SCIENCE

FRIDAY, JUNE 15, 1900.

CONTENTS:

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE APPROPRIATIONS FOR THE DEPARTMENT OF AGRICULTURE FOR 1901.

THE Congressional Act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1901, shows an increase of more than $280,000 over the appropriations for the preceding year. The total amount is $4,023,500 of which $720,000 is for the experiment stations in the 48 States and Territories, $12,000 for the stations in Alaska, $10,000 for a new station in Hawaii, 'including the erection of buildings, the printing (in the Hawaiian Islands), illustration and distribution of reports and bulletins, and all other expenses essential to the maintenance of said station,' and $5000 for an investigation and report to Congress on the Agricultural resources and capabilities of Porto Rico, "with special reference to the selection of locations for agricultural experiment stations and the determination of the character and extent of agricultural experiments immediately demanded by the conditions of agriculture in that Island; to prepare, print publish and distribute in Porto Rico, circulars of inquiry and bulletins of information in the English and Spanish languages."

The sum of $10,000 was appropriated for the purpose of commencing the necessary improvements for the establishment and maintenance of a general experimental farm and agricultural station on the Arlington Estate, on the Virginia shore of the Potomac.

valuable class and laboratory instruction as he reports its use for five years with success.

J. E. G.

The Living Organism. An Introduction to the Problems of Biology. By ALFRED EARL. London, Macmillan & Co. 1898. Pp. xiii + 271.

This book gives the too wordy reflections upon biological phenomena of an author who seems to have a fair general acquaintance with biological principles, but no very extensive knowledge of biological facts. The consequence is a book which is philosophical in form, discusses biological phenomena in an extremely general and abstract way, contains few errors, but, on the other hand, has little of suggestiveness for the advanced biologist. The style is flowing, but often obscure; and after reading a few pages one wearies of the pedantry which clothes well-known and simple ideas in a heavy blanket of abstract verbiage. Thus, the fact that organisms assimilate is put (in Italics) thus: "Both animals and plants depend for their continued existence upon certain material which is absorbed and changed in properties by contact with the living body." This is typical (p. 227): "The remarkable constancy of the living form, one of its distinctive signs, even when united in thought with the ceaseless occurrences tending to disturb that form, gives no positive indication of other than physical agents. Indeed, it is only by a just apprehension of everything that concerns or affects the organism, in other words, by a due regard to external changes as well to the more prominent activity of the organism, that it is possible to gain coherent knowledge of the fact known as life." We must conclude that the book contains little of importance for the working biologist.

C. B. DAVENPORT.

SUTER'S HAND-BOOK OF OPTICS FOR STUDENTS OF OPHTHALMOLOGY.

This little book, as its title implies, contains such small portions of geometrical optics as may be useful directly to a certain limited class of students. Like all fragmentary text-books, it suffers under the difficulties of such special treatment. Many important portions of the subject are omitted or barely mentioned, and only those are developed in detail which appertain directly to the object in view. Thus the introductory and general portions, including the general treatment of refraction, are condensed almost to obscurity, and, considered as demonstration, are incomplete. Refraction through spherical surfaces is much more satisfactorily handled, and is succeeded by an excellent chapter on lenses, following in general the methods of Gauss. In both these chapters the use of algebraic signs is somewhat arbitrary and inconsistent. The principles thus expounded are then applied to the eye as an optical instrument, both in its normal condition, and in connection with the spectacle lenses used to correct its errors of refraction. These chapters form, as was to be expected, the most important part of the book. They are clear and instructive, and well illustrated by numerical examples. They are followed by discussion of cylindrical lenses, and prismatic glasses. The final chapters on the ophthalmoscope are too brief to be of great practical benefit.

The whole presentation of the subject is adequate to its immediate purpose, though the rare student of ophthalmology who has enough interest in the optical side of his work really to profit by this book would find it much more to his advantage to read instead a larger and more complete treatise.

FRANK P. WHITMAN.

BOOKS RECEIVED.

Memoirs Presented to the Cambridge Philosophical Society on the Occasion of the Jubilee of Sir GEORGE GABRIEL STOKES, Bart, Hon, LL.D., Hons. ScD. Lucasian Professor. Cambridge, at the University Press; New York, The Macmillan Company. 1900. Pp. xxviii + 447 and twenty-five plates. $6.50.

