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Passing into Utah, Mr. Jackson came upon the ruins of an Indian village (Fig. 14) situated in the bluffs of the valley of the Hovenweep, of which Fig. 11, Plate II., is a ground plan; the area extended a hundred yards.

In the valley of the McElmo, Utah, was found a square tower (Fig. 9) on the summit of an elevated rock. Fig. 10 represents an isolated rock in the same valley, covered with ruined houses and walls. A Moquis tradition states, according to Mr. Ernest Ingersoll, who accompanied Mr. Jackson's party, that at this spot, in ages past, their ancestors made their last stand against the northern tribes before retreating to their present villages.

Over New Mexico and Arizona are scattered similar ruins which have been described since the sixteenth century, when Vaca saw them occupied. The present Moquis Indians inhabit such structures, and it seems probable that their ancestors, an agricultural people, were driven up the cañons by the incursions of hostile tribes from the north.

RECENT LITERATURE.

SACHS'S TEXT-BOOK OF BOTANY.¹ — The present translation is based on the third edition of Sachs's *Lehrbuch*, a work which has been extraordinarily successful in Germany, a fourth edition having made its appearance during the progress of the English translation. It has also been translated into French by Van Tieghem. The difficult task of rendering technical German words and phrases into clear and forcible English has been very well performed by the translators, and it seems to us that they have shown good taste in making but few annotations, and those explanatory rather than controversial. The text and illustrations are excellent, quite as good as those of the German edition, which is certainly saying a great deal.

The mere fact that the present translation has already been favorably received in England and this country shows that it supplies a want which the ordinary English text-books, excellent as they are in some respects, do not satisfy. This want is a book which shall give something more than a description of the organs of flowering plants, and a detailed account of the orders into which they are divided. It cannot be denied that in this country the tendency has been to consider the chief, if not the only aim of botany to be the classification of phanerogams and the description of new species. The excellent translation of Sachs will, it is to

¹ *Text-Book of Botany, Morphological and Physiological.* By JULIUS SACHS. Translated and annotated by ALFRED W. BENNETT and W. T. THISELTON DYER. Oxford: At the Clarendon Press. London: Macmillan & Co. 1875. \$12.50.

be hoped, do much towards correcting this misconception of the true spirit of botany. In the text-book before us only 160 pages are devoted to phanerogams, while the part relating to cryptogams fills 213 pages, and that to physiology a still greater number of pages; so that the reader cannot fail to draw the conclusion that what many botanical students in this country have been in the habit of regarding as the most important thing, is only one branch of the science, and by no means more important than others. Even in that part of the text-book relating to phanerogams there are many ways of looking at familiar subjects which will be new to American botanists, as, for example, the theory of the carpel, and we cannot fail to see that, after all, some things which we have come to regard as facts are nothing but plausible theories, and that other people may have different but equally good theories.

In the fourth edition of the *Lehrbuch* is a classification of Thallophytes which is given as an appendix to the translation. Sachs rejects the old division into algæ, fungi, and lichens, and, instead, gives a series of parallel groups, those, on one hand, containing chlorophyll and those, on the other, free from chlorophyll. The existence of parallel groups in algæ and fungi has long been known, but we believe this is the first general text-book in which the division into algæ and fungi has been abandoned. Although in a general way correct, the details of Sachs's classification cannot be accepted. Although Sachs is preëminently a physiologist, it seems to us that he has been quite as successful in his presentation of the researches of others in anatomy and cryptogamy, as of his own researches in physiology. We are not made very much wiser by being told that many motions arise from the tension of tissues, and it seems as though the term *reiz*, which may mean either irritation or some inherent attractive force, were only a learned way of concealing ignorance. Throughout the book we are impressed with the fact that advance in botany during later times has been dependent on the use of the compound microscope. Hereafter it will be as impossible for a botanist to keep up with the times without doing microscopic work as for an astronomer to succeed without a telescope.

It is to be regretted that the price of the translation is so high, but the number and quality of the illustrations probably render it necessary. It would be at least a consolation to American purchasers to know exactly what the price is, or ought to be, in this country. We imported the book directly by mail and were obliged to pay \$8.60; others have been charged as high as \$12, and one, more fortunate, procured a copy at a book store for \$8. It has been suggested that the work be divided into parts to be sold separately, and, although students should not read one part to the exclusion of others, many would be able to purchase the separate parts at different times who could not afford to buy the whole at once. An abstract of the translation corresponding to Prantl's abridgment of the German would hardly be advisable, but a translation of Thomé's *Lehrbuch der Botanik*, would be preferable.