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DESCRIPTION of TWO SKELETONS of AKKAS, a PYGMY RACE from
CENTRAL AFRICA.

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[WITH PLATES, I, II, AND III.]

SINCE the race of pygmy Negroes called Akkas¹, inhabiting the Monbotto country of Central Africa, were discovered by Schweinfurth, in the year 1870, they have received considerable attention from various travellers and anthropologists, and general descriptions and measurements of several living individuals have been published, but no account of their osteological characters has hitherto been given. Nor have any specimens been submitted to careful anatomical examination. The two skeletons recently sent to the British Museum by Dr. Emin Pasha are, therefore, of much interest, and I trust that the following description of their more important features will be acceptable to the Institute.

The skeletons are, unfortunately, very imperfect, but still most of the principal bones are present, including the skulls of both, and the pelvis of one. They were both obtained by Emin Pasha in Monbotto, and are described by him as "a full grown male," and "a very old female."

The skeleton of the male consists of the skull, with nearly perfect teeth; the vertebral column, with the exception of the five upper cervical vertebræ; most of the ribs; both scapulæ (the left imperfect); all the principal bones of the limbs, but the clavicles and innominate bones are wanting. Part of the base of the cranium, including the condyles and the basion, has been unfortunately cut away. The condition of the bones and teeth shows that it belongs to a full-grown, though not a quite adult person. The basi-cranial suture is closed, and consolidation of the sagittal and lambdoidal sutures has commenced rather prematurely in comparison with the other indications of age. The third molars are all fully in place, though quite unworn, and the surfaces of the other molars are only slightly abraded. The epiphyses of the upper end of the humerus and of the lower end of the femur have but recently united to the shaft, the line of junction being perfectly distinct, and the epiphysis of the posterior border of the scapula is detached.

¹ For a general account of our present knowledge of the Akkas, and their supposed identity with the Pygmies of Homer and Herodotus, and for references to the literature of the race, see "Les Pygmées," by A. de Quatrefages, Paris, 1887, p. 253, *et seq.*

The female skeleton wants several of the vertebræ, and many of the bones of the hands and feet; but all the large bones of the limbs (except the right femur) and the pelvis are present. It is evidently from a considerably older individual than the other; all traces of the epiphysial junction of the long bones having disappeared; and of the molar teeth, some have been lost through age and the others are much worn. The vertebræ also present evidences of senile change in the flattening of their bodies, and the development of bony outgrowths from their margins. It is, however, curious that no commencement of consolidation of the sutures between the frontal, parietal, and occipital bones has taken place, so that, judging by this character alone, the skull would have been taken to be younger than that of the male.

The skeleton of the female, being the most perfect, has been carefully articulated, with due allowance for the missing vertebræ and for the intervertebral substances. Its height from the vertex to the ground is exactly four feet or 1,218 mm. Half an inch more might be added for the thickness of the sole of the foot and the scalp to make up the full height of the living person. It is curious in reference to the discussion¹ as to the calculation of the stature from the length of the femur, that the old estimate of the length of that bone being to the height as 275 to 1,000 which was used in the memoirs on the natives of the Andaman Islands,² gives a height exactly that of the articulated skeleton. Dr. Beddoe's sliding scale, which allows for a different proportion in the length of the limbs according to the height, although it may be applicable to different individuals of a given race, is quite at fault when applied to these little people, which appear not to have the proportions of dwarfs of large races, but rather those of people of medium or even full stature. This proposition is, I think, fully borne out by the following measurements:—

	Millimetres.
Height of skeleton from vertex to ground	1,218
Height of head (vertical height between vertex and chin) ..	160
From symphysis pubis to ground	620
From top of trochanter major to ground	620
Leg articulated, from head of femur to heel	640
Vertebral column, from upper margin of atlas to lower margin of last lumbar vertebra, measured along anterior surface ..	395
Vertebral column, from upper margin of atlas to end of coccyx	505

¹ See Dr. Beddoe "On the Stature of the Older Races of England as estimated from the Long Bones," "Journ. Anthropol. Inst.," vol. xvii, No. 3, p. 202 (February, 1888).

² "On the Osteology and Affinities of the Natives of the Andaman Islands," "Journ. Anthropol. Inst.," vol. ix, p. 108 (1878); and "Additional Observations on the Osteology of the Natives of the Andaman Islands," "Journ. Anthropol. Inst.," vol. xiv, p. 115 (1884).

