most fashionable society, and finally settled down as members of the household of Count Miniscalchi Erizzo, at Verona, where they received a European education, and performed the duties of pages.

In reply to an inquiry addressed to my friend Dr. Giglioli, of Florence, I hear that Thibaut died of consumption on January 28, 1883, being then about twenty-two years of age, and was buried in the cemetery at Verona. Unfortunately no scientific examination of the body was allowed, but whether Chairallah still lives or not I have not been able to learn. As Giglioli has not heard of his death, he presumes that he is still living in Count Miniscalchi's palace.

One other specimen of this race has been the subject of careful observation by European anthropologists—a girl named Saida, brought home by Romolo Gessi (Gordon's lieutenant), and who is still, or was lately, living at Trieste as servant to M. de Gessi.

The various scattered observations hitherto made are obviously insufficient to deduce a mean height for the race, but the nearest estimate that Quatrefages could obtain is about 4 feet 7 inches for the men, and 4 feet 3 inches for the women, decidedly inferior, therefore, to the Andamanese. With regard to their other characters, their hair is of the most frizzly kind, their complexion lighter than that of most Negroes, but the prognathism, width of nose, and eversion of lips characteristic of the Ethiopian branch of the human family are carried to an extreme degree, especially if Schweinfurth's sketches can be trusted. The only essential point of difference from the ordinary Negro, except the size, is the tendency to shortening and breadth of the skull, although it by no means assumes the "almost spherical" shape attributed to it by Schweinfurth.

Some further information about the Akkas will be found in the work, just published, of the intrepid and accomplished traveller in whose welfare we are now so much interested, Dr. Emin Pasha, Gordon's last surviving officer in the Soudan, who in the course of his explorations spent some little time lately in the country of the Monbuttu. Here he not only met with living Akkas, one of whom he apparently still retains as a domestic in his service, and of whose dimensions he has sent me a most detailed account, but he also, by watching the spots where two of them had been interred, succeeded in obtaining their skeletons, which, with numerous other objects of great scientific interest, safely arrived at the British Museum in September of last year. I need hardly say that actual bones, clean, imperishable, easy to be measured and compared, not once only, but any number of times, furnish the most acceptable evidence that an anthropologist can possess of many of the most important physical characters of a race. There we have facts which can always be appealed to in support of statements and inferences based on them. Height, proportions of limbs, form of head, characters of the face even, are all more rigorously determined from the bones than they can be on the living person. Therefore the value of these remains, imperfect as they unfortunately are, and of course insufficient in number for the purpose of establishing average characters, is very great indeed.

As I have entered fully into the question of their peculiarities elsewhere, I can only give now a few of the most important and most generally to be understood results of their examination. The first point of interest is their size. The two skeletons are both those of full-grown people, one a man, the other a woman. There is no reason to suppose that they were specially selected as exceptionally small; they were clearly the only ones which Emin had an opportunity of procuring; yet they fully bear out, more than bear out, all that has been said of the diminutive size of the race. Comparing the dimensions of the bones, one by one, with those of the numerous Andamanese that have passed through my hands, I find both of these Akkas smaller, not than the average, but smaller than the smallest; smaller also than any Bushman whose skeleton I am acquainted with, or whose dimensions have been published with scientific accuracy. In fact, they are both, for they are nearly of a size, the smallest normal human skeletons which I have seen, or of which I can find any record. I say normal, because they are thoroughly well grown and proportioned, without a trace of the deformity almost always associated with individual dwarfishness in a taller race. One only, that of the female, is sufficiently perfect for articulation. After due allowance for some missing vertebræ, and for the intervertebral spaces, the skeleton measures from the crown of the head to the ground exactly 4 feet, or 1·218 metre. About half an inch more for the thickness of the skin of the head and soles of the feet would complete the height when alive. The other (male) skeleton was (judging by the length of the femur) about a quarter of an inch shorter.

The full-grown woman of whom Emin gives detailed dimensions is stated to be only 1·164 metre, or barely 3 feet 10 inches.[1] These heights are all unquestionably less than anything that has been yet obtained based upon such indisputable data. One very interesting and almost unexpected result of a careful examination of these skeletons is that they conform in the relative proportions of the head, trunk, and limbs, not to dwarfs, but to full-sized people of other races, and they are therefore strikingly unlike the stumpy, long-bodied, short-limbed, large-headed pygmies so graphically represented fighting with their lances against the cranes on ancient Greek vases.

The other characters of these skeletons are Negroid to an intense degree, and quite accord with what has been stated of their external appearance. The form of the skull, too, has that sub-brachycephaly which has been shown by Hamy to characterize all the small Negro populations of Central Africa. It is quite unlike that of the Andamanese, quite unlike that of the Bushmen. They are obviously Negroes of a special type, to which Hamy has given the appropriate term of *Negrillo*. They seem to have much the same relation to the larger longer-headed African Negroes that the small round-headed Negritos of the Indian Ocean have to their larger longer-headed Melanesian neighbours.