Papers on Mechanical and Physical Subjects. OSBORN REYNOLDS, F.R.S. Cambridge, The University Press; New York, The Macmillan Company. 1900. Vol. I, pp. xv + 416. $5.00.

An Introduction to the Study of the Comparative Anatomy of Animals. GILBERT C. BOURNE. London, George Bell & Sons; New York, The Macmillan Company. 1900. Vol. I, pp. xvi + 269. $1.10.

Zoological Results, based on material from New Britain, New Guinea, Loyalty and elsewhere, collected during the years 1895, 1896 and 1897. ARTHUR WILLEY. Cambridge University Press;

New York, The Macmillan Company. 1900. Part IV, pp. viii + 354–530, plates xxxiv–liii. 21s.

Biological Lectures from the Marine Biological Laboratory at Woods Holl, 1899. Boston, Ginn & Company. 1900. Pp. 282.

SCIENTIFIC JOURNALS AND ARTICLES.

The American Naturalist for May, opens with a detailed account of 'Marine Biology at Beaufort,' by H. V. Wilson, calling attention to the advantages of this locality as a field of research. J. G. Needham describes 'The Fruiting of the Blue Flag (*Iris versicolor* L.)' noting the effect of civilization in altering its environment. Chas. W. Hargitt presents 'A Contribution to the Natural History and Development of *Pennaria tiarella* McCr.' and R. W. Shufeldt reviews 'The Ornithological Results of the Polar Expedition under Dr. Nansen.' The ninth part of 'Synopses of North-American Invertebrates' is by Nathan Banks, and is devoted to 'The Scorpions, Solpugids and Pedipalpi.' There are numerous reviews of recent literature.

Bird Lore for June has for its leading article, a comparison of 'Song Birds in Europe and America' by Robert Ridgway, which is very favorable to our native birds. William L. Baily describes 'The Kingfisher's Home-Life,' with illustrations of the young at different ages, and Laura G. Page has an article on 'Swallows and Feathers.' Florence Merriam Bailey tells 'How to Conduct Field Classes,' and there is a notice of the course of 'Bird Study at Wood's Holl Marine Biological Laboratory.' There are some interesting notes, and in the Audubon Department an important agreement of the members of the Millinery Merchants Protective Association regarding the importation, manufacture and sale of North American birds, by which the Association agrees not to use any more North American birds after the stock on hand is exhausted, in return for which the Audubon Society and Ornithologists Union are to do everything in their power to prevent the passage of laws interfering with the manufacture and sale of ornaments made from the plumage of barnyard fowl, edible birds, game in season and foreign birds.

SOCIETIES AND ACADEMIES.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

AT the meeting of the Academy of Science of St. Louis on the evening of May 23, 1900, the following subjects were presented:

A paper by Dr. Adolf Alt, entitled 'Original contributions concerning the glandular structures appertaining to the human eye and its appendages,' was presented by title.

Dr. M. A. Goldstein read a paper on 'The physiology of voice production,' in which he discussed three essential factors in the production of voice: the motor force, the organ of sound, and the resonators. The essential features presented may be summarized as follows: (1) All elements carefully considered, the best form of breathing applicable to voice production and singing is the rational combination of the costal with the diaphragmatic type. Reserve force in breathing is best attained by deep inspiration, fixation of the distended diaphragm and thorax, and control of these muscles while tone is produced. (2) To facilitate vocalization, the larynx should never be tightly contracted by the muscles of the throat, especially in the production of the registers. (3) On the resonating cavities, their proper conformation and position in relation to the vibrating cords and larynx, depend the quality and timbre of the voice, so that the careful and proper placing of tones is perhaps the most essential factor in voice production.

Professor F. E. Nipher read a short communication on the zero photographic plate, to which reference was made at the meeting of May 7th, and in his paper published as Vol. X., No. 6, of the Academy's Transactions.

The zero plate is one upon which a photographic image has been made, but which will develop no image in a bath placed in light of given candle power, at a distance of one meter from the source. For example, if the developing bath is twenty centimeters from a sixteen candle lamp, a Cramer isochromatic plate, such as is called 'instantaneous,' held for ninety seconds at a distance of one meter from the lamp, will be a zero plate. With an opaque stencil over the plate when placed in a printing frame, during the exposure, there will develop a positive of holes through the stencil, if the