structed account of the award made by the Paris Committee, the preparation of which must have cost the writer no small effort. So skilfully, however, are the words selected and the phrases arranged that, to one unfamiliar with the facts, the note appears to be a simple and straightforward statement that in declaring the award the Committee announced that it had found two memoirs of equal value and that it was decided to award a prize of 5000 francs to each, the collection of the additional money being the cause of the delay in the publication of the decision of the Committee. In the account of the affair in a recent number of SCIENCE it was pretty clearly stated that the memoir prepared by an American, Dr. Webster, of Clark University, had been adjudged by the Committee to be worthy of first place.

In order that every reader may be able to decide this matter for himself, the following quotations from the report of the Committee are submitted: Memoir 3 was that to be the work of Messrs. Oliver Lodge and R. T. Glazebrook, and No. 4 was that of Dr. Webster.

"Le n° 3 est consacré à la vérification de la formule donant la période des décharges oscillantes d'un condensateur. C'est un travail considérable, accompagné de plusieurs photographies et dans lequel l'auteur a cherché, au moyen de calculs approfondis, à évaluer toutes les corrections inhérentes à l'emploi de sa méthode.

"La vérification n'est qu'approachée; le principe de la méthode pourrait donner lieu à quelques critiques, le circuit de la décharge se fermant périodiquement par une étincelle qui introduit des perturbations impossibles à prévoir.

"Le mémoir n° 4 port sur le même sujet, étudié par une méthode nouvelle dans ses détails, qui a permis à l'auteur d'atteindre et de mesurer des périodes de quelques centmillièmes de seconde. L'influence des principales causes d'erreur paraît très atténuée, bien qu'il reste encore quelques doutes sur l'influence de la capacité inhérente à la bobine de self-induction. La formule a été vérifiée a 1 pour 100 prés. Le temps a fait défaut à l'auteur pour compléter ses recherches en variant les conditions de ses expériences."

And then the following award from the 'procès-verbal' of the Commission:

"La Commission estime que le mémoire n° 4 est digne de recevoir le prix établi par le Professeur Elihu Thomson; elle espére que ce témoignage encouragera l'auteur à continuer ses belle recherches.

"'Toutefois elle regrette de ne pas avoir à sa disposition deux prix d'égale valeur qu'elle serait heureuse d'attribuer aux mémoires n° 3 et n° 4.'"

A literal translation of the above, as a fair statement of its meaning is, perhaps, too much to look for in the columns of 'Nature,' but it is a pleasure to assure Messrs. Lodge and Glazebrook, whose names are 'household words' in every corner of this country, that their reputation is not such as to need bolstering by any oblique methods. M.

SCIENTIFIC LITERATURE.

Monographic Revision of the Pocket Gophers, Family Geomyidæ (exclusive of the Species of Thomomys). By DR. C. HART MERRIAM. North American Fauna, No. 8. Washington, Government Printing Office. 1895. 8vo, pp. 258, pll. 18, with 4 maps and 71 cuts in text.

In this memoir Dr. Merriam has produced an admirable piece of monographic work, setting a standard that may well be aimed at by other workers in the treatment of similar groups. The family Geomyidæ, or the Pocket Gophers, has hitherto been regarded as consisting of the two genera *Geomys* and *Thomomys*, only the first of which is here treated. It is a distinctively North American group, ranging from the

dry interior of British Columbia and the plains of the Saskatchewan to Costa Rica. The regions occupied respectively by the two groups, however, do not to any great extext overlap, *Thomomys* occupying in the United States the area west of the Great Plains, and the *Geomys* group the region between the Mississippi River and the eastern base of the Rocky Mountains, with outlying representatives in northern Florida and the contiguous portions of Alabama and Georgia. In Mexico *Thomomys* ranges over the peninsula of Lower California and a large portion of the interior of Mexico, which latter region it shares with numerous forms of the *Geomys* group, now broken up by Dr. Merriam into no less than nine genera. These collectively not only occupy a large part of central and southern Mexico, but extend as far southward as Costa Rica.

In respect to material Dr. Merriam has been especially fortunate, having availed himself of opportunities at his disposal as Chief of the Division of Ornithology and Mammalogy of the United States Department of Agriculture, to bring together material from a wide area and in an abundance scarcely dreamed of by any previous monographer of the group. Of the one thousand specimens thus rendered available for study, over two hundred are from Mexico and Central America, from which area the specimens previously handled by investigators could be counted on the fingers of the two hands. Hence not only has the known area inhabited by these animals been greatly extended, but the harvest of specimens has yielded novelties not previously suspected to exist.

