

of maximum pressure. This must lead to considerable labour when finding the best relation between the capacities of chamber and bore for a new type of gun.

Other additions to Col. Lissak's text are: descriptions of the manufacture of the American nitrocellulose powder; the modern hydro-pneumatic recoil systems; the 12-in. mortar carriage, model 1908; and the Lewis air-cooled machine-gun. Otherwise Col. Lissak's text has been largely adhered to, but the subjects have been rearranged in a more logical sequence.

The chapter on interior ballistics is marred by the number of errors in the formulæ which have escaped notice.

#### OUR BOOKSHELF.

*Equipment for the Farm and the Farmstead.* By Prof. H. C. Ramsower. Pp. xii+523. (Boston, Mass.; London, etc.: Ginn and Co., 1917.) Price 10s. 6d. net.

IN this volume Prof. Ramsower has broken new ground and given us an account of the equipment necessary for starting and maintaining a farm in the United States, with special reference to the conditions in the Middle West. About half of the book deals with the construction of the farmhouse and buildings, and the other half with farm implements. As material for construction about the farm, Prof. Ramsower recognises the great advantage of concrete, though he also realises its disadvantages. There is an interesting chapter on the lighting of the farmhouse. Water supply and sewage are also dealt with at length, and considerable stress is laid on the need for adequate sanitation.

The remainder of the book deals with farm implements. The plough comes first as the basal tillage tool, "walking" ploughs and "sulky" ploughs being both described. The former is the type commonly seen in this country when the ploughman has to walk; the "sulky" plough, on the other hand, allows him to ride; it takes its name from the light two-wheeled carriage used in America, and is called a "sulky" because it accommodates only one. The difference between them lies in the amount of friction; the ordinary plough rests on a smooth slade or sole, which slips over the ground; the "sulky" plough, on the other hand, rests on wheels. Thus, the sliding friction of the ordinary plough is replaced by rolling friction, and, in consequence, it is possible to add the weight of the frame and the driver without materially damaging the draft of the plough.

Harrows are dealt with at length: the spike-tooth forms, as commonly seen here, and the spring-tine and the disc forms, which seem to have great possibilities. There is also a useful chapter on the gasoline and oil engine, in which the author describes not only the engines themselves, but also some of the many troubles which arise directly an engine or tractor is set to work on a farm.

The book is well illustrated, and will be found very helpful to serious farm students.

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*Everyday Physics: A Laboratory Manual.* By J. C. Packard. Pp. vi+136. (Boston, Mass.; London, etc.: Ginn and Co., 1917.) Price 4s. 6d. net.

A LABORATORY manual outlining a course in physics "adapted equally well to preparation for college and to the immediate requirements of everyday life" may be regarded as a sign of the times. It is becoming recognised in an increasing degree that the fundamental principles of physical science must be employed not only in the laboratory, but also in the home and in the factory. Mr. Packard, who is science master at the High School, Brookline, Massachusetts, has produced a volume of considerable interest and originality, which may be recommended to teachers who are planning a practical course in science for a secondary school. More than sixty exercises are given, covering a wide range of subjects, the usual experiments in a physics course being combined with newer exercises involving the use of commercial apparatus. Thus we have not only a "Study of a Metric Rule," but also a "Study of a Water Meter," with instructions for testing the accuracy of the meter by filling a tank of which the dimensions are to be determined. This is followed by exercises on gas and electricity meters with clearly drawn diagrams for each case.

A few of the more novel subjects studied include a water motor, a life preserver (illustrating the principle of Archimedes), an anemometer, a gas or alcohol stove, methods of domestic heating, lighting, and ventilation, the mechanism and action of a clock and of a sewing machine. Nearly every exercise is preceded by an introduction, intended to show the bearing of the topic in hand upon related subjects, and is followed by questions or problems emphasising the immediate application of the principle involved to the affairs of daily life.

Topics for further study and investigation are suggested, and the author points out that much valuable material for every department of science can be gathered from trade catalogues. The student is instructed as to the best method of recording the results of his observations, but, as the author rightly says, the object of a laboratory course in physics is not to make a note-book, but to teach the principles of physics and to emphasise their practical application.

H. S. A.

#### LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

##### The Supposed "Fascination" of Birds by Snakes.

I HAVE now received a reply from Capt. G. D. H. Carpenter to my letter suggesting that he had observed an instance of "mobbing." It was written in January last from Lulanguru, seventeen miles east of Tabora, in ex-German East Africa:—

"Regarding my snake and bird observation, the birds' behaviour was quite unmistakable; they were