

ETHNOLOGY.

A Mexican Feather Ornament.

THE trustees of the Peabody Museum of Cambridge have decided to issue in a separate form such special papers as have heretofore been published in connection with the annual reports. The first number of this new publication, which will have the title *Archæological and Ethnological Papers of the Peabody Museum*, has just been issued, and is of great interest. Mrs. Zelia Nuttall discusses the meaning of the widely known Mexican feather ornament in the Vienna Museum of Natural History, which dates back to the time of Charles V. The modest title 'Standard, or Head-Dress,' which she has given to her study, covers, however, an historical investigation of the greatest value. Starting from a consideration of the interesting specimen, she gives conclusive proof that it was one of the head-dresses used by Mexican war-chiefs. In this investigation the authoress for the first time applies her discovery of complementary signs in the Mexican graphic system, which was announced two years ago at the Buffalo meeting of the American Association, to deciphering a certain iconograph; and in an appendix she sets forth more fully the essential features of these signs. A hieroglyph may represent various sound-combinations, as the object represented is liable to be designated by synonymous names. In order to show which name was meant, complementary signs were used, the phonetic value of which determined which word was meant. An arm and hand, for instance, might express *mail* ('arm') as well as *acoli* ('shoulder'). If above the arm the conventional sign for water (*all*) is painted, yielding in composition the phonetic value *a*, which is also the first syllable of the word *acoli*, this complementary sign indicates that the latter word is meant. This discovery of Mrs. Nuttall promises to be a great help in the decipherment of Mexican texts. The question as to the real significance of the feather ornament is decided by a thorough investigation of the use of banners and head-dresses in ancient Mexico. The authoress's final conclusions are briefly summed up as follows: The testimony of native Mexican paintings and sculpture, and of early Spanish records, taken into consideration with the evidence furnished by its structure, and also by the appellation bestowed upon it in the Inventory of 1596, in which the first record of the specimen is found, proves it to be a head-dress. Manufactured with the utmost care, of materials most highly esteemed by the Mexicans, uniting the attribute and emblematic color of Huitzilopochtli, fashioned in a shape exclusively used by the hero-god's living representative, the high-priest and war-chief, this head-dress could have been appropriately owned and disposed of by Montezuma alone at the time of the Conquest, from which period it assuredly dates.

TEXTILE PATTERNS OF ANCIENT PERU. — Dr. Alphons Stübel, who, in company with W. Reiss, spent five years in travels of discovery through Peru and other parts of South America, and edited conjointly with him the pictorial work, 'Das Todtenfeld von Ancon' (Berlin, 1880-87), in a volume published at the celebration of the twenty-fifth anniversary of the Dresden Geographical Society, treats on "textile patterns of ancient Peru compared with analogous ornaments of classic art." The various ornaments, consisting of squares, trapezoids, lozenges, circles, etc., give origin to more complicated ornaments by a combination of the same geometrical figures whenever one of these is shoved on to another of the same description by sliding it on below, on the sides, or on any point where both can combine. Stübel's ideas are very original and ingenious, but whether the inventors of these ornaments really obtained the ideas for their multiple patterns in this way is rather to be doubted. The pamphlet is illustrated by a large number of designs, and fully deserves notice.

THE MIGRATIONS OF THE BANTU. — Mr. H. H. Johnson, the well-known African explorer, advances, in a recent number of the Proceedings of the Royal Geographical Society, a suggestive theory of the origin and migrations of the Bantu and their northern neighbors. He believes that their common home was in the region between the Shari and Welle-Ubangi. From this centre, he thinks, emigrants had constantly been starting to the west, and had carried with them their languages, which have given rise to most of the

languages in western Africa between the Gambia and the Niger. But there still remained in this district north of the Kongo, east of the west coast watershed, south of Lake Chad, and west of the western affluents of the Nile, two flourishing and nearly allied tribes, whom he calls the Bantu and Semi-Bantu. Later on, both peoples were driven from their homes. The Semi-Bantu proceeded due west towards the Niger, and the Bantu turned to the south and south-east. The Semi-Bantu greatly discarded and wore away the grammatical structure inherited from its mother, and which its Bantu sister developed and perfected, but retained in a great measure its primal stock of word-roots. Mr. Johnson continues, "These tongues, while retaining many roots in common with the Bantu, have a grammatical structure which lacks all, or nearly all, Bantu features. The resemblance in vocabulary to the Bantu increases as you proceed eastward, but is not to be explained by the theory of 'loan-words,' because the similarity of the word-roots strikes too deeply into the language-system." We would be more inclined to conclude from this statement that the 'Semi-Bantu' are mixed languages. "The primitive Bantu tribe," Mr. Johnson continues, "moved away from its original home in a south and south-easterly direction, and probably located itself for some time in the district lying between the Welle, the Kongo, and the Muta-Nzige and Albert Nyanza Lakes. Here, no doubt, it settled down for a while, and thrived and multiplied; and here probably it received the ox, sheep, goat, pig, and domestic fowl from tribes to the north, to whom they had permeated from Egypt. Rapid increase and its consequent troubles caused the primal Bantu people to again split up and its sections to part company, and the great Bantu invasion and occupation of the southern half of Africa began to take place. Except the feeble, dwarfish races of Akka or Hottentot and Bushmen, there seem to have been few inhabitants to dispute southern Africa with the Bantu, and from their centre of activity they sent out streams of emigrants westward along the Welle and the Kongo, eastward to the Nile lakes and the Zanzibar coast, and southward to Damaraland and Natal." Although this detailed theory seems to be constructed on rather slight evidence, it is an interesting attempt at explaining the complicated ethnological phenomena of Africa.

ELECTRICAL SCIENCE.

Electric Street-Railways.

THE next three months will determine whether there will be rapid advance in the equipment of electric street-railways, or whether they will have a decided set-back. There have been roads equipped in New England during the summer that will have a severe test this winter, and there are few places where the equipment will not have to do heavier work than ever before.

At the beginning of the year the Sprague Electric Railroad and Motor Company did not have a car running; the Thomson-Houston Company — then the Van Depoele Company — had half a dozen roads in operation; the Daft Company, about as many. To-day the Sprague Company has thirty roads completed or in course of construction; the Thomson-Houston Company, about as many; the Daft Company, perhaps a dozen; with a number of other systems represented by single roads in different localities.

There have, too, been radical changes in the methods that were used only a short time ago. The Thomson-Houston truck, with the motor pivoted on the axle and gearing direct to it, is a very different affair from the Van Depoele motor placed in a compartment in the car, driving the wheel-axle by a chain belt. The Sprague Company have also gained something from experience; and the last type of motor and gear with the single magnetic circuit, the admirably simple method of reducing the speed, and with the new brush for the commutator, is a marked improvement on the type they have been building.

It is significant, that, with a few exceptions, the method used to convey the current to the car is by an overhead wire. The question of street-car propulsion is mainly one of economy, and it is but natural that horses should be first displaced where the most economical electrical system is allowable. But it will be seen, that, if we are to retain our prejudices against the overhead wires in our city streets, the real problem of displacing horses in city