with the orders Verticellatæ, Piperales, Salicales and Juglandes and their allies.

THE *Journal of the Boston Society of Medical Sciences* for October begins with a discussion of 'The Antitoxin Unit in Diphtheria,' by Theobald Smith, detailing various experiments made, and concluding that at present we cannot do better than to utilize the standard provided by Ehrlich which is described in the paper. John Lovett Morse has an abstract of a paper on 'The Serum Reaction in Fœtal and Infantile Typhoid,' and Albert P. Matthews describes 'Artificially produced Mitotic Division in Unfertilized Arbacia Eggs,' caused by lack of oxygen, heat and the action of alcohol, chloroform and ether. Martin H. Fischer has a preliminary communication on 'The Toxic Effects of Formaldehyde and Formalin,' and William Sydney Thayer has some 'Observations on the Blood in Typhoid Fever,' being an analysis of the examinations of the blood in typhoid fever made in the Johns Hopkins Hospital during eleven years.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 327th regular meeting was held on Saturday evening, November 3d.

Under the head of 'Notes' F. A. Lucas described a specimen of the buffalo-fish, recently received by the U. S. National Museum, which had no mouth, the bones of the jaws having failed to develop. The fish must have fed by means of the gill openings and had attained a weight of more than a pound when caught. W. H. Dall called attention to the discovery, by Mr. T. Wayland Vaughan, of a fossil coral reef in Decatur Co., Georgia. This reef, which was of Oligocene age, resembled the fossil reefs in the Island of Antigua and was noteworthy from the large number of species represented, the reefs of the Tertiary beds usually being poor in the number of species of corals.

Under the title, 'Insects affecting Cotton,' L. O. Howard, following the 'symposium on cotton,' which occupied the last meeting of the Society, made some observations on the principal insect enemies of the plant. He presented accounts of *Aletia xylinà*, *Heliothis armiger*, *Dysdercus suturellus*, and *Anthonomus grandis*, noting various outbreaks of these pests and describing their habits, transformations and the remedies employed.

Henry James spoke of 'Recent Progress in Forestry,' saying that the great obstacles to improvement in the management of forests in America were first, from the point of view of a forester, the new trees and conditions which have made the application of European methods in this country impossible, and, second, the almost total lack of examples of successful forest management.

During the last two years, however, this condition of things has greatly improved. The offer of the Division of Forestry, through the Department of Agriculture, to examine forest tracts and prepare 'working plans' for their management free of charge, has been taken advantage of on every side; and it has thus been made possible for the division to give object lessons in forest management in many parts of the country, and to gain knowledge and experience in a most practical way. In New York, for instance, a working plan is now being prepared for a part of the State Forest Preserve in the Adirondacks. On the Pacific coast the day of conservative lumbering is being brought nearer by investigations of the habits of growth and reproduction of some important lumber trees. These are making it clear among other things that the Red Fir and the Redwood reproduce more easily and will grow to a merchantable size much sooner than has hitherto been supposed. Similar observations are being made in other parts of the country, and interest in forestry is everywhere spreading rapidly. This is partly because people are realizing the importance of ample forest resources and a steady supply of water, partly because foresters can more often get down to terms which appeal to practical landowners. It means that soon many States will be following the example of Indiana, Pennsylvania and one or two others in taking hold in earnest of such important problems as those relating to protection from fire and reform in forest taxation. Forestry is appearing daily as something practical and desirable to more and more owners of forest land and voters generally who shape legislation.

M. W. Lyon presented some 'Notes on the Zoology of Venezuela,' stating that he spent the months of July and August in that country in company with Lieut. Wirt Robinson, collecting zoological material, especially the mammals. On the way down one day was spent at the interesting island of Curaçao, a few miles from the South American mainland. The mammal fauna of this dry and rather barren island consisted of several species of bats and a rabbit. Of the former eight are known to be peculiar, but related to the mainland forms, although one genus, *Leptonycteris*, has never been taken nearer than Central America. We are indebted to Mr. Guthrie, in the United States Weather Bureau Service, for our knowledge of Curaçaoan bats.

On the continent, collecting was confined to the vicinity of La Guaira, at the base of the extensive range of mountains that border the northern coast of South America. The first few hundred feet of hills about La Guaira are remarkably dry and covered with scrubby trees and bushes, agaves and post-cactuses, but at higher elevations where the moisture is greater is an abundant growth of tropical trees, shrubs and vines. The fauna of the dry region is quite different from that higher up, and consists principally of certain species of birds and lizards. Mammals, as well as more or less characteristic birds and reptiles, are apparently confined to the better wooded regions, or in the narrow valleys that the mountain brooks make on their way to the sea. There are no rivers in the neighborhood. Diligent trapping does not result in the numerous small mammals, as in temperate regions or certain places in the tropics. Bats are abundant in species and individuals, and may be found roosting in dense trees, in houses, or in the few small so-called caves in the region. Among the more interesting ones are disc-bats, of the genus *Thyroptera*, with a sucking disc near each wrist and ankle joint, by means of which it can adhere to and move over smooth surfaces as glass, in the manner of a fly, and the vampire, a moderately sized bat with a special dentition and alimentary canal for drawing blood from animals and digesting it. The native or spiny rat, *Loncheres*, while belonging to an entirely different section of the rodents, shows a striking external resemblance to the house rats found about the towns and brought in with the advent of the Europeans. Several other rodents occur and four species of opossums are found, including one of shrew-like form and habits, of the genus *Peramys*.

F. A. Lucas spoke of 'The Deposit of Mastodon Bones at Kimmswick, Missouri,' saying that this extraordinary aggregation of bones and tusks represented hundreds of individuals of all ages and sizes. But a small portion of the deposit had as yet been worked, but from this had been obtained teeth and bones representing between two hundred and three hundred animals. The full paper will appear in SCIENCE.

F. A. LUCAS.

DISCUSSION AND CORRESPONDENCE.

THE RELATION OF THE NORTH AMERICAN FLORA TO THAT OF SOUTH AMERICA.

TO THE EDITOR OF SCIENCE: In the interesting article by Professor Bray on the relations of the North American Flora to that of South America, in your issue of November 9th (pp. 10–11), there are some geological assumptions which are so at variance with the information now attainable that it seems well to call attention to them. It is true that most of them are of ancient date and found more or less accepted in the literature, and that their erroneous character does not materially affect Professor Bray's botanical conclusions; moreover, the present state of our knowledge has been set forth in the annotations to a table of our Tertiary horizons which appeared in the 18th Annual Report, U. S. Geological Survey, Part II, pp. 323–348, 1898. Nevertheless, they are so confidently stated by Professor Bray that it is quite likely that they may be accepted by botanical students and others not especially conversant with geology, and prove less innocuous than in the present case.

In the first place, Professor Bray has been misled by the long continued practice of authors in referring the basal Middle Oligocene of Central America and the West Indies to the Miocene. It was during this period that Central America formed a series of islands and the lagoon islets of south Florida first appeared above the sea. During the Miocene, however,