

philosophically narrow; and he sometimes uses the epithets of the pessimist in a manner unworthy the philosopher.

FRUIT-INSECTS.

Insects injurious to fruits. Illustrated with 440 cuts. By WILLIAM SAUNDERS. Philadelphia, *Lippincott*, 1883. 436 p. 8°.

THE author has enjoyed exceptional advantages for the preparation of the work he has undertaken. Not only has he been acquainted with the work of economic entomologists through his own participation in it, and as editor of one of our principal entomological periodicals, but for twenty years past he has been an extensive fruit-grower as well. He is thus entirely familiar with what is wanted, and has produced a practical book of considerable value. Not that it contains much that is original or of novel presentment: it is rather a plain and judicious statement of what is known, but accessible to few because scattered in periodical literature. One is surprised at the size of the book when he sees that no effort is made to fill it out with unnecessary matter: rarely are half a dozen pages given to any one insect, and more than two hundred and fifty harmful insects are discussed.

The insects are treated under the head of the plants they affect and the parts of the plant they attack,—an excellent method, first used in this country by Fitch. They are described in brief, untechnical language, almost invariably figured, and often in several stages; and the account of their injuries is followed by a short statement of the best remedies, with illustrations of the parasites or other natural foes which keep the insects more or less in check. The plants which receive most attention are the apple (64 insects, 127 pages), the grape (52 insects, 75 pages), and the orange (26 insects, 45 pages). Next after these in importance are the plum, pear, the various currants, the raspberry, and the strawberry, followed at a little distance by the peach; a few pages each suffice for the cherry, quince, gooseberry, melon, cranberry, olive, and fig.

The illustrations are familiar friends to entomologists, almost all of them having already done abundant service; but they are none the less valuable for the purpose of this work; and the paper on which they are now printed permits to many of them a respectability they must rejoice to attain after long familiarity with the crude workmanship of the various government presses under which they have

been tortured. With a little more care in the printing, they would have shown at their best.

The only serious omission in the book is the absence of a systematic summary, or index, by which the insects of the same group attacking different plants should be brought together. This would the more readily serve to help the fruit-grower distinguish allied forms, and learn their different or similar habits. Such an index could have been so easily constructed, and would have occupied so little space, that its absence is the less excusable.

BREMIKER'S LOGARITHMIC TABLES.

Bremiker's Logarithmisch-trigonometrische tafeln mit sechs decimal-stellen. Neu bearbeitet von Dr. TH. ALBRECHT, professor and chief of section in the Royal Prussian geodetic institute. Tenth stereotype edition. Berlin, *R. Stricker*, 1883. 18+598 p. 8°.

BREMIKER's six-figure logarithms were first published in 1852 with a Latin text and title: *Nova tabula Berolinensis*, etc. In 1860 a German edition was printed. Both these editions were printed from movable types. In 1869 a stereotyped edition was printed, with some changes in the contents of the work. The editions of 1852 and 1860 contained a capital table of the sines and tangents of small arcs, which was omitted in the stereotype edition; and in this latter edition a table of addition and subtraction logarithms was introduced. The omission of the table of the functions of small arcs was hardly an improvement; and, in fact, this omission caused the early editions to command a higher price than the later stereotyped one.

The present edition by Dr. Albrecht combines the excellences of both the preceding editions. It contains the table of the logarithmic sines and logarithmic tangents of arcs up to 5° for each 1", and also includes the addition and subtraction tables.

The rest of the work is the same as the stereotype edition of 1869, except that four new pages of convenient constant logarithms are inserted, and that certain tables relating to units of weight and measure are omitted.

This collection of tables is a very practical and valuable addition to our present means of computation, and it will be welcomed as such. In the opinion of the writer, it is also the most satisfactory single collection of tables for students' use, although much can be said in favor of the best of the five-place tables for this purpose.

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