

decided progress can be made in deciphering these aboriginal documents until we break loose from these trammels, and use as a key the few characters which can be satisfactorily determined otherwise. The attempt, on the part of this author, to use the two classes as a basis, leads him into some inconsistencies. For example: he interprets his No. 176 (a cardinal-point symbol) as *Likin* ('east'), and No. 231 as *Ahau-al* ('enemy'); yet the leading character in both groups is the same, — the symbol of the day, *Ahau*. If the characters are phonetic, this is inconsistent; if they are not, then each must be determined independently.

I notice a number of clerical errors in the vocabulary, most of which can be readily corrected: therefore I only call attention to a few which may possibly lead to error. Under No. 174 the reference to No. 188 should be to 190. Under 178, *Sud* ('south') should be *Ouest* ('west'). Under No. 192 reference to 188 should be to 189. Under No. 200 reference to 199 should be to 201.

Of this work only eighty-five copies were published; and of these, as I learn elsewhere, but thirty-five or forty were to be offered for sale.

CYRUS THOMAS.

#### KELLERMAN'S BOTANY.

*The elements of botany, embracing organography, histology, vegetable physiology, systematic botany, and economic botany. Arranged for school use or for independent study. By W. A. KELLERMAN, Ph.D. Philadelphia, Potter, 1884. 360 p., 354 fig. 12°.*

TEACHERS of classes composed of beginners, to whom they wish to impart some knowledge of botany aside from the rudiments of phenogamic analysis, have long felt the need of an elementary text-book a little more comprehensive in its scope than books of this grade usually are, and they turn to every book like Professor Kellerman's with some expectation.

So far as its scope is concerned, this little treatise leaves nothing to be desired. Besides the topics indicated on its titlepage, it briefly treats of vegetable paleontology and the geographical distribution of plants. In the main, each topic is fairly presented, considering the needs of the pupils for whom the book is written; but a lack of care in the final revision of the manuscript is frequently noticeable in badly constructed sentences; and those minor errors which so persistently make their way into text-books written by the most competent authors are found pretty liberally scattered through the pages. Even more serious than

these are several statements, which, from their brevity or other causes, are likely to mislead the reader: e.g., the generalizations concerning plant-food (p. 12), the office of the leaf (p. 15), the absence of chlorophyll in parasites (p. 19), and metastasis (p. 107), most of which are qualified in other places; and the statements with respect to the decay of insects captured by *Nepenthes* (p. 107), the growth from a single cell in all Pteridophytes (p. 154), and the necessity of extraneous aid in the pollination of all orchids, which find no correction. The usual number of old errors are further disseminated; e.g., the cotyledonary nature of the persistent leaves of *Welwitschia* (p. 165), the fertilization of dioecious *Saprolegnieae* by spermatozooids (p. 134), the intercommunication of tracheides through their bordered pits (p. 75), and free-cell origin 'about new centres of formation' in endosperm, etc. (p. 81).

The writers of several recent text-books have been unfortunate in illustrating their works; old and well-worn figures being borrowed, or home-made drawings being cheaply photo-engraved, for the occasion. The book before us unfortunately suffers in both ways. Quite a percentage of the illustrations are taken from the floral advertisements of the late Mr. Vick, and it must be said that few of them convey a correct idea of the plants they are named after. Nearly three hundred figures are original, and, properly executed, would add very greatly to the value of the book. As it is, they reflect much credit on the industry of the author; but several fall quite as far short of reality as the so-called 'cat' whose problematical contour puzzled the readers of a zoological text-book not many years since.

While the book is unsatisfactory in its execution in many respects, it comes nearer to filling a serious gap in botanical literature than any other thus far published; and, notwithstanding its shortcomings, it is a welcome addition to the teacher's auxiliaries, its low price allowing it to be put in the hands of students who could not afford a more expensive book in addition to the systematic manuals used by most elementary classes.

#### THE SOCIETY OF MICROSCOPISTS.

*Proceedings of the American society of microscopists. Sixth annual meeting, held at Chicago, Ill., Aug. 7, 8, 9, and 10, 1883. Buffalo, Haas & Klein, pr., 1883. 4 + 275 p., illustr. 8°.*

THE proceedings of this society are published with commendable promptitude, and