SCIENCE

FRIDAY, JANUARY 4, 1901.

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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 NAVAL OBSERVATORY REPORT.

THE first impression of our readers on glancing at the annual report of the Naval Observatory, of which the essential portions are reprinted in our columns, will be one of pleasure that the head of the Observatory has deemed it appropriate to review the conclusions of the board of visitors appointed by the Secretary of the Navy in 1899. But pleasure will be changed to disappointment at what the review omits. It maintains with an energy of expression quite unusual in an official paper that a majority of the board was hostile to the Observatory; that it failed to report on the main points submitted, and that the measures which it proposed are 'preposterous' and 'only ridiculous.' But not a word is said in reply to the destructive criticism of the management of the institution 'during almost the entire period of its existence,' which is one of the most important features of the report. Had these strictures been now heard of for the first time some reason might have been found for ignoring them. But they are little more than an echo of strictures emanating from or endorsed by Secretaries of the Navy, the National Academy of Sciences, at least one distinguished naval offi-

Pressure in Relation to the Diurnal Winds,' 'A System of Fundamental Constants and Formulæ and Reduction Tables,' 'The Theory of Cyclones and Anticyclones,' 'Discussion of the Cumulus and Cumulo-Nimbus Clouds,' 'Reduction of the Pressure and Temperature Maps at Sea-level, 3,500-foot Level, and 10,000-foot Level,' 'The Amount of Heat that would Convert an Adiabatic Atmosphere into the State Actually Existing.'

The reading of this report cannot be lightly undertaken. Indeed, the very completeness of it and the elaborate mathematical discussions which find a place in it, will undoubtedly prevent many persons from attempting to find out what the volume really contains. We do not wish to be understood as saying that work of the sort that Professor Bigelow has here given us is unimportant, or out of place in a thorough study of the observations with which he has had to deal. Far from it. But we cannot help feeling, and feeling strongly, that the observers of the Weather Bureau, both regular and voluntary, and the public generally, should have the chief results of the international cloud observations in this country put before them in a simple, compact form. We hope that the chief of the Weather Bureau may look at this matter in the same light, and may perhaps sanction the publication of a Weather Bureau *Bulletin*, of say 100 pages, in which the results of Professor Bigelow's painstaking research, which are of most general interest, may be set forth.

Professor Bigelow is to be congratulated on the completion of this report, which stands on a far higher plane than most of the meteorological work published in this country.

R. DEC. WARD.

Plane Trigonometry. By DANIEL A. MURRAY, Ph.D., Instructor in Mathematics in Cornell University. New York, London and Bombay, Longmans, Green & Co. 1899. Pp. xiii + 301.

The author has aimed to 'avoid the extremes of expansion and brevity.' Only such topics are fully treated as make up the usual course in plane trigonometry. The thickness of the volume is largely due to the presence of an appendix of historical and other notes, a long list of exercises for practice and review, a table of answers, a four-place and a five-place table of logarithms of numbers, a five-place table of logarithms of the sine, cosine, tangent and cotangent, a four-place table of logarithms (augmented) of trigonometric functions, and a four-place table of values of trigonometric functions. These components constitute little less than half of the book. The other and larger half contains an unusually full exposition of principles. The composition is throughout careful and scholarly. While acquiring a knowledge of the elements as here presented, the student can hardly fail to become aware of the larger aspects of the science.

As regards arrangement and disposition of matter, there is, of course, always room for difference of opinion. Doubtless many teachers would for example prefer to have the notion of the radian introduced at an earlier stage; and there are not wanting reasons of some weight for preferring to present the general ratio definitions of the functions in connection with the conventional system of coordinate axes boldly in the *beginning*, instead of reserving this most commanding point of view, as is here done, for so advanced a stage as Chapter V. However, in things pedagogical, *quot homines, tot sententiæ.*

It remains to say that while paper and typography are good, the book deserves to be more substantially bound.

C. J. KEYSER.

COLUMBIA UNIVERSITY.

BOOKS RECEIVED.

A de Bary's Vorlesungen über Bakterien. Edited by W. MIGULA. Leipzig, W. Engelmann. 1900. Pp. vi + 186. M. 4. 60 Pf.

