

so when the remains are not uncommon and well preserved. One of the writer's students, Mr. Carl Owen Dunbar, has recently discovered a new locality for vertebrates of this period. It is situated near the city of Lawrence and lies at the base of the Lawrence shales. The fossils occur in oblong or spherical siliceous nodules of which nearly one third contain bones and shells of value. Some are filled with small masses of many kinds of organic material and such are interpreted as coprolites, while others contain remains of fishes, crustacea, cephalopods and wood. There are no leaves and few invertebrates. The interesting and remarkable fact connected with the occurrence is the abundance of well-preserved vertebrate fossils. No less than eighteen partial or complete skulls have been collected and such have been found on the occasion of each visit. Three of the skulls show well-preserved casts of the brain. In addition there are many other complete bones, spines and scales.

The description of the vertebrates has been entrusted to Dr. R. L. Moodie, while the invertebrate and stratigraphic phases will be elaborated by Mr. Dunbar and the writer.

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EXISTENCE OF CROWN GALL OF ALFALFA, CAUSED  
BY UROPHLYCTIS ALFALFÆ, IN THE SALT  
LAKE VALLEY, UTAH

ON May 3 of this year, the writer found several typical specimens of alfalfa crown gall, caused by *Urophlyctis alfalfæ* (v. Lagerh.) P. Magnus, in the Salt Lake Valley, Utah. This disease, so far as the writer has noted, has been reported by Smith<sup>1</sup> in California, McCallum<sup>2</sup> in Arizona, and the writer<sup>3</sup> in Oregon. The presence of this disease in Utah may be of considerable importance in explaining many difficulties which alfalfa grow-

<sup>1</sup> SCIENCE, N. S., Vol. XXX., No. 763, August 13, 1909.

<sup>2</sup> *Experiment Station Record*, Vol. 23, No. 7, December, 1910.

<sup>3</sup> SCIENCE, N. S., Vol. XXXVI., No. 928, October 11, 1912.

ers have had in maintaining profitable stands. In looking over the literature I do not note any report of its occurrence in the state of Utah, and, therefore, this note is published in order to record the presence of the disease in another locality. It is not yet known to what extent the disease has been injurious to alfalfa in the Salt Lake Valley, as its distribution has not been investigated.

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RELIGIOUS TRAINING AT A UNIVERSITY

THE article on this subject on page 722 of SCIENCE for May 15 ought not to pass without a protest. The primary function of religion, as most thoughtful men see it, is not worship but the development of right purposes and right ideals in the conduct of life—especially the development of the ideal of service. Nothing stands out more clearly in the teachings of Christ than the thought that worship and ritual are worse than useless unless they contribute to this end.

The statement that "a few are interested in religion, but all of us in education" is, to say the least, misleading. Educational men are apt to be very reticent about religious matters and superficial observers are liable to conclude that their opinions are colorless, but a little inquiry will reveal the fact that a large proportion of both students and faculty are members of Christian churches. In the state university with which I am best acquainted 45 per cent. of the students are members of such churches and 79 per cent. register as adherents of some church. A large majority of the faculty are adherents of churches.

It is true that the fundamental virtues have been long known, as Buckle says, but many of us think that it is also true that there is great need of bringing these virtues forcibly to the attention of men and women at frequent intervals throughout their lives. As our civilization is now constituted the agency which per-

forms this service most effectively for the bulk of our people is the Christian church.

Nearly all Americans will agree that the separation of church and state has been to the advantage of both and that it is not the function of a state university to teach religion. At the same time the faculties of our state universities ought to be in the heartiest sympathy with those who are carrying on religious work among the students and as individuals they should take an active part in work of this character.

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#### SCIENTIFIC BOOKS

*Handbuch der Vergleichenden Physiologie.*  
Herausgegeben von HANS WINTERSTEIN.  
Jena, Gustav Fischer. 1910 et seq. Each part contains about 100 pp. Price unbound 5 Marks.

In SCIENCE, August 12, 1910, p. 211, there appeared a notice of the publication of the earlier parts of Winterstein's comprehensive "Handbuch," begun in 1910. Since that time numerous parts have continued to be issued until at the present moment more than 42 are available. For reasons which are doubtless defensible on the part of the editor and publisher, but not obvious or convincing to the subscribers, the text is being issued in fragments, prepared successively or simultaneously by different authors on quite unrelated topics. In this way a great delay ensues until the individual monographs are completed; and still more time elapses before the volumes can finally be bound in the form intended for them. These are drawbacks which seriously impair the usefulness of any book of reference, especially at a period when the literature of the natural sciences is growing with leaps and bounds.

It would be futile for a reviewer to attempt any detailed reference to a cyclopedic work of this character, even if one individual competent to offer critical opinions upon so great a diversity of topics were available for the task. The best indication of the scope and importance of this scientific-literary under-

taking is afforded by the mention of the many well-known biologists and physiologists who are cooperating in it. The list of collaborators now includes the following: E. Babak (Prag), S. Baglioni (Sassari), W. Biedermann (Jena), R. du Bois-Reymond (Berlin), F. Bottazzi (Naples), E. v. Brücke (Leipzig), R. Burian (Naples), R. Ehrenberg (Göttingen), L. Fredericq (Liege), R. F. Fuchs (Breslau), S. Garten (Giessen), E. Godlewski (Krakow), C. v. Hess (Munich), J. Loeb (New York), E. Mangold (Freiburg), A. Noll (Jena), H. Przibram (Vienna), J. Strohl (Zürich-Naples), R. Tigerstedt (Helsingfors), E. Weinland (Erlangen), O. Weiss (Königsberg), H. Winterstein (Rostock).

Among the completed volumes is one (III. 2) upon the metabolism of energy and the physiology of changes in form, in which chapters upon animal heat (Tigerstedt), the production of electricity (Garten), the production of light (Mangold), animal form (H. Przibram), and reproduction (Godlewski, Jr.) are included. Volume IV. deals with the physiology of irritability, conductivity, etc.—phenomena of the nervous system. For this a chapter on tropisms has been prepared by Jacques Loeb. The first half of Volume II. is devoted to the classic compilation of Biedermann upon the ingestion, alimentation and absorption of food by the invertebrates. This alone is a most extensive monograph, the exhaustive character of which is represented in nearly a thousand pages, with 200 illustrations and about 1,200 references. Volume I. is to deal with the fluids and tissues, and with the comparative physiology of respiration.

The foregoing comments give a very imperfect idea of the contents of many hundreds of pages of illustrated text—an invaluable cyclopedia in a field which has hitherto not afforded any such elaborate systematic compilation.

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*Kristallberechnung und Kristallzeichnung.*  
By B. GOSSNER. Leipzig und Berlin, Wilhelm Engelmann. 1914. Pp. viii + 128;