

possessed by the better class of gamekeepers. Among such information, it may be mentioned, is a heavy and apparently conclusive indictment against the hedgehog as a game-poacher of the blackest dye.

Partridge-preserving the author considers to be decidedly beneficial to the farmer, as it not only brings money into country districts, which otherwise would be spent elsewhere, but it provides him with "a small machine [in the shape of the partridge] which turns noxious weeds and useless insects into a valuable food." After discussing the economical question in chapter i., the author takes the natural history of the partridge as the subject of chapter ii. Here we are told at the outset that "no fewer than 152 species of partridges and their affinities" are recognised by ornithologists—a statement difficult to understand owing to the ambiguity of the term "affinities." A few other minor criticisms might be made on this chapter, but in the succeeding chapters, dealing with rearing, driving, and shooting partridges, the author appears to be thoroughly in his element and a master of his subject. Every sportsman should buy a copy of the book.

R. L.

*Practical Drawing. A Preliminary Course of Work for Technical Students.* By T. S. Usherwood. Pp. viii+163. (London: Macmillan and Co., Ltd., 1910.) Price 2s.

This useful little manual provides an excellent course of instruction in instrumental drawing, very suitable for the junior classes of technical institutes. The beginner is first shown the use of the rule and callipers in the making of dimensioned hand sketches of simple objects. Then full explanations are given of the manipulation and handling of drawing instruments, including tee and set squares, in the production of accurate work to scale. Facility in the use of instruments is acquired along with a working knowledge of geometrical principles, by the plotting of lines, angles, figures, vectors, and the drawing of simple mechanical and architectural details.

The subsequent work in plane geometry includes the construction of scales, circles, triangles, polygons, geometrical patterns, and similar figures; also graphing on squared paper, the calculation of areas, and the plotting of the paths of points moving under geometrical or mechanical constraint. The author wisely devotes a chapter to the method of representing solid objects by plans and elevations, and by metric projections to scale. The book is provided with an index, and the student with answers to the numerical exercises. The author is evidently an experienced teacher. He supplies good examples in great variety. The scheme of instruction is a sound and desirable one, and affords a thorough groundwork for subsequent study.

*Die praktische Bodenuntersuchung.* By Prof. E. Heine. Pp. xii+162+plate. (Berlin: Gebrüder Borntraeger, 1911.) Price 3.50 marks.

WHILST there are many works in German dealing with the properties of soil from the purely scientific point of view, there is none, according to the author, that gives the practical farmer the kind of knowledge he wants in order to understand the nature of the soil and the processes going on therein. While it is not denied that a farmer can get on sufficiently well without this knowledge, nevertheless he will find not only a source of interest, but also of profit, in learning something about the fundamental properties and laws on which the cultural operations and the fertility relationships

of the soil are based. The author therefore deals in successive chapters with the soil as a medium for plant growth, the physical properties, chemical composition, and biological relationships of soils, methods of classification and improvement. In the second part of the book the soils of North Germany are described, and instructions are given for the use of soil maps.

The information is clearly set out, and in its general style will appeal to the farm student and to the young farmer who has sufficient energy and interest to read after his day's work is done. Indeed, the information is better than the method: a book written for the same class of readers in England would be expected to give many more actual illustrations of the application of general principles than are here attempted. The reviewer's experience is that general principles as such have little meaning to the farm student, and copious illustrations are necessary to give point to them. The present book is deficient in this respect.

More stress might well have been laid on the part played by calcium carbonate in soil fertility. No soil deficient in calcium carbonate can be regarded as very satisfactory; vegetation relationships are markedly different according as calcium carbonate is present or not. Thus in the description of humus the differences between the various types is attributed to differences in air supply, the part played by calcium carbonate not being considered important. It is evident, also, that the German method of mechanical analysis is less satisfactory than our own, which would have formed the basis of several of the chapters in such a book.

But apart from these points the little book is very good, and conveys in simple language an accurate presentation of our present ideas on the soil.

E. J. R.

*Conic Template.* J. T. Dufton's design. For Junior Students of Conics. (London: Macmillan and Co., Ltd.) Price, nickel-plated metal, 4d. net; transparent celluloid, 8d. net.

STUDENTS of geometrical conics should not fail to provide themselves with this accurately made and handy little "Conic Template." By merely passing a pencil round its curved edges, a true ellipse, parabola, and hyperbola can be drawn, the three curves having closely related elements, which are specified in the instructions accompanying each instrument. The regular employment of accurate figures, instead of rough diagrams sketched freehand, will add interest to the work, and will materially assist in fixing on the mind of the student the forms and properties of these important curves.

*How to become a Pharmacist in Great Britain.*

With Appendixes on Pharmaceutical Qualification in Ireland, Pharmaceutical Registration in the British Empire, Degrees in Pharmacy, and the Schedule of Poisons. Edited by John Humphrey. Pp. 52. (London: The Pharmaceutical Press, 1911.) Price 1s. net.

CLEAR and precise information is given here about each stage in the preparation for the work of a pharmaceutical chemist, from apprenticeship to the passing of the major examination of the Pharmaceutical Society. The appendixes give details as to the particular conditions under which qualification to practise pharmacy may be secured in Ireland and in other parts of the British Empire. The advice offered is sound and helpful; and the view throughout is to regard the work of the pharmacist as a branch of applied science needing the practice of scientific methods for its successful performance.