

Although it is difficult to deduce formulæ for the iron core transformer from formulæ for the air core transformer, the converse operation is always possible, and if the results do not come out correctly, then there must be something wrong with the formulæ being tested. In this book the limitations of the theories are rarely stated. This makes progress rapid, but must sooner or later cause difficulties to engineers using the formulæ. For example, the statement that if we add to the resistance of the primary  $n^2R_2$ , where  $R_2$  is the resistance of the secondary and  $n$  is the ratio of the secondary to the primary current, we get the true effective resistance of the transformer on the primary side, is true for the air core transformer. But students have a difficulty in believing that the ratio  $n$  is a constant, seeing that it is zero on open circuit.

Great stress is very properly laid on making the sum of the cost of the operating losses and the overhead charges in dollars per annum a minimum, but some of the mathematical equations given, as, for example, on p. 95, we have quite failed to understand. Although we think that the methods of obtaining the formulæ used in practice given in the book could be very considerably improved, it contains much valuable information for engineers.

*Bestimmung, Vererbung und Verteilung des Geschlechtes bei den höheren Pflanzen.* Von C. Correns. (Handbuch der Vererbungswissenschaft, herausgegeben von E. Baur und M. Hartmann, Lieferung 3 (II. c), Band 2.) Pp. iv + 138. (Berlin: Gebrüder Borntraeger, 1928.) 19·20 gold marks.

THE genetics of sex in plants is probably more complicated than in animals. It is even doubtful how far sex phenomena are comparable in the two kingdoms. Certainly they have diversified along different lines with the greater individual unity and specialisation in the higher animals as contrasted with the less clearly defined individuality of the higher plants, which have often the power of vegetative multiplication in addition to, or even almost replacing, sexual reproduction. It is only a few years since sex chromosomes were discovered in seed-bearing plants, and the unsolved problems of 'sex' in the Cryptogams and in hermaphrodite, monocious, and polygamous Phanerogams are manifold.

A summary of the present position of our knowledge of sex in plants by a pioneer and recognised authority on this subject is of considerable importance. Prof. Correns does not deal with plants lower than Bryophytes. Utilising Blakeslee's terminology of homo- and heterothallic types for the diploid phase, he is able to divide his subject under four main headings. Attention has lately been concentrated on more or less completely dioecious flowering plants, and though even amongst them complications appear in different genera and species, a useful attempt has been made in this work to reduce all the examples known in sufficient detail to two general-

ised schemes. The work is illustrated by 77 text-figures (including diagrams) and has references to literature occupying 9 pages. An ample list of contents is provided but there is no index.

*The Modern Calorimeter.* By Dr. Walter P. White. (American Chemical Society Monograph Series, No. 42.) Pp. 194. (New York: The Chemical Catalog Co., Inc., 1928.) 4 dollars.

ALTHOUGH it is written essentially for the specialist in calorimetry, this book is arranged in such a way as to be equally valuable to the general scientific reader. Dr. White has made important contributions to recent developments of calorimetry, and while his book does not completely cover the whole field, it gives a good account of the numerous practical details necessary in obtaining reliable estimates of accuracy. The author remarks that "calorimetric processes depend on temperature distributions and heat flows; things invisible, hard to measure or control with exactness," and he has therefore endeavoured to show the value of systematic calculations involving accurate estimates of the precision and reliability of the various methods and apparatus employed.

The book deals with fundamental processes and measurements, particular methods and particular apparatus, and calorimeter design and the planning of installations. The author refers to it as "an experiment," and it must be voted a successful one.

- (1) *The Life of the Spider.* By J. Henri Fabre. Translated by Alexander Teixeira de Mattos. With a Preface by Maurice Maeterlinck. (People's Library.) Pp. xxxi + 288. (London: Hodder and Stoughton, Ltd., n.d.) 2s. 6d. net.
- (2) *The Spoilers.* By J. Henri Fabre. Translated by J. E. Michell. Pp. 287. (London: Hodder and Stoughton, Ltd., n.d.) 7s. 6d. net.

THE first mentioned of these two volumes consists of translations of articles from Fabre's "Souvenirs entomologiques," dealing with the life of spiders, and with the exception of Chapter ii., none has previously appeared in English. The second volume, "The Spoilers," is written in the form of dialogue between a benevolent informer and his pupils: various kinds of injurious and other insects are discussed in a conversational manner, moths and beetles coming in for the largest share. The translations of both books are well done, and they should interest the growing body of readers to whom popular writings on insect life make an appeal.

*Le grandi industrie chimiche. Gli acidi inorganici: solforico, nitrico, cloridrico; fabbricazione, macchinarie, impianti.* Per Dott. Antonio Aiti e Prof. Henry Molinari. Pp. xv + 472. (Milano: Ulrico Hoepli, 1928.) 48 lire.

AITI and Molinari's work gives an account of the actual position of the mineral acid industry which usefully supplements the existing treatises, since it deals with many processes which are not adequately described in the standard works on the subject. It is a valuable addition to the literature of chemical technology.