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New weights and Messure in T'urkey
progress of archeological discovery in central AMERICA.
Of the fact of there being ruins of ancient cities, hitherto shrouded in mystery, scattered over that large tract of coun try which separates North from South America most persons are now aware. But their nature, age, or relation to the early bistory of the world has remained till quite recently a mat has, however, been for some time recognized that among the most interesting of these archæological remains are some in Yucatan-a peninsula divjding the Gulf of Mexico from that of Honduras, situated between $17^{\circ} 30^{\prime}$ and $21^{\circ} 50^{\prime} \mathrm{N}$. lat., and at no great distance from Cuba
Determined to explore these ruins and learn the lessons they might teach, a scientific investigator, Dr. Augustus Le Plongeon, accompanied by his wife, set out on a mission of discovery to Yucatan in August, 1878, from which be recently returned. Ten years previous to this he had determined the task of writing an account of prehistoric America, and having dedicated himself to this work, had found, after having explored the ruinsof antiquity found in Peru and Bolivia since 1862, that in Yucatan were situated the most valuable materials for such work; and residence of nine years, constantly engaged in explo rations both of a super- and subterranean nature, has made him familiar with many of the Yucatan ruins. Both he and his wife being skillful practical amateur photographers, they have secured numerous negatives of the ruins, embracing many detailed portions. They have also obtained, by means of a plastic material similar to what is used in French stereotyping, upward of two hundred casts from the more mportant sculptures and mural decorations, several of which are being reproduced in plaster, thus showing the work in facsimile
Attention was concentrated upon the cities of Uxmal, Chichenitza, Ake, and Mayapan. There are other cities as large as these, but they are in the possession of the hostile Indians. Still other cities exist which are fraught with interest in an exceptional degree, for they have been inbabited by a race of dwarfs, compared with whom the dwarfs of popular exhibitions are almost giants. The diminutive stature of the inhabitants is shown by the buildings, the doorways of which, Dr. and Mrs. Le Plongeon assured us, are thirty-six inches high by aeighteen inches in width. One of the largest temples in these dwarf cities is twelve feet long by nine feet wide, everything else about them being in the same ratio of dimensions. The names of some of these cities are Meka, Nicte, and Cankun. These are situated on the east coast of Yucatan, opposite the islands of Mugeres and Cozumel. They are at present very difficult of exploration owing to the frequent visits made by parties of hostile Indians, who are well armed, and in skirmishes with whom no quarter is either expected or given.
In Uxmal there are several ruins in a state of excellent preservation. Thyse prove in an incontestable manner that in early ages a high degree of civilization existed. The date of the erection of several of these edifices is believed to be not less than six thousand years ago, although Dr. Le Plongeon is of opinion that there is much that points to an antiquity of ten thousand years. It being of the greatest importance that the antiquity of these remains of a for$\mid$ mer civilization should be determined, we here present a few of the reasons given by which this is sought to be established.
In one temple, which is rich!y decorated both with marble and other stone, portions are profusely covered over with inscriptions and writings in the Maya language, in writing of an ancient nature bitherto unknown, but the key to which has been discovered by Dr. and Mrs. Le Plongeon, by dint of much perseverance. With this uew alphabet they have been enabled to decipher many of these records of ages of the long ago. The age of these erections is discoverable, first from the Katuns found in the city of Ake, mentioned
by the chroniclers, who tell us that at the time of the Spanish Conquest such Katuns were still being used. These consist of columns of stone, eight in a column. One is placed every twenty years. On the top of the seventh, and at each corner, is placed another stone, these corner_stones being laid at intervals of four years, and on the completion of the twenty years represented by them a large stone is placed over all, thus completing the column, or Abau-Katun, which thus marks a period of one hundred and sixty years. Now, in one building were found thirty-six of these columns, which represents at least six thousand years as the time that had elapsed from the erection of that temple to that at which the last stone was laid on these time columns; and the time that intervened between the completing of these records by the placing of this last stone and the Conquest is not known in this case.
Another guide to the discovery of the antiquity of these 33 erections is the worshipo! Deityin the form of the mastodon's head. Now, as this animal has been extinct for ten thousand years, it follows that either the builde ples or their fathers were familiar with it, for had they not known the mastodon they could not have made an image or a picture of it, and all of the buildings throughout the peninsula are ornamented with the mastodon's head, and some of the sculptures represent human figures in the act of worshiping it.

