This guide consists of an 'Introduction' of four pages on instruments and general directions followed by eleven pages on the 'Elements of Histology' and 269 pages on the various groups and types of animals.

The list of animals named for special study represents 76 genera and 83 species—a list that indicates the author tried to live up to the statement in the preface that the zoological laboratory of to-day does not simply offer a few local types for dissection, but rather constitutes a practical 'Repetitorium' of the fundamental facts of zoology.

The work is divided into 20 'courses' distributed among the nine phyla recognized as follows: Protozoa (pages 15), Platodes (7), Echinodermata (21) and Tunicata (14), each one course; Vermes (Bryozoa, Chætognatha, Annelida) (28), Mollusca (37) and Arthropoda (29), each two courses; Cœlenterata (43) four courses and Vertebrata (76) five courses. The first course is devoted to Elements of Histology.

Each course or group of courses is preceded by a 'Systematischer Ueberblick' of the phylum in which the classification is carried out to the orders and suborders. In this systematic epitome each category is more or less briefly characterized and one or two representatives are noted under each order or suborder. This is followed by a bit of technique, this by a general survey and this by the 'special course.' The treatment of the Coelenterata may serve as illustration of the plan. In this group the order is as follows: (1) 'Systematischer Ueberblick' of courses 3–6, (2) 3 Kursus (pp. 34–43). (3) Porifera. 'Technische Vorbereitungen.' (4) A. Allgemeine Uebersicht. (5) B. Specieller Kursus. (6) 4 Kursus (pp. 43–55). Hydroidpolypen. Technische Vorb., etc., as (4) and (5). (7) 5 Kursus (pp. 55–65). Tech., etc. (8), 6 Kursus (pp. 66–73). Anthozoa, Tech., etc. The general account of the phylum is brief and the 'special course' is a running account of the anatomy of the laboratory specimen with directions for dissection introduced whenever deemed necessary.

The reviewers experience is not favorable to the introduction of systematic and general surveys into a laboratory guide, and why a general account of a phylum should be preceded by a special technique is not clear to him. There are sound pedagogical reasons for logical order and for keeping a laboratory guide to its business.

As a laboratory guide for a beginner the book is not detailed enough and can hardly stand with such guides as those of Marshall and Hurst, Parker and others in English.

The illustrations, of which there are 172, are as a rule good. Quite a number of them, about 75, are original. Some of these could be improved. Figure 152, for example, would hardly assist a beginner in his search for the uterus or the bladder of the frog. It would also be uncertain work for a beginner to identify the ovary of a young frog either by the figures or the descriptions. On the whole, however, the original figures are good and welcome. The typographical work is of course neat, clean and agreeable —for it comes from the establishment of Gustav Fischer.

Henry F. Nachtrieb.

BOOKS RECEIVED.

Leçons de chemie physique, professées à l'université de Berlin. J. H. Van't Hoff. Translated from the German by M. Corvisy. Second Part, *La statique Chemique.* Paris, Hermann. 1899. Pp. 162.

Leçon nouvelles sur les applications géométriques du calcul différentiel. W. De Tannenberg. Paris, Hermann. 1899. Pp. 192.

Recherches expérimentales sur les oscilations electriques. A. Turpain. Paris, Hermann. 1899. Pp. 152.

Biological Lectures from the Marine Biological Laboratory, Wood's Holl, Mass. Boston, Ginn & Co. 1899. Pp. 343.

Animal and Plant Lore. Fanny D. Bergen. Boston and New York, published for the American Folk-Lore Society by Houghton, Mifflin & Co. 1899. Pp. 180.

Evolution by Atrophy. J. Demoor, J. Massart and E. Vandervelde, translated by Mrs. Chalmers Mitchell. New York, D. Appleton & Co. 1899. Pp. xiii+322.

SCIENTIFIC JOURNALS AND ARTICLES.

The principal article in the *National Geographic Magazine* for November is on 'The Alaskan Boundary,' originally given as a lecture before the National Geographical Society by Hon. John W. Foster, ex-Secretary of State, and at present a member of the Joint High

Commission. The paper presents the most complete summary of the Alaskan boundary dispute thus far made. Mr. Foster states that the dispute really dates from 1898, when it was presented without previous warning before the Joint High Commission which had assembled in Quebec. A number of maps which are offered as testimony show that on all the principal English maps the boundary line is as given on the American maps. Professor Alfred P. Dennis concludes his description of 'Life on a Yukon Trail,' begun in the October number. An article by Professor W. M. Davis, of Harvard University, on 'The Rational Element in Geography,' is the first of a series on methods of teaching and studying geography. There has been a steadily growing demand in the last few years for the better teaching of geography, and as earnest an effort on the part of many teachers to meet that demand. The *National Geographic Magazine* proposes to aid the work by presenting in its pages a series of articles by those most fitted to speak—able geographers who are also teachers of renown. The article by Professor Davis will be followed by a second from him on field and laboratory methods of teaching geography. Commissioner Harris, of the Bureau of Education, will treat the subject in several of its aspects, and a number of other equally prominent educators have promised articles which are to appear in the magazine within the next few months.

THE Chicago University Press has added to its publications the *Manual Training Magazine*, the first number of which was issued on October 1st. It is edited by Mr. Charles A. Bennett, of the Bradley Polytechnic Institute, Peoria.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.

SECTION OF ASTRONOMY AND PHYSICS.

THE first meeting since the spring of the Section was held on 2d October, 1899, at 12 West 31st Street. Professor William Hallock read a paper on 'Compound Harmonic Vibrations of a String.' He said that some German experimenters have determined experimentally by photography the motions of different points of a vibrating string. The vibration varies, of course, according to the part of the string bowed, the speed, the kind of bow, etc. His paper, however, consisted essentially of a set of curves, calculated from the theoretical formulæ, showing the successive positions of a string vibrating under the influence of a fundamental and the first seven overtones. Each curve shows the position of the string at a particular instant. Sixteen such curves are shown for the first sixteen sixty-fourths of a complete period of the fundamental. The amplitude of the component is proportional to the wave-lengths, in each case. Thirty-two points were computed for each curve. Each curve is computed from the formula

$$y_1 = a \sin 2\pi \frac{t_1}{T_1} \sin 2\pi \frac{x_1}{l_1}$$
$$+ b \sin 2\pi \frac{t_1}{T_2} \sin 2\pi \frac{x_1}{l_2} + \text{etc.} \cdots$$
$$+ h \sin 2\pi \frac{t_1}{T_8} \sin 2\pi \frac{x_1}{l_8},$$
$$a = 2b = 3c = 4d = 5e = 6f = 7g = 8h,$$
$$T_1 = 2T_2 = 3T_3 = 4T_4 = 5T_5 = 6T_6 = 7T_7 = 8T_8.$$

In the discussion Professor Pupin said that it would be interesting to photograph the vibration of a string loaded, and also unloaded. Such a study might help our theories of electrical waves along a cable.

WM. S. DAY,
Secretary.

SECTION OF GEOLOGY AND MINERALOGY.

AT the meeting of October 16th, after Mr. Geo. F. Kunz, the Chairman, had exhibited certain specimens, the regular paper of the evening was presented by Professor J. J. Stevenson on 'The Section at Schoharie, N. Y.' The Schoharie Valley is an indentation in the Helderberg Mountains, about 35 miles southwest from Albany, N. Y. It is of interest as showing a section from the Hudson to the Hamilton, with almost continuous exposures at various localities. This was examined during last summer with the view of making comparisons with conditions observed in parts of the Appalachian region within Pennsylvania and Virginia. There are some notable contrasts between the northern and the southern sections. At Schoharie, the Medina is wanting