At all events, the fact now seems clearly demonstrated that at various spots across the great African continent, within a few degrees north and south of the equator, extending from the Atlantic coast to near the shores of the Albert Nyanza (30° E. long.), and perhaps, if some indications which time will not allow me to enter into now (but which will be found in the writings of Hamy and Quatrefages), even further to the east, south of the Galla land, are still surviving, in scattered districts, communities of these small Negroes, all much resembling each other in size, appearance, and habits, and dwelling mostly apart from their larger neighbours, by whom they are everywhere surrounded. Our information about them is still very scanty, and to obtain more would be a worthy object of ambition for the anthropological traveller. In many parts, especially at the west, they are obviously holding their own with difficulty, if not actually disappearing, and there is much about their condition of civilization, and the situations in which they are found, to induce us to look upon them, as in the case of the Bushmen in the south and the Negritos in the east, as remains of a population which occupied the land before the incoming of the present dominant races. If the account of the Nasamonians related by Herodotus is accepted as historical, the river they came to, "flowing from west to east," must have been the Niger, and the northward range of the dwarfish people far more extensive twenty-three centuries ago than it is at the present time.

This view opens a still larger question, and takes us back to the neighbourhood of the south of India as the centre from which the whole of the great Negro race spread, east over the African continent, and west over the islands of the Pacific, and to our little Andamanese fellow subjects as probably the least modified descendants of the primitive members of the great branch of the human species characterized by their black skins and frizzly hair.

## *UNIVERSITY AND EDUCATIONAL INTELLIGENCE.*

CAMBRIDGE.—In a recent discussion on the proposed appropriation of the whole of the Botanic Gardens site for Natural Science Departments, it seemed to be generally agreed that the Mechanical Department ought to be removed from a locality where it must cause vibrations injurious to microscopical or physical research. The suggested removal of the Herbarium to the Botanic Gardens was disapproved of by the Professor and his Assistant-Curator. The proposed appropriation of the present Chemical Rooms for Pathology was generally approved. Mr. J. W. Clark emphatically condemned the present Museum of Human Anatomy and Surgery as a discredit to the University. Prof. Hughes further put in a claim that the Geological Museum should extend to the extreme east of the site, and that the erection of the buildings should be begun at once.

[1] In his letters Emin speaks of an Akka man as "3 feet 6 inches" high, though this does not profess to be a scientifically accurate observation, as does the above. He says of this man that his whole body was covered by thick, stiff hair, almost like felt, as was the case with all the Akkas he had yet examined.

The first Harkness Scholarship for Geology and Palæontology is to be awarded in June next; names of candidates are to be sent in by May 31 next. Candidates must be Bachelors of Arts of not more than two-and-a-half years' standing.

The Sheepshanks Astronomical Exhibition will be awarded next December, at Trinity College. It is open to all undergraduates of the University, but the person elected must become a member of Trinity College. The conditions may be learnt from Dr. Glaisher, Trinity College.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Royal Society**, April 26.—"On the Development of the Electric Organ of *Raia batis*." By J. C. Ewart, M.D., Regius Professor of Natural History, University of Edinburgh. Communicated by J. Burdon Sanderson, F.R.S.

The paper consists of a short description of the electric organs found in the skate genus, and of an account of the development of the electric organ of the common grey skate (*Raia batis*).

It is shown that while in some skates (*e.g.*, *Raia batis*) the organ is made up of disk-shaped bodies, in others (*e.g.*, *Raia fullonica*) it consists of numerous cup-shaped structures provided with long or short stems.

The disks (with the development of which the paper chiefly deals) consist essentially of three layers, viz. (1) an electric plate in front in which the nerves end; (2) a striated layer which supports the electric plate; and (3) an alveolar layer, posterior to which is a thick cushion of gelatinous tissue. Each disk is formed in connection with a muscular fibre. In young embryos there is no indication of an electric organ, but in an embryo 6 or 7 cm. in length, some of the muscular fibres at each side of the notochord are found in process of conversion into long slender clubs having their heads nearest the root of the tail.

The club-stage having been reached, the muscular fibre next assumes the form of a mace, and, later, the anterior end further expands to form a relatively large disk, while the remainder of the original fibre persists as a slender ribbon-shaped appendage. As the head of the club enlarges to form a disk, it passes through an indistinct cup-stage, which somewhat resembles the cups of the adult *Raia fullonica*, hence it may be inferred that in *Raia fullonica* the organ has been arrested in its development. The conversion of the muscular fibre into a club is largely caused by the increase, at its anterior end, of muscle-corpuscles. These corpuscles eventually arrange themselves, either in front of the head of the club, to give rise to the electric plate, or they migrate backwards to form at the junction of the head of the club with its stem the alveolar layer. The striated layer, which is from the first devoid of nuclei, seems to be derived from the anterior striated portion of the club.

The gelatinous tissue between the disks, and the connective tissue investing them, are derived from the embryonic connective tissue corpuscles, which exist in great numbers around the clubs and developing disks.

May 3.—"On the Relations of the Diurnal Barometric Maxima to certain Critical Conditions of Temperature, Cloud, and Rainfall." By Henry F. Blanford, F.R.S.

