FIGS. 6, 7.—Libyan Series: foraminiferal limestone, Jebel Krer, Sinai. No. 3,902. 6*a*, *Alveolina Boscii* (Defrance); 6*b*, *Nummulites Guettardi*, d'Arch. and Haime, var. *antiqua*, De la Harpe; 6*c*, 7*c*, *Orbitoides dispansa* (Sow.); 7*a*, *Heterostegina depressa*, d'Orb.; 7*b*, *Bigenerina? nodosaria*, d'Orb. × 16.

EXPLANATION OF PLATE XIV.

FIG. 1.—*Miliolina circularis* (Bornemann). Transverse section. Libyan Series: Jebel Krer, Sinai. No. 3,902. × 30.

FIG. 2.—*Alveolina decipiens*, Schwager. Transverse section. Libyan Series: Jebel Krer, Sinai. No. 3,902. × 15.

FIG. 3.—*Textularia agglutinans*, d'Orb. Longitudinal section. Libyan Series: junction of Wadi Baba and Wadi Shellál, Sinai. No. 4,113. × 15.

FIG. 4.—*Bolivina punctata?*, d'Orb. Longitudinal, peripheral section. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 30.

FIG. 5.—*Globigerina bulloides*, d'Orb. Section of test. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 30.

FIG. 6.—*Globigerina conglobata*, Brady. Section of test. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 30.

FIG. 7.—*G. cretacea?*, d'Orb. Section of test. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 30.

FIG. 8.—*Discorbina globularis* (d'Orb.). Section of test. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 30.

FIG. 9.—*D. rugosa* (d'Orb.). Section of test. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 30.

FIGS. 10*a*, *b*.— *Truncatulina umbonifera* (Schwager). Mokattam Series: Wadi Khadáhid, Sinai. No. 3,598. × 30.

FIG. 11.—*Rotalia calcariformis* (Schwager). Section of test. Mokattam Series: Jebel Abyad, Sinai. No. 4,111. × 15.

FIG. 12.—*Operculina complanata* (Defrance), var. *canalifera*, d'Archiac. Libyan Series: junction of Wadi Baba and Wadi Shellál, Sinai. No. 4,135. × 3.

FIG. 13.— *O. complanata* (Defr.), var. *discoidea*, Schwager. ? Bartonian or ? Mokattam Series: Jebel Abyad, Sinai. No. 4,112. × 3.

FIG. 14.—*Nummulites Gizehensis* (Forskál), var. *Lyelli*, d'Archiac & Haime. Section on the fifth and sixth whorls. Mokattam Series: Jebel Safariat, Sinai. No. 4,163. × 15.

FIG. 15.—*Nummulites Gizehensis* (Forskál), var. *Ehrenbergi*, De la Harpe. Section on the eleventh and twelfth whorls. Mokattam Series: Jebel Safariat, Sinai. No. 4,163. × 15.

FIGS. 16*a*, *b*, *c*.—*Nummulites Barroni*, sp. nov. 16*a*, superficial aspect of test; 16*b*, edge view; 16*c*, median section. Mokattam Series: Wadi Khadáhid, Sinai. No. 3,598. × 2.

NOTICES OF MEMOIRS.

THE MUSEUMS ASSOCIATION: ELEVENTH ANNUAL MEETING, CANTERBURY, JULY 9–12, 1900. President, Henry Woodward, LL.D., F.R.S., F.G.S., V.P.Z.S, P. Pal. Soc., of the British Museum (Natural History); Treasurer, Alderman W. H. Brittain, J.P., F.R.G.S. (Museum, Sheffield); General Secretary, E. Howarth, F.R.A.S., F.Z.S. (Museum, Sheffield).

THIS useful and deservedly successful Association—supported by the presence of the Right Rev. the Bishop of Dover; the Very Rev. the Dean of Canterbury; the Rev. Canon Routledge; the Worshipful the Mayors of Canterbury and of Dover; the Deputy-Mayor, Mr. Alderman Mason, J.P.; by F. Bennett-Goldney, Esq. (Hon. Curator of the Royal Museum, Canterbury); Mr. Sebastian Evans, M.A., LL.D.; Mr. Stephen Horsley,

Sheriff; Mr. Henry Fielding, Town Clerk; and fifty Delegates and Associates from various Museums throughout the country—opened its public proceedings on Tuesday morning at 10 a.m. with an address of welcome by His Worship the Mayor of Canterbury, Alderman Geo. J. Collard, J.P.

Alderman W. H. Brittain—in the absence of the outgoing President of the Association—then proposed the election of Dr. Henry Woodward, F.R.S., of the Natural History Branch of the British Museum, as President for 1900–1901, and paid an earnest tribute to that gentleman's work in connection with Museums.

