Till a great sea-bird, tern or ptarmigan,
Caught by the whiteness of his lonely face,
Swooped low exultantly; huge swish of wings
Measuring his body, as he struck him once.
Thud of the ribbed beak, like a call to arms
Stirring the wounded soldier, etc."

What would not Mr. Chapman give for a moving picture of the author's mental image of a ptarmigan? Would it be in order, since Miss Florence Wilkinson is the writer to whom we are indebted for a description of this new species, to call the Ribbed-beaked Ptarmigan, *Lagopus wilkinsoni*?

HUBERT LYMAN CLARK

SCIENCE AND POLITICS IN CUBA

TO THE EDITOR OF SCIENCE: I have just learned that the new Cuban administration has asked for the resignation of all the Americans on the staff of the Cuban Agricultural Experiment Station. This is purely a political move made to supply more places for the horde of hungry office seekers. No comment is needed when a government is willing to make a political football of its only efficient scientific institution. The following is a list of those who have been so suddenly and unjustly deprived of their positions. I know all of these gentlemen personally and am familiar with their work. Many of them are former colleagues. I take a great pleasure in heartily recommending them to any institutions who may have vacancies in these respective lines.

Dr. N. S. Mayo, Chief, Department of Animal Industry.
Mr. J. S. Montgomery, Assistant, Department of Animal Industry.
Professor Wm. T. Horne, Chief, Department of Vegetable Pathology and Entomology.
Mr. J. S. Houser, Assistant, Department of Vegetable Pathology and Entomology.
Professor R. S. Stark, Chief, Department of Chemistry.
Dr. H. Hasselbring, Chief, Department of Botany.
Professor C. F. Austin, Chief, Department of Horticulture.
Mr. C. F. Kinman, Assistant, Department of Horticulture.

F. S. EARLE

SCIENTIFIC BOOKS

Laboratory Notes on Industrial Water Analysis. A Survey Course for Engineers. By ELLEN H. RICHARDS, Instructor in Sanitary Chemistry, Massachusetts Institute of Technology. 8vo, pp. iii + 49. Cloth, 50 cents net (2s. net). New York, John Wiley & Sons; London, Chapman & Hall, Limited. 1908.

The book is written for the use of students of engineering and deals with "boiler waters" principally.

Part I. is divided into five laboratory exercises: First, Classification of a Water as "Scale-forming," "Moderately Scale-forming," or "Corrosive"; second, Determination of "Total Solids," "Incrustants," "Iron" and "Sulphates"; third, "Alkalinity," "Magnesium as Hydrate" and "Permanent Hardness"; fourth, "Action Upon Metals," "Oxygen Consumed" and "Dissolved Oxygen"; fifth, "Remedies for Defects Found in Waters." "Only special methods are considered, leaving out the ordinary analytical processes to be found in text-books."

Part II. is devoted to the preparation of "standard solutions" and to sundry tables useful in water analysis.

The following sentence is well worthy of attention, as it points to a fact often lost sight of: "Water unsatisfactory for one purpose may be, or may be made, quite satisfactory for another."

Mrs. Richards has had such extended experience in matters dealing with water examination that anything from her pen is always of value.

W. P. MASON

A Laboratory Guide for Histology. By IRVING HARDESTY, A.B., Ph.D., with a chapter on Laboratory Drawing, by ADELEBERT WATTS LEE, M.D. With 30 illustrations, 2 of which are in colors. Pp. 193. Philadelphia, P. Blakiston's Son & Co. 1908.

That there is a place for such a well-planned, practical series of laboratory outlines for the study of histology and microscopic anatomy as are found in this guide the reviewer has no

doubt. The volume is a timely contribution and is characterized by all the excellencies which one is led to expect from a knowledge of the other publications of this careful and experienced teacher. Pedagogically considered, aside from its lopping off of superfluities, its greatest virtue lies in the manner in which the student is impelled to get at the subject interpretatively instead of blindly following descriptions. The method is not wholly inductive, however, since the student is expected to know what is said in his text-book or lectures on a given subject; nevertheless, through a judicious use of questions he is forced to think for himself and not simply to verify statements.

One great aim of the author has been to do away with the numerous irrelevant procedures at which the student is likely to fritter away his time and to lead him at once to see and to accomplish the real work that is to be done. The main idea has been to have him so utilize his time as to cover thoroughly the greatest possible amount of ground in the time allotted to the course. The outlines are the outgrowth of the author's own experience as a teacher and having been revised and corrected year after year, in their final form they represent, therefore, just what in his experience may most advantageously be undertaken by the average class in histology working three three-hour periods per week throughout one school year.

In case a school can not give three afternoons a week to the course, however, the work is so arranged that it can be given conveniently in two separate years. The reviewer is of the opinion, indeed, that the third section might well be reserved for the second year as it in itself constitutes a complete course in the gross and microscopic anatomy of the central nervous system and the organs of special sense, and includes work of considerably greater difficulty than that of the other two sections.

The author rightfully insists throughout the work upon the importance of having the transition from the macroscopic to the microscopic detail made with sufficient fulness for the student to get a complete mental picture of the structure as a whole instead of the mere fragments he too often gets when stained and sectioned material chiefly is used.

