

western dialects), but in a thorough-going fashion by another Anglican missionary with a German name, Schlenker. Mr. Thomas's work, however, in Temne, as in Bulom, is quite original; and is most useful in enabling us to understand the structure and phonology of these two forms of Semi-Bantu speech, and moreover represents them as they are spoken to-day. Mr. Thomas will probably quarrel with me for the frequent announcement that Temne and Bulom are "Semi-Bantu." He does not take up such a decided line himself, any more than he has done about some of the Semi-Bantu languages he was the first to illustrate in the Cross River basin. But I claim the right to be more dogmatic, since I have had of late opportunities of dealing somewhat thoroughly with the Semi-Bantu languages and their affinities with the Bantu, and have come to the conclusion (foreshadowed many years ago by the great philologist, Bleek) that Temne and Bulom, like the languages of Portuguese Guinea, Togoland, and Eastern Nigeria, must be classed as Semi-Bantu.

Vol. i. of Mr. Thomas's work deals with the laws and customs of the Mendi, Gôla, Kisi, Konô, Timne, Lokô, Limba, Yalunka, Koranko, Vai, and Susu peoples. (I quote his spelling, not always mine.) This volume contains excellent photographs of ethnic types. Another volume deals generally with the languages of Sierra Leone. (besides Temne and Bulom): the Krim, Kisi, Limba dialects, Susu, Koranko, Yalunka, Konô, Vai, Mende, Lokô, and Fula. This will be particularly valuable for its treatment of the little-known and unclassified Limba (the speech of an interesting cattle-keeping tribe) and Lokô. Lokô, I fancy, has not been written down before.

I might state, in conclusion, that Mr. Thomas's work requires careful study and digestion before one can theorise from it.

H. H. JOHNSTON.

AMERICAN NATURE-STUDY.

- (1) *The Life of Inland Waters*. An elementary text-book of freshwater biology for American students. By Prof. James G. Needham and J. T. Lloyd. Pp. 438. (New York: The Comstock Publishing Co., 1916.) Price 3 dollars.
- (2) *Wild Flowers of the North American Mountains*. By Julia W. Henshaw. Pp. 383. (London and New York: McBride, Nast and Co., Ltd., 1916.) Price 10s. 6d. net.
- (3) *Hitting the Dark Trail, Starshine through Thirty Years of Night*. By Clarence Hawkes. Pp. 191. (London: George G. Harrap and Co., 1916.) Price 3s. 6d. net.

(1) **PROF. J. G. NEEDHAM**, of Cornell University, and his colleague, Mr. J. T. Lloyd, have prepared an introduction to the study of freshwater organisms—their adaptations, associations, and economic possibilities. The subject is an interesting one, the authors are enthusiasts and experts; the book should certainly give a stimulus to limnology. After dealing with the physical and chemical conditions of the freshwater environ-

ment, and its relation to the land-surface, the authors discuss the various types of lakes and ponds, of streams, of marshes, swamps, and bogs, and the difference between high and low water in each case. Then comes a vivid, well-illustrated survey of the freshwater plants and animals. The subject of adaptations is also very successfully handled. Flotation is helped by the outgrowth of slender prolongations and by the production of oils, gases, and jelly. Movement is facilitated by the "stream-line form" familiar in fishes. Animals living near the shore have adaptations for avoiding silt, for burrowing, for making shelters, for withstanding the rush of water. Seasonal vicissitudes are circumvented by adaptations for lying low, such as statoblasts, ehippia, and hibernacula. The secondary adaptation of originally terrestrial types to aquatic life is also discussed. Inter-organismal adaptations find fine illustrations in the bladderwort and in the dependence of the larvæ of freshwater mussels on fish hosts. This leads on to associations or societies, whether in the open-water (limnetic) or by the shores (littoral), the latter being again divided into still-water (lenitic) and rapid-water (lotic) societies. The studies end up with a suggestive chapter on water-culture, which is not too dismally utilitarian. As an elementary introduction to a fascinating study the book is admirable—clear, interesting, educative, and of moderate size. It is abundantly illustrated, and many of the figures have had brains put into their construction.

(2) Mrs. Henshaw has done good service in compiling a convenient flora of the North American mountains by means of which travellers can get to know a little about the characteristic alpine flowers. A terse diagnosis is given of each species, and then follow less formal descriptive notes in which there is occasionally a breeze of enthusiasm rather unusual in "Floras." The arrangement is popular—mainly according to colour—but there is a scientific classification as well. There are sixty-four fine photographs and seventeen beautiful coloured plates.

(3) The author of "Hitting the Dark Trail" was accidentally blinded by bird-shot when a boy of fourteen, and the book tells with delightful frankness and simplicity how he has made a success of his life in the true sense. The "menace of the years," as Henley called it, found him unafraid, and in spite of grim difficulties and discouragements he has remained "master of his fate and captain of his soul." Not only so; he has been able to trade with the visual gains of his early years, when he got a good grounding in woodcraft, and to get for himself and to give to many others a great deal of pleasure out of thirty years of Nature-study without eyes. Mr. Hawkes has written a number of popular "animal biographies"; he has now essayed the more difficult task of writing his own. He succeeds considerably by being perfectly natural. The autobiography reveals a fine quality of pluck, to reward which ought not to tax the resources of American civilisation.