

the chapters devoted to insects, however, there are signs of want of touch between authors and artist. In the chapter on "Butterfly Flight" there is a drawing of a "Fritillary," which represents the plant, not the insect of that name; the "Little Blue resting," on p. 35, appears to have been drawn from a "Common Blue," while the "Female Emperor," on p. 104, is unmistakably *Arctia caia*, the "Common Tiger" moth. Such slips as these can, however, be easily rectified in a new edition.

G. H. C.

PRACTICAL DRAWING.

- (1) *A Manual of Mechanical Drawing*. By J. H. Dales. Pp. xii+181. (Cambridge University Press, 1914.) Price 3s. net.
- (2) *Machine Construction and Drawing*. Book ii. By A. E. Ingham. Pp. xii+180. (London: G. Routledge and Sons, Ltd., 1914.) Price 3s. net.

THE titles of these two books have been well chosen; in one the chief concern of the author is to ensure manipulative skill in instrumental drawing, and in the other to illustrate details of engineering construction.

(1) Those readers who take Mr. Dales as their guide will undergo a process of careful drilling in the use and maintenance of the scale, square, pencil, pen, and compass, by means of specially designed and carefully graduated sets of exercises, largely geometrical in character, followed by examples of the projection of various machine details, and completed by the preparation of a full set of working drawings of a screw-cutting lathe, fully dimensioned, with titles and descriptions, all executed in the style of the skilled professional draughtsman. Thus the book gives a course of organised training in the draughtsman's craft, valuable especially to students who afterwards enter a drawing office, for they will be ready to begin elementary design or other good work at once.

(2) Mr. Ingham has previously written an elementary book on the subject, and the present volume is intended as a continuation, suitable for more advanced students. It gives, with descriptions and simple calculations, a large number of well-selected examples representing modern engineering practice, arranged and classified in seven chapters headed respectively, "Power Transmission Appliances," "Gearing," "Steam Engines and Turbines," "Gas and Oil Engines," "Boilers and Fittings," "Machine Tools and Appliances," "Pumps and Compressors." The drawings are well printed and thoroughly workmanlike and have evidently been prepared by a

highly qualified expert. The student's progress is tested from time to time by sets of suggestive examples in drawing, calculation, and design. The text-book is a very good example of its kind, and will give satisfaction wherever adopted.

OUR BOOKSHELF.

Essays and Addresses. By the late Prof. James Campbell Brown. Pp. x+208. (London: J. and A. Churchill, 1914.) Price 5s. net.

MR. HENRY H. BROWN, who edits this volume, explains in the preface that this selection of essays and addresses has been published because of the many requests for copies of particular papers by the late Prof. Brown which Mrs. Campbell Brown has received but was unable to accede to because most of the essays had never been printed.

The papers are arranged in chronological order, and most of them are concerned with various aspects of pure and applied chemistry. The first, on technical chemistry, was the chairman's address to the Liverpool section of the Society of Chemical Industry, and was delivered in November, 1886. The last essay, on science applied to the detection of crime, was an address to the chemical, physical, and legal societies at the University of Liverpool in 1908. The scope of the volume can be gathered from the titles of some of the other papers: the ethics of chemical manufacture, a French view of German industries, the use and abuse of hypothesis, and chemistry as a profession.

The papers have been printed as nearly as possible in the shape in which they were delivered, and will be welcomed by their author's old pupils and friends, who will recognise many characteristic touches.

The Happy Golfer. Being some Experiences, Reflections, and a few Deductions of a Wandering Player. By H. Leach. Pp. vii+414. (London: Macmillan and Co., Ltd., 1914.) Price 6s. net.

THIS is a brightly written book, full of the free air of the links and the sweet philosophy of the man who enjoys the simple life of the natural athlete. The author discovers in golf seven wonders, the fascination that grips, the traditions which never stale in the telling, the ubiquity of the game, St. Andrews the sacred Mecca of every golfing soul, the tragedy of the short putt, the three mighty men who share fifteen open championships among them, and the marvellous amateur eight times champion, and, lastly, the romance of the rubber-cored ball. On these as texts he dilates and prattles, then takes us all round the world searching for happy golfing hunting-grounds, returning finally to the best heaven-given links of the dear homeland. He talks of players and matches, of temperament and style, of courses and hazards. When he touches on what is generally called the science of the game he speaks wisely and not dogmatically. Not a single illustration of stance or grip disturbs the literary glamour of the page; and the mysteries