The arrangement of topics and the classification of structures is made mainly upon an anatomical and functional rather than an embryological basis. The practical utility of such an arrangement would seem sufficient to justify it even though an embryological arrangement would leave the student with a clearer morphological perspective of the general field. For the medical student, at least, the imperative demand is for the functional rather than the morphological conception. The embryological side, however, has not been slighted, for the principles and processes of development are kept well in the foreground and there are frequent demands for the study of sections of embryos and preparations of developing tissues and organs.

A valuable chapter is that by Dr. A. W. Lee on Laboratory Drawing in which a very enlightening discussion of drawing materials and methods is given. As Dr. Lee himself expresses it, "The individual who 'can't draw' has constantly been kept in mind; in fact, this chapter was undertaken solely for his benefit." Such a clear and non-technical discussion of laboratory drawing has long been a desideratum and it should not be reserved for those who study histology merely but should be brought to the attention of all biological students. Original drawings in varying stages of completion are employed as an aid in illustrating more graphically the principles involved. Unfortunately, by what is clearly a typographer's error, the block for figure 13 has been rotated ninety degrees with the result that the parallel which the author intended to show between this and the preceding figure is somewhat obscured.

A few of the seemingly inevitable typographical errors have crept into the volume here and there, but none is of great magnitude. Some of the most noticeable are as follows: page 40, formation for information; page 45, aquamous for squamous; page 54, glyerin for glycerin; page 72, cosmic for osmic, and the same on page 73; page 73, non-modullated for non-medullated; page 139,

Ralando for Rolando, and page 180 in the last line *of* has been omitted.

An important adjunct to the work is the well-chosen list of original papers which is given at the end of the outline for each general subject. While not intended to be exhaustive it is thoroughly representative and includes all that the student could possibly utilize to advantage at this stage of his development.

The volume as a whole is a meritorious contribution from a skillful teacher and is a welcome addition to the histological laboratory. MICHAEL F. GUYER

The Fauna of Mayfield's Cave. By ARTHUR M. BANTA. Pp. 114, with plates, map of the cave, figures and tables. Published by the Carnegie Institution, Washington, D. C., September, 1907.

Mayfield's Cave is in Monroe County, Indiana, 4.5 miles northwest of Bloomington, the location of the Indiana University. It has often been visited, and its contents have been described in part by Bollman, Hay, Blatchley, Call, Eigenmann and others. What has been admirably done by Arthur M. Banta is to visit it on an average once a week during eight months in all, covering different seasons of the years, 1903, 1904 and 1905, using the strong, steady light of a carbide bicycle lamp, observing all phenomena, noting the temperature and air currents, and in particular collecting all varieties of animal life for detailed study with the facilities afforded by the laboratory of the university and the expert aid of C. H. Eigenmann. Contours for the cave map are by J. W. Beede, and the photographs are by E. R. Cummings. Full recognition of work done by others is made in the introduction, and in a bibliography mentioning more than 130 works and papers consulted.

Mayfield's Cave is only a fourth of a mile long, is from 6 to 20 feet wide, and is nowhere more than 12 feet high, while many passages are mere crawl-ways. The roof is usually flat and hard limestone, with small domes here and there. The floor is strewn with large and small fragments of stone, with patches of gravel or soil, and occasional banks and mounds of earth. The excavation is in the Mitchell limestone of the upper Subcarboniferous. The entrance is in a low bluff at the head of a ravine once a part of the cave. There are sink-holes without and springs within, and in winter and spring a cave stream flows through, which ceases to flow in summer, leaving detached pools, parts of the channel remaining moist and other parts being quite dry. The temperature of the earth tends to counteract that of the air currents from without, bringing the average to about 11.9° C., equalling the mean temperature of the region.

Cavern fauna depend on an irregular food-supply and lead a precarious life. Flowing water brings in algæ, worms, insects, seeds and other material; mammals and human visitors leave various reminders; and fungus grows abundantly on decaying organic matter. Dry parts were poor collecting ground, while better results were had in moist localities. Most cave animals are scavengers. Some are strays, or accidental visitors; others visit voluntarily; while true cavernicola are classified as temporary, permanent and exclusive residents—the latter never found elsewhere. Banta also classifies them in their relation to daylight, twilight and darkness.

Sixty-six pages are devoted to detailed scientific descriptions of the fauna of Mayfield's Cave, under the heads of Mammalia, Pisces, Insecta, Myriopoda, Arachnida, Crustacea, Annelida, Mollusca and Turbellaria. Six pages are filled by comparative tables of species known to exist in Indiana caves as compared with those found in this single cave; the sum total being 138 species, 110 of which exist in Mayfield's Cave. This is certainly remarkable.

Of true cave fauna the most space is allotted to the blind fish (*Amblyopsis spelæus,* DeKay) concerning which curious experiments were made as to its habits, anatomy and its food as determined by inspecting the contents of the stomach. Two varieties of cave crawfish were found (*Cambarus pellucidus,* Packard, and *Cambarus pellucidus testii,* Hay); the distinction being the presence or the absence of spines. To the cave-