really has its obvious and simple meaning of "reeking with sacrifice." Virgil was, however, misled, and paraphrases the passage in the *Odyssey* (*Æneid*, 1, 416) with his usual amplification into: "centumque Sabaeorum calent arae." But it is evident that this was not accepted at the time. The elder Pliny more than once discusses the question and asserts emphatically "Iliacis temporibus . . . nec ture supplicabatur" (*N. H.*, 13, 1, 1). Whatever, therefore, may have been the development in later times, the Homeric altar of Aphrodite at Paphos could not have been an incense-altar. It is true that it has been contended that sacrifices of blood were not offered to Aphrodite. But this is not sustainable. Victims were offered to the Paphian Venus in the time of Horace.

W. T. THISELTON-DYER.

The Electromotive Force of Standard Cells.

At the International Conference on Electrical Units and Standards, held in London in October, 1908, it was decided that the electromotive force of the Weston normal cell should be taken provisionally as 1.0184 international volts at 20° C. until further measurements, made under the auspices of the International Scientific Committee on Electrical Units and Standards, should enable a more accurate value to be assigned.

Measurements of a high degree of accuracy have now been completed, and show that the Weston normal cell made according to approved specifications has an electromotive force of 1.0183 international volts at 20° C., i.e. 1 part in 10,000 less than the provisional value assigned in 1908.

In consequence, the International Committee has passed a resolution expressing the desire that from January 1, and until a further recommendation, electrical standardisation in the standardising laboratories of all countries should be based on the value of 1.0183 international volts for the electromotive force of the Weston normal cell at 20° C.

Accordingly, all standard cells tested at the National Physical Laboratory will be compared with Weston normal cells of which the electromotive forces have been determined by direct measurement to be 1.0183 international volts at 20° C. These latter cells, together with new ones, will from time to time be remeasured in terms of the international ohm and the international ampere in order to ensure a constant standard of voltage.

It was assumed in the National Physical Laboratory certificates for 1909 and 1910 that the electromotive force of the Weston normal cell was 1.0184 international volts at 20° C., and therefore these certificates may be corrected for the change now introduced by subtracting 1 part in 10,000 of the value stated on the certificate.

R. T. GLAZEBROOK (*Director*).

The National Physical Laboratory, January 1.

Klaatsch's Theory of the Descent of Man.

THERE appeared in *NATURE* of December 15, 1910, p. 206, a letter from Prof. Keith on Klaatsch's theory of the descent of man. As this letter is likely to give great discredit to the work of Klaatsch, in this country at least, I find myself, as a pupil of Klaatsch, justified in saying a few words more about it.

Klaatsch gives an account of his theory in a paper, entitled "Die Aurignac-Rasse und ihre Stellung im Stammbaum der Menschheit," in the *Zeitschr. f. Ethnologie*, 1910, Heft 3 and 4. After a short description of the skeleton of the Aurignac man, described by O. Hauser and himself in detail before, and after some general remarks about morphological methods in comparing the fossil man with anthropoid apes, Klaatsch goes on to consider in some detail the comparative anatomy of the humerus, ulna, and radius, and the skeleton of the hind limb of Aurignac and Neanderthal man, orang-utan, and gorilla. As Prof. Keith in his letter says that this basis is "flimsy in the extreme," we may very well examine it again. In the skull, the resemblance between Neanderthal man and gorilla (called the N.-G. group), on one hand, and the Aurignac man and orang (called the A.-O. group) on the other, is hardly visible at all, only in the supraorbital ridges there are still some traces of it. But the resemblances are

very well marked in the skeleton of the limbs, especially of the arms. A superficial glance will show that the bones of A.-O. are slender, whilst those of the N.-G. are "clumsy." But this is no basis for exact scientific research; the important point is that there are differences in morphological details. The caput humeri, which articulates with the scapula, has a greater longitudinal diameter in A.-O. and a greater transversal diameter in N.-G. There is a sulcus intertubercularis between two ridges for the insertion of muscles. This runs straight down in A.-O., whilst it is somewhat S-shaped in N.-G. At the distal end, N.-G. shows a much greater mesial epicondyle, so that there results a sort of incision (incisura supracondyloidea, Kl.). In A.-O. the contour of the bone is much straighter; there is no sharp corner at all.

Very interesting differences are found at the proximal end of the ulna, but as this especially is a point where very detailed descriptions and technical terms are necessary, I shall pass at once to the radius. The shaft of that bone—the same holds good in both groups for the ulna—is almost straight in A.-O., but is distinctly bent in N.-G., so that the proximal and distal parts stand to each other in a well-marked angle. In the lower limbs the differences are not so well marked, although there, too, they exist. Differences are observed in the position of the trochanter major and minor, in the formation of the posterior intertrochanteric lines, in the angle between the collum (neck) and the shaft of the femur, in the shape of the malleolus and of the caput of the tibia, and so on. But they are not so striking as in the upper limb. This is quite clear, because the hind-limbs in man are highly specialised for the purpose of supporting the body, so that the influence of function is here much stronger than it is in the arms, which are free, and not always submitted to the same mechanical influences. So the differences are more hidden. But they can be seen by everyone who takes the care of studying the bones thoroughly.

I hope that even this short glance at the facts will have shown to the reader that there are two distinct groups of fossil man, the Aurignac man and the Neanderthal man, the Aurignac man resembling in many points the orang, the Neanderthal man resembling the gorilla.

In the first part of his paper Klaatsch only gives these "rather dry morphological facts." In the second part he proceeds to offer an explanation of these facts. As there is a close resemblance in morphological details of the Neanderthal race and the gorilla, and of the Aurignac race and the orang, he thinks that there must be a real blood-relation between the respective races. Klaatsch's idea, then, as to the descent of man is this. There was, originally, one group of primates, "propithecantropoi," which, according to Klaatsch, resembled man more closely than any other now living primate. These gave origin, among others, to one group, out of which sprang the Neanderthal race and the gorilla. The Neanderthal man followed an upwards line in his development, the gorilla sank back, having become specialised in one direction, and by this being unfit for higher development. Klaatsch regards the gorilla and the other man-like apes as "failed experiments of man" (misslungene Versuche zur definitiven Menschwerdung).

In much the same way there sprang up another group, which developed into the Aurignac race and into the orang. So "the Aurignac man did not spring up from the Orang, just as the Neanderthal man did not spring up from the Gorilla" (p. 568, *loc. cit.*). How these two races of mankind reached Europe, Klaatsch tries to show in a sort of scheme, which has been published in *NATURE* already (November 24, 1910). The Neanderthal race came via Africa and Gibraltar, whilst the Aurignac race came via Asia.

Further on, Klaatsch thinks it possible that there are races who are related in the same way to the chimpanzee and to the gibbon. Other suggestions Prof. Klaatsch makes about the existing races and the other prehistoric races. According to him, the Galley Hill and "Brünn I" skull belong almost certainly to the Aurignac race, very likely also Chancelade and Engis! As to the existing races, Klaatsch thinks to have found a relation of negroes to the Neanderthal race. Otherwise his suggestions are very hypothetical, and only meant as a working hypothesis, so that it is no good now to consider them closely.