The author refers to an observation of Lamont's that the diurnal barometric variation appears to be compounded of two distinct elements, viz. a wave of diurnal period, which is very variable in different places, and which appears to depend on the horizontal and vertical movements of the atmosphere and changes in the distribution of its mass, and a semi-diurnal element which is remarkably constant and seems to depend more immediately on the action of the sun. Then, referring to the theory of the semi-diurnal variation, originally put forward by Espy, and subsequently by Davies and Kreil, the author points out that the morning maximum of pressure approximately coincides with the instant when the temperature is rising most rapidly. This is almost exactly true at Prague, Yarkand, both in winter and summer, and in winter months at Melbourne. At the tropical stations, Bombay, Calcutta, and Batavia, and at Melbourne in the summer, the barometric maximum follows the instant of most rapid heating by a shorter or longer interval; and the author remarks that this may probably be attributed to the action of convection, which must accelerate the time of most rapid heating near the ground surface; while the barometric effect, if real, must be determined by the condition of the atmosphere up to a great height. With reference to Lamont's demonstration of the failure of Espy's theory, a condition is pointed out which alters the data of the problem, viz. the resistance that must be offered to the passage of the pressure-wave through the extremely cold and highly attenuated atmospheric strata, whose existence is proved by the phenomena of luminous meteors.

With respect to the evening maximum of pressure, it is pointed out that very generally, and especially in India, and also at Melbourne, there is a strongly-marked minimum in the diurnal variation of cloud between sunset and midnight, which, on an average, as at Allahabad and Melbourne, coincides with the evening maximum of the barometer. A similar coincident minimum, even more strongly marked, characterizes the diurnal variation of the rainfall at Calcutta and Batavia in their respective rainy seasons. In the author's opinion these facts seem to point to a compression and dynamic heating of the cloud-forming strata, and he points to the existence of a small irregularity in the diurnal temperature curves of Prague, Calcutta, and Batavia, which may possibly be due to such action. It is further remarked that the evening maximum about coincides with the time when the evening fall of temperature, after a rapid reduction between 6 or 7 and 10 p.m., becomes nearly uniform in rate, and it is suggested that the former may possibly be determined by the check of the rate of collapse of the cooling atmosphere. But it is observed that both the morning and evening waves of pressure probably involve other elements than the forced waves, and are in part rhythmic repetitions of previous waves.

**Geological Society**, April 25.—W. T. Blanford, F.R.S., President, in the chair.—The following communications were read:—Report on the recent work of the Geological Survey in the North-West Highlands of Scotland, based on the field-notes and maps of Messrs. Peach, Horne, Gunn, Clough, Hinxman, and Cadell. Communicated by Dr. A. Geikie. At the outset a review was given of the researches of other observers, in so far as they forestalled the conclusions to which the Geological Survey had been led. Reference was made to the observations of Macculloch, Hay Cunningham, C. W. Peach, and Salter; to the prolonged controversy between Sir Roderick Murchison and Prof. Nicol; to the contributions of Hicks, Bonney, Hudleston, Callaway, Lapworth, Teall, and others. It was shown that Nicol was undoubtedly right in maintaining that there was no conformable sequence from the fossiliferous quartzites and limestones into the eastern schists. It was also pointed out that the conclusions of Prof. Lapworth regarding the nature and origin of the eastern schists involve an important departure from Nicol's position, and are practically identical with those obtained independently by the Geological Survey. The results of the recent survey work among the Archæan rocks may be thus summarized: (1) the eruption of a series of igneous rocks of a basic type in which pegmatites were formed; (2) the development of rude foliation in these masses, probably by mechanical movement, and their arrangement in gentle anticlines and synclines, the axes of which generally run N.E. and S.W.; (3) the injection of igneous materials, mainly in the form of dykes, into the original gneisses, composed of (*a*) basalt rocks, (*b*) peridotites and palæopicrites, (*c*) microcline-mica rocks, (*d*) granites; (4) the occurrence of mechanical movements giving rise to disruption-lines trending N.W. and S.E., E. and W., N.E. and S.W.; (5) the effects of these movements on the dykes were to change the basalt-rocks into diorites and hornblende-schists, the peridotites and palæopicrites into talcose schists, the microcline-mica rocks into mica schists, and the granites into granitoid gneiss; (6) the effects on the gneiss resulted in the formation of sharp folds trending generally N.W. and S.E., the partial or complete reconstruction of the original gneiss along the old foliation-planes, and finally the development of newer schistosity more or less parallel with the prominent disruption-lines. There is an overwhelming amount of evidence to prove that all these various changes had been superinduced in the Archæan rocks in pre-Cambrian time. After reviewing the facts bearing on the denudation of the Archæan land-surface, the order of succession and thickness of the Cambrian strata were given, from which it is apparent that the deposits gradually increase in thickness as we pass southwards from Durness to Loch Broom. Prior to the deposition of the Silurian sediments the Cambrian strata were folded and extensively denuded. By these means various Cambrian outliers were formed far to the east of the present limits of the formation. The order of succession of the Silurian strata along the line of complicated structure from