

- (2.) Coccidæ have scale-like *larvæ* and live in plants.
- (3.) A picture of a snail shows a sinistral shell, so also does the figure of *Limnæa stagnalis*. The snail is labelled *Helix pomatia*, but the figure appears to represent *Helix aspersa*.

And so on in other cases, although the bulk of the zoölogical information seems correct.

This morning was brought to me a little book which the New Mexico Territorial Board of Education have under their consideration for adoption in the High Schools. It is called *Zoology for High Schools and Academies*. (American Book Company, 1895, pp. 216.) The authoress is Margaretta Burnet. I could not very well recommend its use, after reading in it such things as the following:

- (1.) p. 90. Scale insects belong to Aphididæ.
- (2.) p. 132. Daddy longlegs is an example of the Scorpions.
- (3.) p. 59. Figures of three 'Fresh water snail-shells.' The middle figure is a *Succinea*. On p. 56 a *Succinea* is correctly figured as a land snail.

Yours truly,

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SCIENTIFIC LITERATURE.

Allgemeine Physiologie. Ein Grundriss der Lehre vom Leben. Von MAX VERWORN. Mit 270 Abbildungen. Jena, Gustav Fischer. 8vo. Pp. xi., 584.

This work is a very acceptable addition to the series of biological text-books issued by Fischer of Jena, and takes its place worthily. In size and general appearance it conforms to the model adopted by the same publisher for Hertwig's Embryology, Wiedersheim's Comparative Anatomy, Ziegler's Pathology, and other familiar authoritative and important manuals.

Verworn attempts to present a summary of principles of physiology applicable to both plants and animals generally. He covers, therefore, somewhat the same ground as Claude Bernard in his classic work of 'Les Phénomènes de la

Vie communes aux Plantes et aux Animaux.' But whereas the French physiologist included much original research in his work, his German successor gives rather a collation of the results hitherto attained. It is certainly unfortunate that 'General Physiology' has been treated as a stepchild of Biology and left pretty much to shift for herself. Verworn renders, therefore, a substantial service in his book by directing attention rightly, and at the same time presenting many aspects of the subject in so comprehensive a manner as greatly to facilitate the further pursuit of this neglected branch of biological science. Such an attempt, when first made, must necessarily be partially successful at the best, because the material to be brought together is scattered in a great variety of memoirs, and occurs often as an incidental part of researches upon some problem of special physiology, vegetable or animal.

We must judge such a work by what it contains, not by what it omits. The first chapter, which occupies nearly sixty pages, seems to me inappropriate, and not to add to the scientific usefulness of the whole. It deals with 'the ways and means of physiological investigation,' according to the title chosen for it by the author. But ways and means do not signify to him practical methods, but rather a series of philosophical and metaphysical concepts, which appear to me neither very profound nor original, and which certainly lack any obvious bearing on the rest of the work. The chapter, however, includes a brief historical review of the progress of physiology. This review is well done.

The remaining chapters are properly physiological; their titles will indicate their chapters:

Chapter II. On the living substance.

Chapter III. On the elementary phenomena of life.

Chapter IV. On the general conditions of life.

Chapter V. On stimuli and their action.

Chapter VI. On the mechanism of life.

In each chapter will be found many facts collated, such as one cannot readily find elsewhere brought into mutual relations. For example, in Chapter IV. there are considered the present conditions of life in the world, the origin of life on the earth and the history of death, and in Chapter V. the general nature of stimuli, and

the effects of stimulation on the cell, including chemical, mechanical, photic, electric irritations, with discussions of chemotropic, barotropic, heliotropic, thermotropic and galvanotropic phenomena, and also sections on fatigue and exhaustion.

The author shows throughout that he has received a sound scientific training, that he has a good grasp of his subject since he handles all its themes firmly and successfully, so that his book will be found very useful to those who in their teaching wish to give due prominence to the fundamental principles of biology.

In another edition there will be many changes and additions to make, which will improve the work and render it a more adequate representative of the present status of general physiology. So long as the author deals with philosophical aspects of the subjects it must be deemed a serious omission not to include consciousness. We may note other omissions, such as the phenomena of senescence and growth as a function of age, an omission which is significant to me personally, owing to my having long been specially interested in senescence as a biological problem. Again, the difference between sex and sexuality is left unconsidered; the theory of the vital force as having a ferment-like effect, the causation and laws of variability, concerning which a good deal is known, and finally many minor points, which are known to this and that specialist, all suggest opportunities for improvement. None the less the book as a whole is to be commended, for it takes a great step towards bringing order in a field of science still chaotic, and it is to be hoped that it will become well known in American Laboratories.

CHARLES S. MINOT.

Ice Bound on Kolguev. By A. TREVOR-BATTYE, London, Constable. 1895. Pp. xxviii. and 458. Three maps and numerous illustrations.

The small Arctic island which forms the subject of this sketch is an interesting place, as it lies just within the Polar circle, to the north of Russia, between the entrance to the White Sea and the mouth of the River Petchora.

The two attempts which were made to colonize the island in the latter half of the eighteenth century resulted in failure; and at

the present time the Samoyede families who eke out a miserable existence there can hardly be called a successful venture in that line, because the conditions of life force them to a nomadic career, which puts an end to all development.

With regard to the structure of the island, the author was not able to find any trace of the rocky character which has usually been assigned to it. He describes the surface as one composed mainly of sandy hills, which are confined to the central and northern portions, while the southern districts are occupied by tundras of considerable extent. The soil of these tundras, frozen solid during a great part of the year, and only thawed out to a depth of a few feet at best during the summer, limits the amount of the food supply in the most thoroughgoing manner.

About 110 plants have been reported from the island and of these 95 were secured by the author. He also records 47 birds and 6 mammals.

The descriptions given in the book, particularly those of the birds and their habits and the portions devoted to the plants, are well done, and much interesting information has been put in a very agreeable form; here and there, however, one occasionally detects in the effusive style the zeal of the 'glorified naturalist.'

The volume is in the main well written, but some portions would be apt to cause the grammarians to shudder. As, for example, where we are told that "Powys kept our spirits up with the banjo, and we sang, skinned and ate many figs" (p. 52).

Our naturalist has done much painstaking work in spite of the comparatively hurried character of his trip. It is, however, to be regretted that the portions upon the Samoyedes and their manners and customs were not more carefully expanded. Enough is said to whet the appetite for more. On this island we find perhaps one of the few remaining opportunities for the study of a nearly pure form of bolvan worship; and if the author had not allowed his feelings of civilized disgust at some of the native performances to get the better of him, he might have worked himself more thoroughly into their good graces, and given us some insight into the rites of Nûm, the Arctic god. As it is, the subject is dismissed with a footnote and an ac-