Outlines of Human Physiology. F. SCHENK and A. GRÜBER, translated by Wm. D. ZOETHOUT with a preface by JACQUES LOEB. New York, Henry Holt & Co. 1900. Pp. viii + 339.

Leçons de physiologie expérimentale. RAPHAEL DUBOIS. Paris, G. Carré and C. Naud. 1900. Pp. vi + 380.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Journal of the American Chemical Society* for December contains the following articles: 'The Production of Alloys of Tungsten and of

Molybdenum in the Electric Furnace,' Charles L. Sargent; 'A Method for the Rapid Determination of Carbon in Steel,' Robert Job and Charles T. Davies; 'Determination of Iron in Magnetite Ore by the Specific Gravity Test,' Joseph W. Richards; 'Irregular Distribution of Sulphur in Pig Iron,' Randolph Bolling; 'The Composition and Analysis of London Purple,' J. K. Haywood; 'Detection of Foreign Coloring-matter in Spirits,' C. A. Crampton and F. D. Simons; 'A Rapid Method for the Detection of Aniline Orange in Milk,' Hermann C. Lythgoe.

THE December number (Volume 7, Number 3) of the *Bulletin of the American Mathematical Society* contains: 'Report of the October meet- of the Society,' by the secretary, 'On Linear Dependence of Functions of One Variable,' by M. Bôcher; 'Report on Groups of an Infinite Order,' by G. A. Miller; 'A Review of Ewing's Strength of Materials,' by Dr. Chas. Chree; 'A Review of Scheffer's Differential Geometry,' by J. M. Page; 'Notes'; 'New Publications.'

Popular Astronomy for January opens with an illustrated article by Miss Caroline E. Furness on the new 'Photographic Catalogue of North Polar Stars,' which has just been published from Vassar College Observatory. Professor Kurt Laves continues his discussion of the 'Adjustment of the Equatorial Telescope,' and Charles P. Howard his account of the 'Total Solar Eclipse.' Professor Francis E. Nipher's 'Positive Photography with special reference to Eclipse Work' is timely. Professor Herbert A. Howe, director of Chamberlin Observatory, of University Park, Colorado, begins his series of articles on astronomical books for the use of students. Professor Asaph Hall contributes a note on multiplication showing some peculiarly symmetrical results. The department of Astronomical Phenomena announces the eclipses of the coming year, and gives much space to news of comets, asteroids, etc. The number includes the usual general, spectroscopic and variable star notes, and W. W. Payne's second article on 'The Figure and the Attraction of the Earth.'

Nature announces that the Anthropological Institute will issue an anthropological journal to be entitled *Man*, which will appear monthly. Special attention will be given to the data concerning the origin of those forms of civilization which have become dominant.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 330th meeting was held on Saturday evening, December 15th.

F. A. Lucas exhibited the under portion of the skull of a large specimen of the gar pike, *Lepisosteus tristoechus*, showing fracture and repair of the sphenoid. He stated that this was a good example of the fact that many animals could successfully recover from very severe injuries, since in the present case the breaking of the sphenoid must have entailed severe injury to and deflection of the entire cranium, and yet recovery had taken place. C. W. Stiles spoke of 'Some Tropical Parasites that may be introduced by our Returning Troops,' saying that the present conditions in China where troops were gathered from many parts of the world were particularly favorable for the interchange of parasites that were ordinarily confined to certain areas. The conditions in Manila were also favorable for attacks of parasites and their subsequent introduction into this country. The speaker described the various species of parasites that might be met with, their structure, mode of reproduction, the manner in which they entered the system and their effect upon it, illustrating his remarks by diagrams. But one or two of these species it was pointed out, were really to be apprehended, and as most of them were taken through the medium of drinking water, the danger could be almost entirely obviated by boiling the water.

E. W. Nelson presented a paper on 'The Caribbean Seal,' saying that while this was the first seal met with by the early explorers of the New World, and was an animal of considerable size and former extensive distribution, it was one of the least known of North American mammals and not accurately described until 1884. The various accounts of this seal, from the time of its discovery by the sailors of Columbus up to the present time were briefly no-