	Millimetres.
From the spine of the seventh cervical to the lower end of sacrum (posteriorly in straight line, "the trunk" of Topinard) ..	380
Length of left foot (complete)	158
Length of upper limb ¹	550

The proportion of the height of the head to the whole height is therefore $\frac{1}{7}\frac{9}{8}$, or as 131 to 1,000. The length of the lower limb (from the trochanter or the pubis) is to the height as 509 to 1,000; the upper limb as 451 to 1,000. On comparing these proportions with those of the elaborate tables given in Topinard's "*Anthropologie Générale*," it will be seen that the head is smaller than in nearly all races there given (pp. 1070 and 1071), but almost exactly corresponding to the French (132), who seem to have been measured in larger numbers and more accurately than any other race. The limbs (especially the arms) correspond most closely with those of the Negroes, of which such numerous measurements were made during the American war; and the proportions of which to the height are given as follows:—Upper, 452; lower, from pubis to ground, 518 to 1000.

Judging by the individual bones of which the measurements will be given further on, the skeleton of the male was slightly inferior in size to that of the female. It is, I believe, the smallest human skeleton on record, excluding abnormal dwarfs. But as will be seen by the appendix, the living female Akka measured by Emin Pasha, was of still smaller dimensions, her height being only 1,164 mm., or 3 feet 9·8 inches.

In the description of the bones, I propose to follow generally the order and method used in the account of the osteological characters of the somewhat kindred pygmy race, the Andamanese, with which the Akkas form interesting subjects for comparison. There is, however, this great difference to be noted in the two series. That of the Andamanese skeletons of both sexes was sufficiently numerous to eliminate individual peculiarities, and to give averages on which to found reliable race characters, while the Akkas, being only two in number altogether, however interesting in themselves, must afford quite insufficient data for such a purpose. It has, therefore, not been considered necessary to give all the measurements in such detail as in the former communications.

The two skulls resemble each other in their most important general characteristics, although presenting certain well marked individual peculiarities, as will be noticed in the description of the different regions, and seen in the figures.

¹ As the terminal phalanges of the hand are wanting, this measurement is only approximative.

The cranial capacity of the male is 1,102 cubic centimetres, that of the female only 1,072.¹ The only other people who approach this smallness of capacity are the Andamanese, the Bushmen, and the Vedda's of Ceylon. The average capacity of the Andamanese male is 1,244, the smallest being 1,150; of the female, 1,128, the smallest being 1,025. The Akkas thus show a great diminution, not only on the average male and female Andamanese, but the male is even below the smallest male of that race measured. The average of two male Bushmen in the Museum of the Royal College of Surgeons is 1,330; of four females, 1,214, the smallest being 1,075. The average of five male Vedda's is 1,259. A female of this race measures only 950, being one of the smallest normal adult skulls on record.²

The horizontal circumference of the skull of the male is 466 mm.; that of the female, 462. The average circumference of the male Andamanese is 481; that of the female exactly the same as the Akka woman, *i.e.*, 462.

In measuring the length, there is, fortunately, no occasion to enter into the discussion of the relative merits of the glabella-occipital and ophryo-occipital diameters, as the absence of all projection of the glabella makes the two coincide. The length given is therefore the maximum length, and will at the same time coincide with the ophryo-occipital length recorded in former communications. It is curious that the length of the cranium of the male, 168 mm., is scarcely more than half a millimetre more than the average (167·4) of twenty-one Andamanese males. The female is 163 against the Andamanese 160·8. The maximum parietal breadths of the male and female Akka skulls are 125 and 127 respectively, against 135·8 and 133·2 of the Andamanese of the two sexes, showing a considerable reduction in this dimension. This is also expressed by the cranial index, which is 74·4 in the male, and 77·9 in the female Akka; instead of 81·1 in the male, and 82·8 in the female Andamanese.

The absence of basion in the male skull makes it impossible to measure the vertical height in the usual way, but in the female this dimension is 124 mm., slightly lower than in the Andamanese of corresponding sex (125·3), and giving a height index of 76·1.

The basi-nasal length for the same reason cannot be accurately measured in the male, but it may fairly be estimated for the purpose of comparison at 92 mm., which is the actual length in

¹ Measured by Mr. Oldfield Thomas with shot by a modification of Broca's method.

² "Catalogue of the Specimens of Osteology and Dentition of Vertebrated Animals in the Museum of the Royal College of Surgeons," Part I, "Man," by W. H. Flower (1879)

the female skull. In the Andamanese this length was 94·6 in the male and 90·3 in the female.

The general form of both crania as seen in the *norma verticalis* (see Plate III) presents a more regular oval than in the Andamanese, the parietal eminences being not only less prominent but placed further forwards, with a fairly elongated, and gradually narrowing occipital region behind them.