The election having been carried unanimously,

Dr. Woodward rose to return his thanks and proceeded to read his Presidential address.

It was, he said, a happy omen—he had almost said inspiration—which led the founders of that Association to invite its organizing Committee, twelve years ago, to meet in the ancient *Eboracum*, the city of "the White Rose of York," once the capital of Roman Britain, which, blazoned down the long roll of history for eighteen hundred years, still firmly stood its ground, like some ancient warrior, all scarred and weather-beaten by time, by wars, and by revolutions, a landmark in our history and a light to science. Such was the fair archiepiscopal city of York, the birthplace of the Museums Association, which in 1831 gave origin to the great British Association for the Advancement of Science, and still earlier (1822) founded the Yorkshire Philosophical Society. After visiting Liverpool, Cambridge, Manchester, London, Dublin, Newcastle, Glasgow, Oxford, Sheffield, and Brighton, the members of the Museums Association had set out this year upon a pilgrimage to Canterbury, the Mother-City of the English people—the "Cant-wara-byrig," the capital city of the "Cant," the "Angul," or corner of Britain nearest to the Continent, towards which the immigration of those Belgic tribes into Britain in pre-Roman times was directed, and the later invasion of Julius Cæsar, B.C. 54. The Cathedral, which dated back to A.D. 602, was recovered by St. Augustine, its first Archbishop, there having been, it was said, a church already on the spot built by early Roman Christians. Like York, Canterbury had been an archiepiscopal See from the earliest times to the present day, and many of its primates lay buried within its precincts.

But it was not his duty to descant upon the merits of their present happy meeting-place, or to attempt to record its history. Those were matters he could safely leave in far abler hands, for among their Vice-Presidents he saw the names of the Very Rev. the Dean of Canterbury, the Worshipful the Mayor (Mr. Alderman George Collard, J.P.), Mr. Alderman Mason, J.P., and many other gentlemen, including Mr. F. Bennett-Goldney, the Honorary Curator of the Royal Museum, Canterbury. They had also to be thankful for the assistance of Mr. Henry Mead as Local Secretary. Upon the kindness and hospitality of those gentlemen during their visit, he felt sure they might safely rely, and indeed their programme held out many agreeable promises of pleasant visits both here

and in Dover during their brief sojourn in Kent. The newly-elected President thanked the members for the high compliment they had paid him in installing him in that office, and proceeded to refer to his forty-two years' association with the British Museum, and to the many changes and developments which had taken place there during that period under the management of its numerous present and past officers and assistants. Referring to various means by which additional interest may be introduced into public museums, the speaker said that among the objects commenced to be carried out by the new Director, Professor E. Ray Lankester, was the formation of a museum to illustrate animals under domestication. The Director hoped to be able to obtain examples of the various breeds of animals which were the result of the invention of man—giving rise to what in Nature would almost amount to the "origin of species." But it did not appear that those varieties could ever remain permanent without artificial environments. All the immense varieties of the dog, for example, would speedily disappear or degenerate into mongrels if not strictly preserved by man. The same was true of the various breeds of fancy pigeons; if neglected, the offspring would again revert to the common blue rock pigeon from which they had sprung. Breeds of horses and cattle, when removed from care and the influence of domestication, were also found to lose their distinctive points of difference, and to revert to the common wild form best adapted to its surroundings. Professor Lankester hoped to secure examples of some of those, and photographs of others to serve as records, as a basis for future investigations. Dr. Woodward pointed out that in order that they might benefit permanently by the great advances made of late in natural knowledge, they must be prepared to make great changes, and sacrifice many cherished ideas, and might find themselves travelling along new lines, guided by new lights, or, perchance, might have to make their own lines, and even to advance under hostile opposition to carry out their new ideas. This led the President to enter into various details of museum arrangement, in which he suggested several improvements and gave results of other scientists' and naturalists' observations in this direction. Dr. Woodward particularly referred to the most valuable set of publications of Monographs, Catalogues, and Guides, issued by the authority of the Trustees of the British Museum, of which he exhibited some examples on the table. Also to the use of printed descriptive labels for all the more important groups of animals, and for all objects of special interest and novelty exhibited to the public in the Museum Galleries.

The President dealt with the subject of arranging specimens in museums and the difficulty of displaying recent and fossil forms together in one series. He referred to an earlier discussion of this subject which took place at the British Association Meeting in Manchester in 1887. In adopting such a radical alteration in the arrangement of objects, first, there was 'public opinion' to be considered; secondly, in a great public museum like that of the

British Museum of Natural History there was the organization of the staff, which, like the collections, was divided into departments; thirdly, there was the cost of making such alterations, which was very great; and fourthly, there was the matter of convenience.

