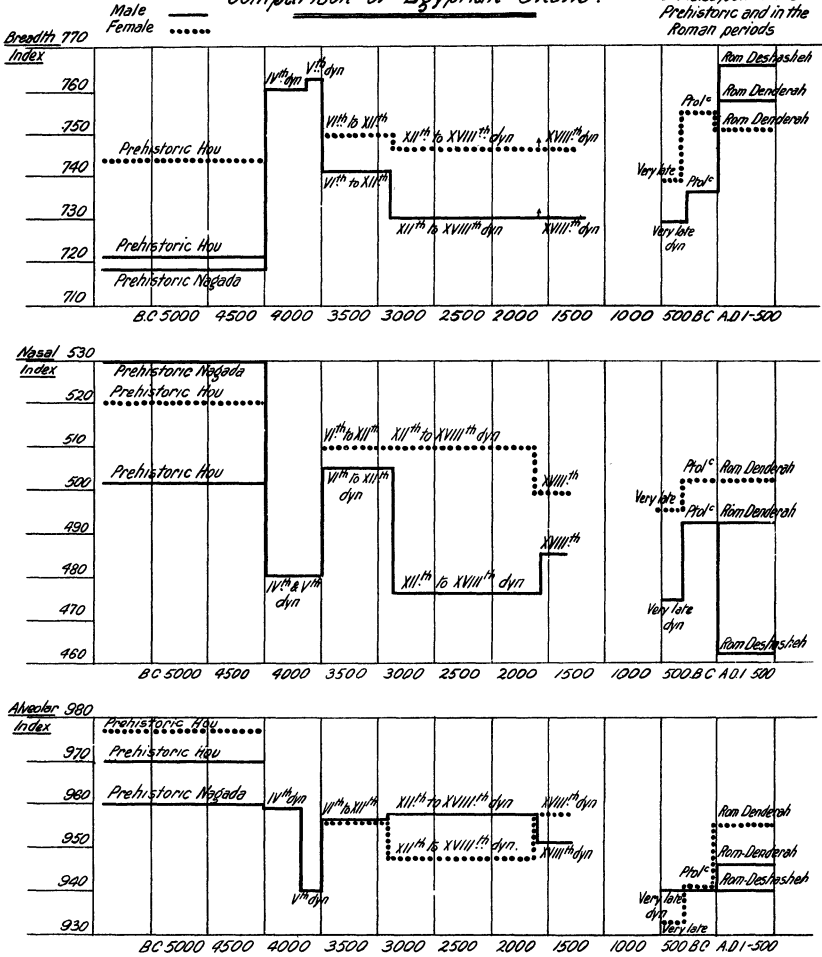


HARRISON & SONS, LITH. ST. MARTIN'S LANE, W.C.

Diagram .3.

Comparison of Egyptian Skulls.

N.B. There are two series of Males, both in the Prehistoric and in the Roman periods



Approximate number of examples

Median as shown in the above diagrams

Prehistoric	XVIII <sup>th</sup> dyn	120
Nagada	80	32
Hou	300	
IV <sup>th</sup> and V <sup>th</sup> dyn	32	
VI <sup>th</sup> to XII <sup>th</sup> dyn	320	
Denderah	100	
Deshasheh	180	

	Breadth	Nasal	Alv
Prehistoric	718	53	96
Nagada	721	50	97
Hou	763	52	97
IV <sup>th</sup> dyn	760	98	95
V <sup>th</sup> dyn	763	98	94
VI <sup>th</sup> to XII <sup>th</sup> dyn	760	50	95
XVIII <sup>th</sup> dyn	768	51	95

	Breadth	Nasal	Alv
XII <sup>th</sup> to XVIII <sup>th</sup> dyn	730	476	958
XVIII <sup>th</sup> dyn	745	510	948
Very late dyn	750	485	952
Very late dyn	765	499	958
Very late dyn	759	474	940
Prehistoric	736	482	940
Roman Dend <sup>h</sup>	754	502	941
Roman Deshasheh	757	492	947
Roman Deshasheh	766	462	94
Roman Denderah	748	502	957

may be plausibly attributed to the close connection with Syria and to the Syrian marriages then so fashionable.

After the eighteenth dynasty there is a gap in the series not greatly to be deplored, as this period of constant foreign interference or domination by various aliens would probably do nothing but confuse the argument. When the measurements are again observable, about 500 B.C., they show little change beyond a slight straightening of the profile indicated by the fall in the alveolar index.

The measurements of the Ptolemaic and Roman periods give results of exactly the kind which would be expected from the known history of the times. The influx of people from all round the Mediterranean, the employment of Gallic mercenaries, the foundation of Greek colonies such as Ptolemais, and the quartering in the country of numerous Roman garrisons lead to a chaos of types from which only one point clearly emerges, and that is a noticeable broadening of the skull as compared with the dolichocephalic forms prevailing just before.

To recapitulate, therefore, the examination of these measurements leads us to consider that the country was, when it first comes under our notice, held by Libyans with very long heads and very broad noses. These are supplanted probably rather before the fourth dynasty by the Puntites, with heads which are much broader and noses which are much slenderer. From the sixth to the twelfth dynasties ensues a period of fusion, or rather perhaps a mixture, of these two stocks. Between the twelfth and eighteenth dynasties occurs an invasion by a people not hitherto observed, having narrow heads combined with fine noses. This brings us almost to the close of Egypt's independent existence, and the succeeding modifications of the physical type do not explain history, but are explained by it.

I hope that this superficial review of an enormous mass of material may convince the reader that anthropometry can render very real service to archaeology alike by suggesting new facts and by confirming old theories.

What is needed now that these series of measurements have been made in Egypt is that those who are excavating or intend to excavate in Mesopotamia, in Syria, in Greece, and in all countries which have had a geographical or historical connection with Egypt, should collect similar material. The comparisons which it would then be possible to make would, I am convinced, result in throwing much fresh light on these most ancient civilisations in cases where unaided archaeology is powerless.