The profile views of the two crania (Plate I) show considerable individual differences. In the male the line of the forehead rises vertically from the glabella, then curves gently backwards to the bregma, behind which it rises slightly to the posterior end of the anterior third of the sagittal suture, from which point it descends rapidly to the lambda, beyond which the occipital region projects distinctly backwards before curving round to the under surface of the skull. The greater development of the occipital region is a marked characteristic of this skull as compared with the Andamanese. The female (contrary to the usual characteristics of the sex) has a forehead sloping more gradually from the glabella to the bregma, and also a more elevated mid-parietal region, and rather less occipital projection.

The general surface of both crania is smooth and the muscular ridges are little pronounced. The glabella and supra-orbital elevations, as well as theinion and the occipital ridges are all feebly developed. The line of the upper attachment of the temporal muscle is, however, very distinct in both skulls. The mastoid processes are moderate—rather longer in the female, and broader and flatter in the male.

The sutures are very simple in the male (No. 3, Broca's scale), but both lambdoid and coronal present a fair degree of complexity (No. 4) in the female skull. Small Wormian bones are present in both. There is no trace of metopism in either. In the region of the pterion in the male, the squamosal articulates with the frontal on the right side for a space of 4 mm. On the left side it is separated from it by an equal space. In the female the squamosal and frontal are united on the right side for as much as 11 mm., and the left for 10 mm. There are no epipteric bones in either. The male is distinctly phænozygous, but the female is not.

The face in both is short and broad with a considerable degree of prognathism. Unfortunately the exact amount of this cannot be indicated in the manner used in previous communications,¹ owing to the absence of the basion in the male and the defective condition of the alveolar margin in the female skull; but it is

¹ See especially "On the Cranial Characters of the Natives of the Fiji Islands," "Journ. Anthropol. Inst.," vol. x, p. 162 (1880).

easy to give a close approximation in both cases. In the male the basi-alveolar line is 100 mm., and the basi-nasal being taken at 92 gives the very high gnathic index of 1,087. In the female with the same basi-nasal length the basi-alveolar was probably not more than 96, and the resulting index is thus 1,043. The mean gnathic index of the two skulls, 1,065, is therefore much higher than that of the Andamanese, in which race the mean of both sexes is only 1,011, and even higher than that of the average of African Negroes of various tribes (*viz.*, 1,044).¹

The general form of the orbits and of the malar bones is alike in both sexes, only showing the usual sexual characters of increased thickness of the outer margin and more stout conformation of the malar in the male skull. The orbital dimensions and indices in both cases are exactly the same, the latter being 82.9, or within the microseme division of Broca. In the Andamanese the orbits are much higher and rounder in form, the indices being 90.4 and 91.4 respectively in the two sexes, and therefore entering the microseme division. The African Negroes in general are intermediate in this character, having an index of 86.3.

The forward projection of the malar bones, determined according to the method of Oldfield Thomas,² gives an index of 107.9 in the male, and the practically identical one of 108.0 in the female, which is again intermediate between that of the Andamanese (107.5) and that of the West African Negro (108.5).

The nasal region presents strongly marked individual characters, especially in the form of the nasal bones, which, in the male skull, show a very normal Negro conformation, and measure in the middle line 23 mm. in length, while in the female they are remarkably reduced, measuring only 13 mm. This, as well as the smaller nasal width in the female gives a very different form to the nasal aperture. They are both strongly platyrrhine, the nasal index in the male being as high as 63.4, in the female 55.3. In this character they depart widely from the mesorrhine Andamanese, and resemble some of the extreme types of African Negroes and Bushmen. In both the lower margin of the aperture is fairly defined, and the spine moderately developed.

The palatal index of the male, taken by the method recommended in the paper on the cranial characters of the natives of

¹ W. H. Flower, "Catalogue of Specimens of Osteology and Dentition of Vertebrate Animals in the Museum of the Royal College of Surgeons," Part I, "Man" (1879).

² "Journ. Anthropol. Inst.," vol. xiv, p. 333.

the Fiji Islands¹ is exceptionally low, viz., 103·8, the general form of the palate being remarkably hypsiloid. The form of the palate of the female appears to have been similar, but owing to its defective condition exact measurements cannot be given.

The mandibles are much alike in general conformation, and of a generally low type. As compared with a well-formed mandible of a European, the horizontal ramus is shallow, and of nearly even height throughout, the mental prominence little developed, the ascending ramus low, especially in the female, and the sigmoid notch shallow.