"*Public opinion*," said Dr. Woodward, "is, I find, very largely in favour of keeping the Geological and Zoological Collections distinct from one another, principally because the people who use the collections are still interested in them according to the special line of research in which they are engaged, and the books which they have been reading. They come expressly to see the Birds, or the Beetles, or Butterflies, the African Antelopes, or Recent Shells, and don't want to see the fossil ones. Or, again, they are interested in *Ammonites*, or in *Trilobites*, or Fossil Fishes, and wish to see what we have exhibited of one or other of these. For, after all, the human intellect is restricted, and we cannot, many at least of us, hope to attain to the wisdom of Solomon, who discoursed of trees from the cedars of Lebanon to the hyssop that springeth out of the wall, and spake also of beasts, and of fowls, and of creeping things, and of fishes. The necessities arising out of the greatness of the subject has made most of us *specialists*, and we are, as a rule, content to know one group fairly well. As a consequence, we rarely, nowadays, meet with the all-round Naturalist who has a wide knowledge of most branches of Zoology and of Botany. Many of the members of this Museums Association have, however, compulsorily, to keep up such an all-round acquaintance with Natural History, and not unfrequently to undertake the intelligent arrangement of an Art-Gallery and perhaps a Gallery of Antiquities as well. They have, in fact, to be more learned than the Professors of Natural History in the Queen's Universities, who less than 50 years ago were required to lecture on Geology, Mineralogy, Botany, and Zoology, in all their varied branches! and to give demonstrations also to their classes in the field.

"The organization of a Museum into Departments, each under its own special head, is almost fatal to any scheme of amalgamation, and although under the late Sir William Flower, and the present Director, Professor Ray Lankester, much has been done towards breaking down the hard lines of demarcation, still the Departments of Palæontology and Zoology remain as such to the present day.

"The late Director commenced in 1896 to remodel the Zoological Department, working specially at the *Mammalia*, up to the time of his retirement in September, 1898, and with the active co-operation of Mr. Richard Lydekker, F.R.S. (who has continued the task down to the present time). Still the great work remains unfinished.

"Sir William Flower's last efforts were devoted to complete the exhibition of Cetacea in the new whale-room, which contains models, skins, and skeletons of thirty-eight of these huge marine mammals. The present Director has just added *all the fossil forms*, so that in this one group the biologist is able to see the living and extinct members of the Cetacea placed side by side, and can realize how far such a plan is a success.

"In the other groups of the Mammalia Mr. Lydekker has been unable to introduce the whole of the fossil forms, and has been content to indicate their existence by drawings, by coloured casts, or by parts of specimens, wherever he could make room for them. Explanatory labels have been introduced in each group, and skeletons also of each type of mammal. Coloured maps showing the geographical distribution of each family are also placed with them. To do all this the actual number of exhibited specimens has of necessity been *greatly reduced.* This *limited exhibition* of recent and extinct forms together in one series had been advocated by me in 1887, and may be seen carried out, as far as I have been able to obtain specimens, in the palæontological galleries under my care."

Dr. Woodward referred to the two great epoch-making events which had so widely affected all the sciences, and which saw the light just forty-two years ago, namely, the discoveries in prehistoric archæology, by which the age of man has been carried back into Newer Tertiary time, and the extinct Mammalia had been shown to have survived down to the human period, and to have been contemporary with early man and with many of the surviving forms of animals of to-day; uniting the latest chapter of geological history to the oldest records of our race, and joining the sciences of Geology and Archæology together. Secondly, the enunciation at the same period of Darwin's origin of species and the doctrine of evolution, which linked into one the whole chain of life from the earliest records in Archæan Rocks to the full tide of existences which now surround us.

The President, in conclusion, advocated the desirability of the publication by the Association of a handbook giving an account of every provincial museum throughout the country, with full particulars as to each, not only as to its officers, organization, and its plan of arrangement, but also what were the chief features of its exhibits, and especially to print any records concerning 'types' and 'figured specimens' preserved in its collection and any other particulars of general public and scientific interest.

REVIEWS.

I.—The Eighth International Geological Congress, Paris, 1900. Livret-Guide des Excursions en France du viii^e^ Congrès Géologique International. Avec 372 figures dans le texte et 25 planches. (Paris, 1900.)

THE "Comité d'organisation du viii^e^ Congrès Géologique International," under the presidency of the venerable Professor Gaudry, has just issued a "Livret-Guide des Excursions en France du viii^e^ Congrès Géologique International." To judge from this publication, the preparations for the impending Congress, which is to meet at Paris from the 16th to the 28th August, have been