

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

are printed with general accuracy and neatness. The proceedings are given in full, together with certain reports and papers read. Of the reports, the most important is that of Prof. W. A. Rogers, upon the standard micrometer: it bears the stamp of that thoroughness and exactitude which characterize all Professor Rogers's work. This standard is a platin-iridium bar prepared and authenticated by the U.S. bureau of weights and measures: it is very well ruled, and the error in each of the ten one-millimetre spaces has been carefully determined. The bar will be preserved by the society with due care, and proper copies prepared of it.

The volume opens with President Albert McCalla's address, 'The verification of microscopic investigation' which is followed by twenty-six papers. These last are mostly by amateurs, and show it, for the most part, more plainly than is consonant with a high scientific value. There is, we believe, not more than a single communication which appears to be the result of a serious and prolonged research by an experienced investigator. In fact, a society of so-called microscopists must necessarily be an association principally of amateurs, because the professional worker is not classified according to the instrument he uses, but according to the subject he studies: the amateur studies, *non multum, sed multa*, and so may be a microscopist. Yet we find in the volume articles of interest and value. Among these, we may signalize Dr. Blackham's very sensible article on the selection of objectives; Dr. Holbrook's, on the nerves of the kidney, in which the valuable method of making frozen sections of fresh tissues to be treated with gold is described; and Mr. Belfield's, on the detection of lard-adulterations (if his results are confirmed, they will be a valuable addition to the means of hygienic supervision). Dr. Clevenger's article on the brain is fortunately given only in abstract. The remaining essays are for the most part light: some betray a lack of acquaintance with scientific literature, and a few are treated kindly by being left uncriticised.

The society is doing useful work; and, as its activity and experience increase, we may hope for a constant elevation of its scientific standards. We expect that the future volumes of its proceedings will contain a still larger proportion of valuable researches; but we think the society will achieve its highest utility if it constantly inculcates the importance of perfected methods of work, and fosters and extends technique, the *sine qua non* of progress in microscopy.

DARWINISM.

Darwinism stated by Darwin himself. Characteristic passages from the writings of Charles Darwin. Selected and arranged by NATHAN SHEPPARD. New York, Appleton, 1884. 16+351 p. 12°.

Charles Darwin und seine lehre. Aphorismen gesammelt aus Darwin's eigenen werke und den werken seiner vorgänger und zeitgenossen. Leipzig, Thomas, 1884. 8+442 p. 12°.

It is rather remarkable that the idea of compiling a series of extracts from the writings of Darwin should have occurred, after so long an interval, to an American and a German at the same moment. No large theory of the operation of natural causes has ever had so brief a struggle for existence, or penetrated so rapidly and so deeply into the general mode of thinking, as Darwinism; and if no great necessity has been felt hitherto for an abridgment of his works, it is because they are so admirably clear and of such absorbing interest, that the general reader has not had much trouble in getting through them all in the original form. Mr. Romanes, however, says that admirers of Mr. Darwin's genius are frequently surprised at the ignorance of his work which is displayed by many persons who cannot be said to belong to the uncultured classes; and to those who have read nothing more than Mr. Romanes' own excellent presentation of the scientific evidences of organic evolution, 'Darwinism as stated by Darwin himself' will be just what is needed for their next stage of development.

It gives extracts, of a page or two in length on the average, from all Darwin's books. The order followed in the arrangement is not exclusively that of the books themselves, but is designed to present the reader with a connected view of Darwin's researches on plants and worms; on the development hypothesis in general, and its application to man in his physical and moral aspect; and on the influence of natural and of sexual selection, and of geographical distribution. The design of the compiler is carried out with a reasonable degree of success. No scientific man, of course, who has any regard for his reputation, openly reads an abridgment; but the general reader may well be thankful for this compilation, and the greatest physicist in the world is, after all, nothing more than a general reader in paleontology and the theory of groups.

What strikes one most, on turning over these pages, is the smallness of the addition which has been made to the general development theory since the publication of Darwin's two great works. Little or nothing has been done to change the main line of argument, or even