near granite or gravels yielded by them are its sources, whether it be in Cornwall, the Zinnwald, the Malay peninsula or Australia. The large part played by tin in the bronze implements of the ancients and even in prehistoric commerce give it peculiar claims to interest. Enormous attention has been devoted to tin mines in this country of late years, so much that the metal has even been a political factor, loudly heralded in recent campaigns. All our enterprises have as yet been without success, and some are instructive examples of extravagant folly. Mr. Rolker's dispassionate and truthful descriptions are timely and much to be commended.

J. F. Kemp.

The Natural History of Plants, their Forms, Growth, Reproduction and Distribution, from the German of Anton Kerner von Marilaun. By F. W. Oliver, with the assistance of Marian Busk and Mary F. Ewart. With about 1,000 original woodcut illustrations and sixteen plates in colors. New York, Henry Holt & Co. 1895. 2 vols., large 8vo.

This is a most interesting and readable book. It is written in a clear and popular style; few technical terms are used, except where necessary for the sake of accuracy, and the illustrations are fine and full of interest. The whole plan of the work is to treat plants as living things and to find a biological significance for all the parts of which a plant is formed. Here will be found answered many of what may be called the practical questions about plants; such as why certain species grow in peculiar places, how they are adapted to the conditions which surround them, how they get their food, of what this food consists, how it is conducted and formed into organic matter, and the structures and forms resulting. As the author says, "For us no fact is without significance. Our curiosity extends to the shape, size and direction of the roots, to the configuration, venation and insertion of the leaves; to the structure and color of the flowers, and to the form of the fruit and seeds; and we assume that even each thorn, prickle or hair has a definite function to fulfil." The author claims the advantageous aid of imagination in his scientific researches and says that "the more imagination an investigator has the more keenly is he goaded to discovery by this craving for an explanation of things and for a solution of the mute riddle which is presented to us by the forms of plants." It is probably due to this feature of the work that it is so readable, and yet its scientific facts do not suffer on this account. The first four chapters are devoted to the living principle in plants. Protoplasts are considered as the seat of life; the discovery of the cell and of protoplasm is recounted with illustrations of both; the movements of protoplasts are illustrated from the swarm spores of seaweeds, and the mosses and ferns; the movements of Volvocinèæ, Diatomaceæ and Bacteria are described; the continuity of protoplasm through the cell walls and its relation to vital force and sensation are explained.

Under the heading of the Absorption of Nutriment, inorganic and organic foods are treated, the absorption of water and the character of soils, as well as the symbiotic relations of plants.

One of the most interesting chapters discusses the relations of the position of foliage leaves to that of absorbent roots, proving that the leaves conduct the rain to the point on the ground where the roots of the plant can get it; the peripheral increase of the leaves keeping pace with that of the roots. Most interesting diagrams are given of the position of leaves to facilitate this irrigation. In treating of Saprophytes illustrations are drawn of those in water, on the bark of trees and on rocks. Examples are cited from the simplest as well as the most highly organized plants, and many suggestions are given as to the habitats of plants.

The Absorption of Nutriment by parasitic plants is described at length and illustrated by numerous strange and unfamiliar examples. Carnivorous plants also receive ample attention and are illustrated by numerous cuts and a colored plate.

Under the heading of the Conduction of Foods, the author treats of the regulation of transpiration and the means by which leaves are protected from excessive dryness in exposed localities. The diversity in the structure of leaves is almost marvelous, and the figures given are of great variety and interest. In this

connection special adaptation to divers habitats brings about great differences in plants, and we find those of high altitudes and dry sunny locations differing widely from those of moist low places. Many of the problems of distribution and of special floras are touched upon in this connection. The special functions of the green leaves in the formation of organic food from the absorbed inorganic food; the transport of substances in living plants and the propelling forces in the conversion and distribution of materials constitute an interesting but a much more technical group of facts, leading naturally to the treatment of growth and ultimate structure of plants, till we reach the completed structures, passing by progressive stages in complexity from unicellular organisms to plant bodies and the forms of their roots, stems and leaves.

The remainder of the work is promised soon and will be looked for with much interest. The translators deserve a great deal of credit for the clearness of the style, the beauty of the text and the fine character of the illustrations, which are taken from the original plates, by permission of the author.

A traverse le Caucase. ÉMILE LEVIER. Neuchatel, Attinger Frères. 1894.

As the rest of the title indicates, these are the notes and impressions of a botanist, illustrated by numerous photographs taken by one of the party, Mr. Stephen Sommier, supplemented by others from the collection of Vittorio Sella, whose Alpine and Caucasian views are famous. The illustrations add great interest to the work, giving, as they do, views of the people, their towns and buildings, and the wild, picturesque country in which they live. The journal also is full of word pictures, and recounts in a lively and interesting manner the experiences of the party, the details of their journey as well as their adventures in the wild gorges among the snow-clad mountains which they traversed. Their experiences with the natives, the numerous courtesies and hospitalities received from the Russian officials, their adventures in search of plants and game, their photographic trials and anthropological researches, fill a large and handsome volume of 335 pages and hold the interest of the reader from beginning to end. A map completes the list of illustrations, one of which is a picture of the Botanic Garden at Tiflis. A list of new species detected is appended.

ELIZABETH G. BRITTON.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON, 247TH MEETING, SATURDAY, OCTOBER 19TH.

MR. SYLVESTER D. JUDD read a paper entitled 'The Food of the Catbird, Brown Thrasher and House Wren,' in which he said that these three birds destroy beetles, ants, caterpillars, grasshoppers and many other insects; also, that the wren is exclusively insectivorous, but that the catbird and thrasher subsist largely on wild fruits, occasionally making inroads on cultivated varieties.

Mr. L. O. Howard spoke briefly of a new enemy of the Hellgrammite fly. In August of the present year Mr. R. S. Clifton called his attention to the fact that the egg masses of the Hellgrammite on the shores of the Potomac River were being eaten by some insect. Investigation showed that the egg masses, which had never before been known to be attacked by any insect, were being eaten wholesale by the larva of *Anthicus haldemanni*, an extremely rare Anthicid beetle. Of the hundreds of egg masses examined none were unattacked. The beetle gnaws a hole through the cover of the egg mass and lays its eggs within. The larvæ feed upon the Hellgrammite eggs until full grown, then crawl away to a crack in the rocks and transform to pupæ.

The speaker claimed especial interest for the observation from three facts: (1). The egg masses of the Hellgrammite were previously supposed so be uninfested by any insect enemy. (2.) *Anthicus haldemanni* is a very rare beetle, which has never before been taken in the District of Columbia. It occured in hundreds this season at the point where the observations were made. (3.) Almost no observations are upon record regarding the early stages of the family Anthicidæ. Of the 130 odd North American species the larvæ of none have heretofore been observed.

Mr. Dall showed some fat still containing a