of three ice ages at widely separated times. The Permian glaciation is already fairly well known. Of the other two, one is probably Devonian, the other Archean. The field evidence is said to be convincing. 'The Texture of Igneous Rocks' is taken up by Whitman Cross, J. P. Iddings, L. V. Pirsson and H. S. Washington. They attempt to make the classification according to textures more systematic, and to get rid of the prevalent vagueness and inexactness. Terms with exact meanings are proposed and the whole put into systematic shape. 'Natural Mounds' is the title of an article by Maurius R. Campbell. The mounds occur on flat surfaces and are low and broad, and very symmetrical. They vary from 10 to 140 feet in diameter and from a few inches to 5 or 6 feet in height. They are of very wide occurrence. Various hypotheses of origin have been offered, but many of them have little foundation. Of eleven possible modes of origin the writer eliminates all but the one which ascribes them to burrowing animals—ants or rodents. The subject of 'Rock Folds due to Weathering' is taken up by the same author. He shows how great the expansion is in ordinary weathering and how this often forces the surface rocks to buckle. 'The Geology of the Lower Amazon Region' is based upon Katzer's work and that of some others and was written by Charles Schuchert. As the title indicates, it is a discussion of the general geology and stratigraphy of the region and adds considerably to our knowledge of Brazil. The Devonian and Carboniferous are discussed in considerable detail, and lists of fossils given for correlation. The last article is by George Davis Louderback on 'The Relation of Radioactivity to Vulcanism.' The important bearing of the recently developed knowledge of radioactivity on the problems of the geologist is shown and discussed in some detail. The writer believes that while much of the interior heat of the earth may be explained by radioactivity, the special phenomena of volcanoes may not be so explained.

The Journal of Comparative Neurology and Psychology for November contains the following articles: 'The Mode of Connection of the Medullated Nerve Fiber with its Cell Body,' by Oliver S. Strong. A plate is given illustrating the form of the axone between the cell body and the medullary sheath. 'On the Centers for Taste and Touch in the Medulla Oblongata of Fishes,' by C. Judson Herrick. Fishes like the catfish which detect their food by the simultaneous action of both taste and touch in the barblets and outer skin offer an interesting problem in the examination of the centers of correlation within the brain for these diverse sensory tracts coming from the same cutaneous areas. The analysis of these centers in the medulla oblongata of Ameiurus shows that the gustatory nerves from visceral surfaces effect the usual secondary connections with the visceral musculature, but those gustatory nerves which come from the outer skin make their secondary connections with the primary tactile centers in the funicular nuclei, so that a common efferent path from the latter correlation center serves for both senses. 'Modifiability of Behavior in *Hydroides dianthus* V,' by Ada Watterson Yerkes. The experiments show that this annelid worm readily learns by experience. Two short papers on the 'Behavior of *Gonionemus*' are contributed by Max Morse and Robert M. Yerkes respectively. An editorial on the relation of the newer work of the American school of comparative neurologists to human neurology and a few book reviews complete the number.

SOCIETIES AND ACADEMIES

THE GEOLOGICAL SOCIETY OF WASHINGTON

AT the 182d meeting of the society on November 14, Mr. F. E. Wright presented informally the results of a comparative study of various methods in use for determining the relative quantities of mineral constituents in rocks.

The meeting was devoted to an account of the Tenth International Geologic Congress, held in Mexico City, September 7 to 14, 1906.

Mr. GEORGE OTIS SMITH described 'The Excursion before the Congress.'

Mr. S. F. EMMONS: 'The Excursion to Jorullo.'

Mr. G. F. BECKER: 'The Sessions in Mexico City.'

Mr. T. W. STANTON: 'The Excursions after the Congress.'

At the 183d meeting of the society, held on November 28, Mr. Geo. H. Ashley exhibited a diagram illustrating the occurrence of contorted shales lying below a massive sandstone in relatively flat-lying rocks, suggesting that this effect may have been produced by the action of gravity subsequent to erosion. Mr. M. R. Campbell and Mr. G. C. Martin expressed the opinion that such structures are more likely to have originated as a result of folding prior to the deposition of the overlying strata.

Mr. Geo. B. Richardson exhibited specimens of fossil bones collected in October, 1906, at Rous' gravel pit in the northern part of El Paso, Texas. The remains, comprising teeth of a mammoth and a horse and the jaw bones of a tapir, had been secured and identified generically by Mr. Walter Koch, who presented them to the speaker. They have since been determined by Mr. J. W. Gidley of the U. S. National Museum to represent the following forms: *Elephas columbi, Equus complicatus* and *Tapiris (haysii?)*. The bones were found in cross-bedded sand and gravel at two horizons, thirty and sixty feet below the surface of a hill, an erosion outlier of the bolson plain which lies at the base of the Franklin Mountains.

The find is of particular interest because it indicates the age of at least part of a great mass of unconsolidated beds adjacent to the valley of the Rio Grande, and furnishes another link in the long chain of evidence of a moist climate during the early Quaternary in the Cordilleran region. Deep well records show the presence of over 2,200 feet of unconsolidated material in the vicinity of El Paso, but whether all of this is Quaternary or the basal part is Tertiary remains to be determined.