The teeth of the male are in a very perfect condition, and are of large size. The dental length (upper molars and premolars) is 45 mm., which in comparison with the small general size of the skull as indicated in the basi-nasal length, gives a *dental index* of 48·9, larger consequently than the average of any known race, although exceeded by some individuals of the megadont group.²

Taking all the characters of the skulls together into consideration, it will be seen that they conform more with the general type of the African Negro than of any other race. The cranium, especially that of the female, is shorter and rounder than in the generality of Negroes, but still not quite to the same extent as some previous statements as to the form of the head of the Akkas might lead to suppose, being not even brachycephalic, much less "almost spherical" as described by Schweinfurth. In fact, the mean of the two, 76·1, agrees closely with the mean of three living heads previously measured, which is 78·03, or between 76 and 77 for the dried skull. Forty-two African Negroes of various tribes measured in the Museum of the College of Surgeons, gave an average index of 73·6, which corresponds almost exactly with the average obtained by Broca (73·4) from 85 Negroes from the West Coast. In this tendency towards brachycephalism they bear out Hamy's views as to one of the general characteristics of the "Negrillo" race, consisting of various tribes of small stature extending across Æquatorial Africa. Prognathism, platyrrhiny, the elongated narrow form of the palate, and the large size of the teeth, all characteristic features of the Negro races, are not only present, but present in an exaggerated form in the Akkas. One, and perhaps I may say, the only special character (except, of course, the diminutive size) is the markedly microseme form of the orbits; but this is a character of great variability in different individuals; and in

¹ "Journ. Anthropol. Inst.," vol. x, p. 161.

² See "On the Size of the Teeth as a Character of Race," "Journ. Anthropol. Inst.," vol. xiv (November, 1884). The dental index of male Europeans is 40·5, of African Negroes 43·2, Andamanese 44·4, Australians 44·8, Tasmanians 47·5.

as many as seven out of forty-two ordinary Negroes it is lower than in the present specimens.¹

The striking difference in so many characters from the skull of the Negritos of the Andaman Islands, has been pointed out in the course of the description.

Cranial Measurements.

	Male.	Female.
Maximum length	168	163
Height (basi-bregmatic)	—	124
Maximum transverse diameter (parietal)	125	127
Length-breadth index	74·4	77·9
Minimum frontal diameter	82	86
Maximum frontal diameter	103	103
Occipital diameter	100	97
Bi-auricular diameter	107	107
Horizontal circumference	468	462
Vertical transverse circumference.. .. .	377	385
Transverse arcs, frontal	257	250
———— bregmatic	270	278
———— parietal	290	297
———— occipital	250	232
Longitudinal arcs, frontal	118	108
———— parietal	110	120
———— occipital	113	107
Length of foramen magnum	—	28
Basi-nasal length	92	92
Basi-alveolar length	100	96
Gnathic index	108·7	104·3
Bi-zygomatic diameter	118	109
Bi-jugal diameter	104	99
Inter-orbital diameter	21	20
Height of face (ophryon to alveolar point)	72	72
Height of orbit	29	29
Width of orbit	35	35
Orbital index	82·9	82·9
Height of nose	41	38
Width of nose	26	21
Nasal index	63·4	55·3

Vertebral Column.

The curve of the vertebral column in the lumbar region as a race character has lately been studied by Prof. D. J. Cunningham,² and Sir William Turner,³ and an index has been formed

¹ The average orbital index of these forty-two skulls is 86·3.

² "The Lumbar Curve in Man and the Apes," Cunningham, "Memoirs of the Royal Irish Academy," No. II (1886).

³ Voyage of H.M.S. "Challenger." "Report on the Human Skeletons," Part II (1886).

based on a comparison between the vertical lengths of the anterior and posterior surfaces of the bodies of the lumbar vertebræ. This index in the mean of twelve Europeans, measured by Turner, is 96·0, in five Australians 106·0. In two Andamanese Islanders 99·0, and in three Negroes 99·0. Cunningham gives for Europeans an almost identical index (viz., 95·8), derived from a much larger series of observations, and 105·4 for Negroes, 104·8 for Andamanese, and 107·2 for Tasmanians. These three last come into the category called by Turner "*koilorachic*," or with the lumbar curve concave forwards, while in the European races, on the other hand, it is convex forwards. The Akkas, as might be expected, are decidedly *koilorachic*; the index of the male being 102·6, that of the female 105·1, giving a mean of 103·8. The details are given in the table below, but it may be remarked that there was some difficulty in estimating the exact dimensions of the vertebræ of the male, owing to the want of union of the epiphysial discs, while in the female, as mentioned before, senile changes, *i.e.*, flattening of the bodies and outgrowths of bone from their margins, had already set in.

Measurements of Lumbar Vertebræ.

	Male.			Female.		
	Ant.	Post.	Index.	Ant.	Post.	Index.
First	22	23	104·5	18	20	111·1
Second	22	24	109·1	20	22	110·0
Third	23	25	108·7	20	22	110·0
Fourth	23	24	104·4	20	21	105·1
Fifth	24	21	87·7	20	18°	90·0
Total ..	114	117	102·6	98	103	105·1

Pelvis.

