By some unaccountable error Professor Dodge represents the foveal and macular fields of regard as less than one fifth their actual size, as calculated by the present writer upon data given by Helmholtz and Kölliker. While the author was evidently influenced by this mistaken notion of the relation between the central and peripheral fields, his main contentions are probably not invalidated by the error. The failure to state the reading distance, in his measurements of the effects of peripheral stimulation upon speech reactions, greatly lessens the value of these data to other experimenters.

In spite of errors, however, the article's positive contribution is important, and there are several clever minor experiments which deserve recognition did space permit.

Edmund B. Huey
Western University of Pennsylvania

SCIENTIFIC JOURNALS AND ARTICLES

The Zoological Bulletin of the Pennsylvania Department of Agriculture for December, 1907, is devoted to the lizards of Pennsylvania, a somewhat brief topic, since only five species occur in the state. Besides the keys to genera and species, and detailed descriptions, there is a study of the food, based on the examination of as many stomachs as were available. The showing is favorable to the lizards as friends of the farmer. The paper is prefaced by a discussion of lizards reported in the human stomach, and it is hoped that this may do something to counteract the very common belief that such cases actually occur.

The Museums Journal of Great Britain for January has a good paper, by H. C. Sorby, "On the Preservation of Marine Animals with their Natural Color." The best results were obtained by the use of anhydrous glycerine, in some instances a layer of almond oil being placed on the top of the glycerine. Sponges, sundry worms, mollusks and fishes subjected to this treatment retained their colors perfectly at the end of seven years. Alex. Hutcheson describes "An Early Dundee Museum," and O. Gylling, in reply to a criticism by Mr. Bather, explains that the unpleasant features of certain groups in the Malmo Museum are due to the principle of showing the animals in characteristic situations, or when displayed in traps, as an incident of their extensive utilization by man. The balance of the number is devoted to reviews and notes. Among these last is one in which Professor Ray Lankester attacks "Newspaper Natural History" with a seriousness that raises a smile. Incidentally, Professor Lankester commits an error himself in saying that "*Elephas columbi* and the mammoth are as nearly as possible of the same size," for *E. columbi* stood a foot to eighteen inches taller than his northern relative.

The Bulletin of the Charleston Museum for March gives a "Synopsis of the Bird Records of the Natural History Society for the Year 1907."

The Museum News of the Brooklyn Institute is mainly devoted to articles on the libraries of the Central and Children's Museums. The former is a reference library of art, ethnology and natural history, the latter is somewhat unique, for, in addition to being for the use of the staff, it acts as a school reference library for teachers and pupils, endeavors to supply information to the general public, and seeks to interest school children in the various subjects included in the scope of the museum.

The Free Public Library of New Bedford has just issued a catalogue of its "Collection of Books, Pamphlets, Log Books, Pictures, etc., illustrating the Whale Fishery." It is particularly rich in log books, and these should contain much information regarding the distribution and former abundance of whales. The collection has been largely increased since the issue of the catalogue.

The contents of the December issue of *Terrestrial Magnetism and Atmospheric Electricity* are as follows:

Portrait of Maurits Snellen—Frontispiece.

"The Penetrating Radiation," by W. W. Strong.

"Helwan Magnetic Observatory, Egypt," by B. F. E. Keeling.

"Results of Magnetic Observations made by the United States Coast and Geodetic Survey at the

Time of the Total Solar Eclipse of August 30, 1905," by O. H. Tittmann.

"Preliminary Note on an 'International Magnetic Standard,'" by L. A. Bauer.

"The Life and Work of Maurits Snellen," by E. van Everdingen.

"Die Magnetische Observatorien des Preussischen Meteorologischen Instituts," by Adolf Schmidt.

"Mean Values of the Magnetic Elements at Observatories," compiled by J. A. Fleming.

Letters to Editor: "Principal Magnetic Storms recorded at the Cheltenham Magnetic Observatory," by O. H. Tittmann; "Concerning Publication 'Caractère magnétique de chaque jour,'" by E. van Everdingen.

SOCIETIES AND ACADEMIES

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 645th meeting was held February 15, 1908, President Bauer presiding.

Professor Simon Newcomb read a paper upon "The Climate of Mars."

The establishment of Stefan's law of radiation, as proportional at ordinary temperatures, to the fourth power of the absolute temperature, makes possible an estimate of the temperature of an opaque planet more reliable than was possible formerly. Christiansen, Poynting and Lowell have applied the law to estimate the temperature of Mars. The speaker stated that the method in which these investigators had made their results to depend upon the albedo of the planet, and the absorbent power of its atmosphere did not seem to him well adapted to the case. He based his own conclusions upon Kirchhoff's law of the equality between radiating and reflecting power of matter for each separate wave-length of heat, which law is, itself, a corollary from the second law of thermodynamics. Making abstraction of an atmosphere, there is a certain normal temperature of a planet which would be independent of this albedo, except when the latter was different for different parts of the spectrum. The effect of this difference is probably small. Assuming Mars to reflect the lower rays of the spectrum more strongly than the higher ones, there would be somewhat higher temperature than the normal one. The effect of an atmosphere like ours would be to make the planet rather warmer than the normal. This effect would be produced in two ways, one of which is the effect of absorption by the sun's heat which mix up the lower strata with the higher one. This results in the earth being warmer than it would be in the absence of an atmosphere. Since Mars has only an extremely thin atmosphere, the effect in raising its temperature is much less than in the case of the earth.

As the result of his estimates it was said that, in general, the surface of Mars must be in general below the freezing point of water except in the equatorial zone. It does not seem possible that the polar regions can ever rise to the temperature of melting ice. Before approaching this temperature the radiation, as given by Stefan's law, would exceed the heat absorbed from the solar radiation so that a fall of temperature should be the result. The disappearance of the white polar caps is easily accounted for through evaporation of ice at the lowest temperatures, especially under so small an atmospheric pressure as prevails on Mars.

The second paper of the evening was presented by Dr. C. G. Abbot, of the Smithsonian Astrophysical Observatory, upon "The Variability of the Sun."

If two observers at opposite sides of the earth, and greatly different altitudes, should both determine the intensity of solar radiation at mean solar distance by a process sound in theory, and both should decide independently that the average value of the "solar-constant" is 2.10 calories per square centimeter per minute, but that on March 1 of a certain year it was 2.20 while on March 1 of the following year it was but 2.00—then it is probable that interest and support would be forthcoming to push the task of "solar-constant" determination steadily and perseveringly enough to determine the extent and character of the sun's variation.

The evidence of solar variation thus far attained is not so strong as this, but is strong enough to warrant a persevering study of the subject. Measurements on Mount Wilson in