The buildings in most cases are formed of a white limestone, the stones being all cut nearly to one size and very closely fitted together. The outsides are square, but they
are cut in a pyramidal form. The ceiling of the buildings
form a triangular arch; the rooms are generally long and narrow, but very lofty, the walls and floors being cemented with concrete. At Uxmal is a building called Monjas, which consists of a hundred and twenty rooms, all arranged in pairs, each pair communicating with one another by a doorway, but with none of the others, except through the courtyard. There are no interior sculptures, all being on the outside, and in these a certain local style or order has been observed, for while at Uxmal the ornaments are all found above the doorways and facades, at Chichenitza they reach down to the ground. One ediflce, known as the Governor's House, is 293 feet in lengtb. They are mostly erected on artificial terraces composed of stones laid on the top of each other, one of these being similar in style to the "hanging gardens" of Babylon.
The great question of popular interest regarding these archæological remains is, What do they teach us? Apart from the history of the family affairs of the contemporary kings, which can now be read with comparative plainness by the explorers, it has been discovered that there is an almost absolute identity between the language, the manners, and customs of these prehistoric Yucatanese and those of Chaldea, Egypt, Hindostan, Persia, Burmah, and Siam, and that an early and cultivated civilization, imagined to be of a higher type than any other, existed in Yucatan. It has also been discovered and established beyond cavil that Freemasonry existed in these prehistoric times with the same Masonic symbols as are now in use, proofs of this being found in the photographs and casts; and that what is now known as mesmerism existed six thousand years ago in very much the same form as it does at present, as sho wn by the decorations on the frescoed walls. Among the customs common to the Yucatanese, are to be found some also common to the inhabitants of Hindostan, such as the manner of car:ying children astride on the hip. The making of an impression of the hand in red pigment on the walls of certain sacred edifices was common in former times both to Yucatan, to Elephanta and other places in India, and even in caves in Australia and others of the South Sea Islands. There is scarcely a monument in Yucatan upon which is not to be found the impression of a red hand, this being the record of a vow made to the Gods. Fire worship, phallic and mastodon worship, together with gods having elephants' heads, flourished in Yucatan in these early periods.

The Maya language, still spoken in Yucatan, was also known in many parts of the East. The last words of Jesus of Nazareth, Eloi, Eloi, lama sabachthani, are said to be pure Maya words, and to mean, " Now, now, I sink; darkness comes over my face." From the narrative, it would seem that none of those standing within hearing understood the language made use of, as they imagined he was calliag upon Elias to aid him. Enough has here been said to indicate the great interest that attaches to Yucatan.

## THE BURSTING OF ARMATURES.

The bursting of the armature of a dynamo, as recently reported in the daily papers, has caused much comment as to the possible danger arising from accidents of this kind, and, as usual, conclusions have been arrived at without any inquiry being made as to the facts of the case. Knowing that there is danger from flying fragments when a rapidly revolving mass is disrupted, and recalling the damage done by flywheels and grindstones, the writers guess that the effects produced by armatures acting similarly would be equally disastrous.
In some classes of dynamos the armature consists of a shaft upon which are placed many hundreds of disks of iron separated by paper, and around which coils of copper wire are wound longitudinally. Upon revolving this, the centrifugal force tends to throw the copper wire off, but to hold it in place strands of spring brass wire or piano wire are bound at intervals about it: These confining bands have to esist the weight of copper only, the tensile strength of the disks being ample so far as they are concerned. Taking the diameter of the armature as twelve inches, and the speed as one thousand revolutions per minute, each pound on the circumference would exert a force of about one hundred and sixty-nine pounds. The aggregate number of pounds of copper on the surface would cause a strain to be resisted by the combined strength of the copper wire itself and the conflning bands. The difference is sufficient for a large margin of safety.
When the armature is made of cast iron, the tensile strength of the iron will resist the centrifugal force if the casting be without flaw, and the high degree of perfection to which casting is brought at the present time makes this aspect of the question hardly worth considering.
The armature first considered is so incased by massive field magnets, and the fragments would be so light in comparison, that but little danger would menace either life or property in case of rupture.

IT is not much use asserting, says the Lancet, that assem blies of sane persons ought not to become victims of panic; but, in truth, urless the nervous system of man could be reconstructed on a new principle, which would necessarily deprive it of some of its most excellent qualities, it is impossible that there will not always be a tendency to impart and receive this impression, which so powerfully affects the body and mind that judgment is for the time suspended, and the limbs either refuse to act impulsively or under the control of the emotional part of the being. Discipline is the only remedy for a tendency to panic.