Of the various measurements of the pelvis which afford distinctive race characteristics, those which give the general outline of the brim, and from which what is commonly called the "pelvic index" is derived, are undoubtedly the most important. Sir William Turner has divided pelvises into three groups,

dolichopellic, *mesatopellic*, and *platypellic*, according as this index is low, medium, or high. The first-named group have narrow pelves elongated from before backwards (as in the *Simiadae*), the latter have comparatively wide short pelvic brims. The lowest types of mankind, the Australians, Bushmen, Andaman Islanders, and most Negroes have pelves generally formed on the former type, while Europeans are the most decidedly platypellic. As before-mentioned, the pelvis is, unfortunately, wanting in the male Akka skeleton, but that of the female is remarkable for its dolichopellic character, the transverse and antero-posterior diameters of the brim being equal (98 mm.), and the index, therefore, 100. It is, of course, only with the pelves of females that this index can be compared, and the following examples of mean indices of pelves of this sex belonging to several races will give materials for appreciating the significance of this character.

Extreme Platypellic Forms.

35 Europeans (Verneau)	..	..	..	..	..	78
14 Europeans (Flower)	..	..	..	..	..	78
11 Europeans (Turner)	..	..	..	..	..	79
Europeans (Garson)	..	..	..	..	..	80

Extreme Dolichopellic Forms.

31 Negroes (Turner)	..	..	..	..	..	88
8 Bushmen (Turner)	..	..	..	..	..	89
5 Australians (Garson)	..	..	..	..	..	91
13 Andamanese (Flower)	..	..	..	..	..	96 ¹
1 Akka	..	..	..	..	..	100

Principal Measurements of the Pelvis on the Plan recommended by Turner.

Breadth of pelvis	..	..	..	..	..	198
Height of pelvis	..	..	..	..	..	153
<i>Breadth-Height Index</i>	..	..	..	..	..	77
Between ant. sup. iliac spines	..	..	..	..	..	188
Between post. sup. iliac spines	..	..	..	..	..	51
Between ischial tuberae	..	..	..	..	..	121
Between ischial spines	..	..	..	..	..	97
Greatest diameter of cotyloid cavity	..	..	..	..	..	39
Vertical diameter of obturator foramen	..	..	..	..	..	40
Transverse diameter of obturator foramen	..	..	..	..	..	26
<i>Obturator Index</i>	..	..	..	..	..	65
Subpubic angle	..	..	..	..	..	65°
Transverse diameter of brim	..	..	..	..	..	96
Antero-posterior diameter of brim	..	..	..	..	..	96

¹ Only one of these exceeded 100. It was as high as 107·8. The pelvis of a female Bushman in the Museum of the Royal College of Surgeons has an index of 102.

<i>Pelvic or Brim Index</i>	100
Intertuberal diameter	88
Depth of pubic symphysis	14
Depth of pelvic cavity	68
Height-length of ilium	95
Breadth of ilium.. .. .	120
<i>Iliac Index</i>	126
Breadth of innominate bone	140
Length of os pubis	56
<i>Pubo-innominate Index</i>	40
Length of ischium	65
<i>Innominate Index</i>	91
<i>Ischio-innominate Index</i>	42
Length of sacrum	85
Breadth of sacrum	83
<i>Sacral Index</i>	96·5

Bones of the Limbs.

The scapulæ are of remarkably small size. In that of the male there is a small distinctly defined supra-scapular notch. In that of the female this is replaced by a wide shallow depression, without definite edges, but still it is more distinctly marked than in the majority of the Andamanese, where there is only a gradual and shallow excavation of the whole upper border. For measurements the male could not be used, as the epiphysis of the posterior border had been detached. In the female, the breadth from centre of posterior and outer border of glenoid fossa (A) to where the spine rises from the vertebral border (B) in the right is 81 mm., in the left 84; the length from posterior superior (C) to inferior angle (D) 103 mm. in both; the infra-spinous length (B to D), right 74 mm., left 73 mm. From these measurements the "scapular index" and "infra-spinous index" of Broca¹ are derived, and they are of a very remarkable character, being far above the average of Negro or of any other human scapulæ hitherto recorded, as the following comparisons will show:—

	200 Europeans.	21 Andamanese.	6 Negroes.	1 Akka.
Scapular index ..	65·2	69·8	71·7	80·3
Infra-spinous index	89·4	92·7	100·9	112·2

The measurements of the long bones, and the indications they

¹ Broca, "Bulletin de la Société d'Anthropologie de Paris," i, (3^e ser.), 1878, p. 66. Flower and Garson "On the Scapular Index as a Race Character in Man," "Journal of Anatomy and Physiology," vol. xiv, p. 13 (1879).

give of the proportions of the different segments of the limbs are always of interest. The following are actual measurements taken upon the same system as that used for the natives of the Andaman Islands, *i.e.*, the maximum length in a direction parallel to the long axis of the bone, and in the case of the tibia including both malleolus and spine.