In the discussion Mr. W. T. Lee mentioned the occurrence of the teeth of a Pleistocene species of *Equus* thirty miles northwest of El Paso, in beds formerly called Miocene, and Mr. C. A. Fisher reported similar fossils from the Pecos Valley.

Regular Program

The Geological Map of North America: Mr. Bailey Willis.

This map will be issued with the Comptes Rendus of the International Geological Congress held in Mexico City, September 7 to 14, 1906. It is further planned by the U. S. Geological Survey to issue a revised edition with descriptive text.

The Elevated Beaches of Labrador: M. L. Fuller.

The speaker reviewed the work of Bell, Packard, Low and Daly on the raised beaches and terraces of the Labrador coast, noting the doubt which a recent trip threw upon certain postulations of change of level based on some of the beaches and terraces. Some of the sea caves appear to be the result of weathering agencies rather than of marine erosion, while a great majority of the rock benches are manifestly due to differential subaerial erosion controlled by normal and concentric jointing and modified by glaciation. The preponderance of the beaches along the sides of the fiord-like inlets, and their eastward slope in certain instances, lead the speaker to consider some of them, at least, to be possibly due to causes other than marine erosion, representing, for instance, accumulations of the morainal terrace type along the sides of valley ice lobes during the closing stages of the last ice invasion. The method employed by Daly—the determination of the lowest limit of undisturbed glacial erratics—is recommended to future investigators as a more reliable means of determining changes of level than observations on the so-called beaches.

The Colorado Desert and Salton Sea. M. R. Campbell.

Discussed from the standpoint of engineering by Mr. E. W. Parker.

At the 184th meeting of the society, held on December 19, Mr. George P. Merrill, the retiring president, presented an address, illustrated by lantern slides, entitled "The Composition and Structure of Meteorites compared with those of Terrestrial Rocks."

At the close of Mr. Merrill's address the fourteenth annual meeting of the society was held for the purpose of electing officers, and the following officers were elected for the ensuing year.

President—Mr. Waldemar Lindgren.

Vice-Presidents—Mr. M. R. Campbell, and A. H. Brooks.

Secretaries—Messrs. F. E. Wright and Ralph Arnold.

Treasurer—Mr. Joseph A. Taff.

Members at Large of the Council—F. L. Ransome, T. W. Stanton, George H. Ashley, E. O. Ulrich, George B. Richardson.

ARTHUR C. SPENCER,
Secretary

DISCUSSION AND CORRESPONDENCE

THE CARNEGIE FOUNDATION

TO THE EDITOR OF SCIENCE: I am sorry to conclude, after a perusal of the last number of SCIENCE that has reached me (October 26, 1906) that everything is not going just right everywhere just now. My grief is greatly softened, however, by the fact that the columns of that always instructive and sometimes entertaining journal seem to be pretty 'wide-open' to people who 'object.' I can hardly tell what a boon this will be to some of us whose activities are now mostly restricted to some form of mild and, I trust, inoffensive 'kicking.'

I have been waiting for some months for somebody to enter a protest against the phraseology of the published notices of the awards of pensions from the 'Carnegie Foundation for the Advancement of Teaching.' As the same 'peculiar wording' has been used in every such notice that I have seen, I infer that it must have been purposely selected and formally adopted by some one. 'The retirement of Professor ——— *is made possible*' (the italics are mine) by the action of the trustees of the Carnegie Fund, etc.

When I first read this phrase in the announcement of Dr. Harris's retirement from the Bureau of Education I thought it only an amusing oversight, a bit of ill-considered composition, or a case of 'the types made us say'; but when I read it later of Professor Morley and again of Professor Dolbear (I think) I saw that some other than the printer's devil was having a hand in it. For in my humble and far-away judgment the italicized words, as applied to the retirements named above, are about the most infelicitous that a diabolical ingenuity could select. To one who doesn't know the man or his work, or the big place he fills in the 'educational heart' of the great republic, the words clearly imply that the president, and everybody else, for that matter, have been wanting for years to retire Dr. Harris, but that it was impossible to get rid of him until the Carnegie fund came to the rescue. One must conclude that through the same beneficent charity Western Reserve University is now relieved of Professor Morley, the most distinguished member of its faculty; and that Tufts breathes again, free from the incubus of Dolbear. I am not holding the trustees of the Carnegie fund responsible for these words nor am I questioning their singular appropriateness in *the majority of cases with which the trustees will have to deal,* but to the inventor of the phrase, whoever he may be, I submit that there ought to be an alternative, for use when the above seems to be not just the right thing to say—something that will not mislead the intelligent but uninformed reader.

About a quarter of a century ago it was my pleasure to sit through several sessions of the physical section of the British Association, presided over by Lord Kelvin. Following the usual English practise, he always said a few words after the presentation of each paper, conveying the thanks of the section to its author. The custom is often purely formal and generally the words have little real meaning, but it was delightful to see that the distinguished chairman, following his natural leaning towards 'precision,' had devised two expressions, quite similar in form but, to a reflective listener, very different in meaning, which he made use of as judgment dictated, in the discharge of this part of his duty as presiding officer. In one case he would say, "I am sure the section will join me in thanking Mr. ——— for his most interesting and important communication on this subject," while in another it would be, "I am sure the section will join me in thanking Mr. ——— for his communication on this *most interesting and important subject.*"

Can not the editor of the Carnegie pension