Only about one-half of Dr. Merriam's excellent memoir is given to the systematic descriptions of the genera and species, the first hundred pages being devoted to the generalities of the subject—habits, function and structure of the cheek pouches, food, sexual and individual variation, geographical distribution, etc., about 15 pages—and to chapters on the morphology of the skull (30 pages) and the dental armature (36 pages). Nearly seventy of the text figures and six plates relate to the structure of the skull and teeth, this profusion of illustration greatly facilitating a clear comprehension of the points discussed in the text, and forming a most important feature of the work.

In coloration, size and in external details generally, the species of Geomyidæ are very much alike. There are, however, large forms and small forms, between which there is a wide difference in size, and also forms that are normally plumbeous instead of the usual shade of yellowish brown, but in general, even for the discrimination of species, resort must be made to structural details of the skull and teeth, which often afford characters of importance where external differences are nearly inappreciable. The range of variation in cranial and dental characters is so great, in these animals which look so much alike externally, that Dr. Merriam has felt justified in separating the old genus *Geomys* into nine groups which he thinks should rank as genera, 'several of which' he says, 'are of supergeneric value.' These genera are *Geomys*, *Pappogeomys*, *Orthogeomys*, *Cratogeomys*, *Platygeomys*, *Orthogeomys*, *Heterogeomys*, *Macrogeomys* and *Gygogeomys*. While these are apparently natural groups, doubtless taxonomers will differ as to whether all are entitled to full generic rank.

In 1857 Baird recognized seven species of *Geomys*, of which six retain place in Merriam's list. In 1877 Coues, in his monographic revision of the genus, admitted five. During the last two years others have been described, raising the number currently admitted in 1894 to sixteen. To this number Dr. Merriam here adds twenty-one, raising the total of species and sub-species to *thirty-seven!* Only the genera *Geomys*

and *Cratogeomys* are represented in the United States; the former, with seven species and five sub-species, scarcely extends across our southern border; the latter, with seven species and one sub-species, is mainly Mexican, one species, however, ranging northward over southeastern New Mexico and northwestern Texas. *Macrogeomys* is known only from Costa Rica; *Heterogeomys* and *Orthogeomys* occupy separate areas in southern Mexico and Guatemala; *Pappogeomys*, *Platygeomys* and *Zygogeomys* occur in central and western Mexico, the latter being known only from a very restricted area in the State of Michoacan.

The chapters on the Morphology of the Skull and the Dental Armature bring into strong relief many points in relation to changes of structure, due to age and growth, which have heretofore been only lightly touched upon, and especially the influence of the masseter muscle upon the general shape of the skull in adult life. The facts here presented may well be studied with care and profit by students of not only the mammals of to-day, but of the extinct forms as well. The skull is considered not only as a whole, but its individual bones are treated in detail, with cuts showing the skull sectionized, and young skulls in comparison with old ones of the same species. The memoir thus illustrates some of the best work and the tendencies of the 'new school' in recent mammalogy. In fact, no similar group of mammals has before been treated in such exhaustive detail, or from a morphological standpoint, or with such admirable profusion of illustration.

J. A. ALLEN.

AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK.

The Planet Earth. RICHARD A. GREGORY, 16 mo, pp. 108. Macmillan & Co., New York. Price 60 cents.

This little book is called 'An Astronomical Introduction to Geography.' In the preface the reader is promptly informed that in class books on Astronomy and Geography the subject of the earth considered as a planet is treated inadequately and unscientifically. The author expresses his hope that his treatment, which, by inference, is both adequate and scientific, may be the means of reviving the 'Observational Astronomy of pre-telescopic times.' Just why the telescope should be tabooed, or why it is less 'scientific' than strings with beads strung on them, does not clearly appear. It is quite evident, however, that the author wishes to restore what is sometimes called the 'historical' method of presentation and instruction, according to which the student is expected to traverse the path along which mankind has slowly toiled in order to reach conclusions which in the present state of our knowledge are often quickly attained by perfectly logical processes. There is, also, generally involved in this method, the erroneous assumption that a student can, in the short time available for his training in science and scientific methods, re-discover for himself all the great facts and principles which are the fruit of ages of intellectual activity, if only he has a few simple appliances at hand and is started in the right direction. This is a very large error, and it is not desirable to pursue it farther at this point. Admitting, therefore, and no one will venture to deny this, that much can be learned by a proper study of the apparent motions of the heavenly bodies, and that young people should be led to make such study before finishing or even beginning their study of the earth, as it is presented in the so-called unscientific treatment in Astronomy and Geography, it is yet extremely doubtful if the book now under consideration will be of real value to them.

The first chapter, which forms a considerable part of the whole, is devoted to 'the constellations.' The continued fixedness of