	Humerus.		Radius.		Femur.		Tibia.	
	R.	L.	R.	L.	R.	L.	R.	L.
Male ..	238	233	182	177	326	328	270	273
Female ..	244	236	194	188	—	334	270	272

The following indices are derived from these measurements.

The inter-membral index, or length of the humerus and radius added together, compared with that of the femur and tibia, the latter being taken as 100, is 67·7 for the male, and 72·9 for the female, the last having larger arms and especially forearms than the male. This is contrary to the rule found with the Andamanese, but of course no general conclusion in such a case can be drawn from single individuals of each sex. The mean index of the two Akkas is 70·3, that of the Andamanese of both sexes 68·3.

The femoro-humeral index is almost identical in the two specimens, being 72·0 in the male and 71·9 in the female. This accords rather with the usual proportion of the European (72·9, Flower, 72·2, Broca), than that of the Andamanese (69·8), and the Negro (69·0, Broca).

The femoro-tibial index in the male is 83·0, in the female 81·1. The proportions of these bones again rather resemble those of Europeans than those of the black races with which they would naturally be compared, this index being 84·6 in Andamanese of both sexes, 84·9 in Australians, 84·7 in Negroes (Humphry), and 82·1 in Europeans.¹

The humero-radial index, or the length of the radius as compared with the humerus, as is well known, presents greater and more constant differences in the various races of men than any other of the limb characters. It has been found to average 73·4 in Europeans (Topinard), 76·5 in Australians, 79·4 in Negroes, and 80·6 in the natives of the Andaman Islands. In this index the Akkas agree completely with the other Negroid races, that of

¹ "Journ. Anthropol. Inst.," vol. x, p. 20.

the male being 76·2, that of the female 82·9, giving a mean of 79·5. It may be noted that the proportions of these bones in the two sexes are again the reverse to the Andamanese, in whom the index of the male is 81·5, of the female 79·7.

The individual bones are generally well proportioned, though rather slender and smooth, and with the ridges for muscular attachments not very strongly marked. It may be noted that there are small intercondyloid foramina in both humeri of the male, and in one (the right) of the female. The tibiæ are not platycnemic. Those of the male are rather rounded, having an index (at the middle of the length of the bone) as high as 77·5. Those of the female are, as with the bones generally, of more slender form, the index being 710. In the Andaman Islands these indices were 647 and 675 in the male and female respectively.

In Topinard's "Anthropologie" (p. 1099) is an interesting table showing the influence of the general size of the body, upon the proportions of its component parts, as ascertained by measurements upon a number of skeletons of Europeans. On comparing the proportions of the mounted Akka skeleton with those of the table, allowance must of course be made for difference of race and sex, but it is singular that in every particular, its proportions agree rather with the tall than with the short group. As shown before in the height of the head, it is now seen in the limbs that there is nothing in the characters or proportions of these little people resembling those of dwarfs of other races, a result which is certainly different to what might have been anticipated.

Proportions according to height. Stature = 100.

	Tall French. Height 2·06 to 1·73.	Short French. Height 1·43 to 1·60.	Akka ♀. Height 1·218.
Trunk (seventh cervical to end of sacrum)	33·7	34·7	31·1
Humerus	19·8	20·0	19·8
Radius	14·4	14·5	15·7
Femur	27·7	27·2	27·5
Tibia	22·4	21·8	22·3

The most striking difference between the Akka and the French skeletons is the proportions of the trunk, but this is a measurement on which it is impossible to place absolute reliance in

articulated skeletons. It is, moreover, probably a race characteristic, as in the table at p. 1066 of Topinard's work, showing this proportion in skeletons of different races, in the Negroes it is given as 31·9, and in Tasmanian as 30·4. The Akkas might naturally be supposed rather to resemble these than the Europeans. The difference in the proportion of the radius is also, as pointed out, a race character.

Conclusions.

The evidence afforded by these skeletons quite corroborates the view previously derived from external observation that the Akkas are among the smallest, if not actually the smallest, people upon the earth. There is no reason to suppose that they were selected as being in any way exceptional specimens, and yet they are both of them smaller than any other normal skeletons which have hitherto been available for comparison; smaller, that is, than the smallest Bushman skeleton out of three in the Museum of the Royal College of Surgeons,¹ and smaller than any out of the twenty-nine skeletons of diminutive inhabitants of the Andaman Islands, the measurements of which I have recorded. The most liberal calculation of the height of these two skeletons places the male at not more than 4 feet, and the female not an inch above, while the living female measured by Emin Pasha is barely 3 feet 10 inches. The results previously obtained from the measurements of about half a dozen living Akkas are not quite so low as these, varying from 1,216 to 1,420 mm., and give a mean for both sexes of 1,356 mm., or 4 feet 5·4 inches.² Schweinfurth's original measurements were unfortunately lost, and the numbers since obtained are certainly insufficient for establishing a true average of the race. It is, moreover, possible that some of the individuals measured were not of pure blood and any mixture with other tribes must tend to increase the stature, or that their growth had been promoted by the exceptionally favourable circumstances under which they had been living with their European protectors, as in the case of those brought from the Monbotto country by Miani, and who were for many years living in Italy.

In the list given in the third edition of Topinard's "Anthropologie" (1879), only two races appear which have a mean height below 1,500 mm., viz., the Negritos, 1,478, and the Bushmen, 1,404; the Veddahs of Ceylon, being (according to Bailey) 1,534. Of the size of the Negrito inhabitants of the

¹ The height of this skeleton is 1,332 mm. (4 feet 4·5 inches), its shortest femur measures 356 mm., that of the male Akka being only 326 mm.

² Quatrefages, *op. cit.*, p. 260.

Andaman Islands we have abundant and exact evidence, from the measurements of the living by Mr. Man, and the skeletons by myself and others, and, as shown above, the Akkas are considerably below them in stature. That this is also the case with the Bushmen I have little doubt, as although single individuals have been stated by travellers to be of extraordinarily small size, all those who have been submitted to actual anatomical examination, and whose skeletons are preserved in Museums, considerably exceed the Akkas in height.

This point being settled it remains to show to what races the Akkas are most nearly allied.

That they belong in all their essential characteristics to the black or Negroid branch of the human species there can be no doubt, in fact they exhibit all the essential characters of that branch, even to exaggeration. With regard to the more rounded form of head, Hamy¹ has pointed out that in Equatorial Africa, extending from the west coast far into the interior, are scattered tribes of Negroes, distinguished from the majority of the inhabitants of the continent by this special cranial character, as well as by their smaller stature. The Akkas are grouped by Hamy and Quatrefages as members of this so-called "Negrillo" race.

Their small size has naturally led some anthropologists (including Schweinfurth) to seek affinities for them with the diminutive African race inhabiting the southern portion of the continent, the Bushmen, but beyond certain characters met with in the whole Negroid branch, including the frizzly hair, there is little in common between them. The Bushmen are a very strongly marked race, and both their external appearance and osteological characters are so exceptional that they can never be compared with any other. Their only near allies are the Hottentots, formerly inhabiting the same region of the world.

The peculiar oblong form of the skull, its vertical forehead, straight sides and flat top, the wide flat space between the orbits, the extremely small and flat nasal bones, and the absence of prognathism at once distinguish the skull of the Bushmen from that of the Akka. Moreover, the well-known and characteristic features and yellow complexion of the Bushmen, are quite unlike those of the Akkas whose portraits have been given; nor do these latter appear to possess the special characters, steatopygia and elongated nymphae, so prevalent among the Bushmen.

Sufficient comparisons have been drawn between the Akkas and the Andamanese to show that there is no close relationship between the former and the Negritos of the east, their position

¹ "Essai de coordination des matériaux récemment recueilles sur l'ethnologie des négrilles ou pygmées de l'Afrique équatoriale." "Bulletin de la Société d'Anthropologie de Paris," Tome 2 (Ser. III), p. 79 (1879).

then remains determined as belonging to the division of the Negro race, to which Hamy has given the appropriate name of Negrillo.

APPENDIX.

Observations taken by Dr. Emin Pasha upon a full-grown Akka woman who lived several years in his house at Lado; upon the system given by Broca in the "Instructions Anthropologiques."

Observations Anthropologiques sur le Vivant.

No. 15 (normal).

Date: le 4 Mai, 1883.

Nom du sujet: Menguetté.

Nation: Akka.

Lieu de l'observation: Lado.

15-16 ans, mariée.

Profession: servante.

Nom de l'observateur: Dr. Emin

Bey.

Né à Boro (pays des Meâdjo).

Race: Nègre.

MESURES DE LA TÊTE.		MESURES DU TRONC ET DES MEMBRES.	
A. Crâne.			
1° Diamètres.	mm.	1° Hauteurs au-dessus du sol.	mm.
Antéro-postérieurs: maximum	166	du vertex (taille du sujet) ...	1164.5
id. : inférieure	157	du conduit auditif ...	1042
Transverses: maximum	133	du bord inférieur du menton	975
sous-auriculaire	119	de l'acromion	958
temporal, maximum	128	de l'épicondyle	735
frontal, minimum	107	de l'apophyse styloïde du	
Vertical auriculaire	122.5	radius	566
2° Courbes.		du bout du doigt médium	397.5
Inféro-frontale totale	318	de la fourchette sternale	944
sa partie frontale totale	137	du mamelon	
sa partie sous-cérébrale		de l'ombilic	681
antérieure	12	du bord supérieur du pubis	582.5
Horizontale totale	492	du raphé du périnée	477
sa partie antérieure	248	de l'épine iliaque antéro-	
Transversale bi-auriculaire	326	supérieure	651.5
id. sus-auriculaire	287	du bord supérieur du grand	
		trochanter	587.5
		de la ligne articulaire du	
		genou	293
		du 8 ^e mm. de la malléole	
		interne	57
		de la saillie du mollet	230.5
		2° Membre supérieur.	
		la grande envergure	1245
		le grand empan	149
		le petit empan	165
		longueur du pouce (face dor-	
		sale)	47
		" du médium (id.)	79
		3° Tronc.	
		distance du deux acromions	228
		longueur de la clavicule	110
		largeur du thorax	201
		circonférence du thorax sous	
		les aisselles	620
		circonférence du thorax à la	
		ceinture	702
		distance des deux épines	
		iliaques	202
		max. des deux crêtes	
		iliaques	204
		distance max. des deux	
		grands trochanters	211
		4° Membre inférieur.	
		circonférence max. de la	
		jambe (mollet)	247
		circonférence min. de la	
		jambe (sus-malléolaire)	171
		longueur du pied totale	196
		" " pré-malléo-	
		laire	148
		" du gros orteil (face	
		dorsale)	36
		5° Hauteur du vertex au-dessus	
		sol, le sujet étant assis	600

DÉTAILS DESCRIPTIFS.

Couleurs: Peau parties nues No. 28

Cheveux... couvertes id. No. 41

Barbe ... No. 41

Yeux ... No. 3

Cheveux sont-ils droits, rudes, bouclés

frisés ou laineux? *abondants et**laineux.*

Barbe est-elle abondante, rare ou

nulle?

Peau: glabre, un peu velue ou très-

velue? *très-velue.*Forme du profil du nez: *platyrrhinien**aplatis.*

Lèvres: grosses, moyennes ou fines?

Moyennes.

Droites ou renversées en

dehors? *un peu renversées**en dehors.*

Dents: grandes, moyennes ou petites?

petites.

Dents incisives: verticales, un peu

obliques ou très-obliques? *un peu**obliques.*

Denture: très-bonne, bonne, médiocre,

mauvaise ou très-mauvaise? *très-**bonne.*

REMARQUES PARTICULIÈRES.

Oreilles grandes, lobules attachés.

Seins bien grands: auréole grande,

noirâtre.

Mains petites.

POUR NORME.

N.B.—Les mesures ont été prises avec l'aide d'un excellent appareil français dont M. Vossion a bien voulu me faire cadeau.

J. Smit del. et lith

Mintern Bros. imp.

SKULLS OF AKKAS.

J. Smit del. et lith.

Mintern Bros. imp.

SKULLS OF AKKAS.

Description of Plates I, II, and III.

Skulls of the male and female Akkas. The former in each case is placed in the upper part of the plate. Half the natural size. Drawn without perspective.

Plate I	..	..	Lateral surface.
Plate II	..	..	Facial surface.
Plate III	..	..	Upper surface.

DISCUSSION.

Mr. HYDE CLARKE said that in 1874 his attention was called to the Akkas by his old friend, the African traveller and naturalist, Marchese Orazio Antinori. Being supplied with the materials he examined the language and found it conformed with the general body of pre-historic languages throughout the world. It showed some resemblances to the language of the Obongo dwarfs to the south, discovered by Du Chaillu. It also showed resemblances to the Naga of India and the Carib of South America. Speech-language is a late event in the historical scale, and was received from a cultured race and not locally developed. His own speculations that there was a community of many words among the short races was so far true on account of the community of all languages; but in speaking of languages of short races he had pushed the speculation into the regions of error, as had the leading men of science who appropriated classes of language to frizzled or tufted hair. He concurred with Prof. Flower as to the great interest of these dwarf races, the subject of pre-historic truth and fable. He thought that the stories of dwarfs, giants, and cannibals came not from the taller races, but from the dwarf or oppressed races. To a man of 4 feet a tall man would have the semblance of one of 9 or 10 feet to ourselves. The story of the pygmies fighting with cranes had perhaps its origin in Bushmen hunting ostriches. There was one problem awaiting solution, the relation of the Japanese to the short races of Africa, on which he had published some observations.

Prof. THANE, Dr. GARSON, Mr. OLDFIELD THOMAS, and the PRESIDENT also joined in the discussion, and the AUTHOR replied.

The following paper was read by the Author:—

J. Smit del. et lith.

SKULLS OF AKKAS.

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