Judged from the book alone, it is perfectly clear that Dr. Wood is well qualified to write upon the subject he has taken up. Although some of the subjects are dealt with sketchily enough, he gives the impression that he has had experience; that he has worked in the field; that he has kept his eyes open and knows generally what should be done and how to do it. The American health officer and student of public health topics may very safely take him as a guide. The English health worker even may find something of value in what he has to say, though he has no reference to English works and workers, and his viewpoint is purely American, and his methods, most of them, not such as are or could be applied in this country.

The book is not a large one, but Dr. Wood covers the greater part of the field of health work, dealing with such subjects as statistics; control of communicable diseases; child welfare; school hygiene; pure foods, etc.

The treatment throughout is practical, and the writing is good and attractive. The same may be said of the illustrations, of which there is a fair number. As already hinted, it is unlikely that Dr. Wood's book will have more than a limited appeal in this country, but it will probably receive a good welcome from and be found useful by health workers in the United States.

The Study of the Weather. By E. H. Chapman. (The Cambridge Nature Study Series.) Pp. xii+131. (Cambridge: At the University Press, 1919.) Price 3*s*. 6*d*. net.

THIS little book on elementary meteorology will be welcomed by the school-teacher, to whom it makes its primary appeal. Though the serious student of the science may at first feel that it has no place on his shelves, yet, should he at some time be called upon to lecture to a non-scientific audience, he will find a perusal of its pages of no small value. The matter dealt with is mainly confined to features of the weather which can readily be observed by young people without special apparatus, and it is presumably for this reason that any reference to pressure and temperature conditions in the upper air is omitted. With the foregoing rather notable exception the groundwork of meteorology is well covered. One of the chief features of the book is the series of exercises, of which more than 250 are given. These vary from some very simple questions to others which the teacher would be well advised to think out carefully before putting to his class if he wishes to avoid finding himself in an awkward position. Many of these questions are calculated to arouse a most healthy interest in the minds of the pupils. One example must suffice. "What kind of weather is it that causes the inside walls of a building to stream with moisture?"

The Cambridge University Press is to be congratulated on the clearness of the printing and the excellence of the get-up of the book. The frontispiece is particularly pleasing. Numerous illustrations and charts are included in the text.

J. S. D.

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.]*

Percussion Figures in Isotropic Solids.

IN the issue of NATURE for October 9, Prof. C. V. Raman, of Calcutta, illustrated the conical fracture produced by the impact of a steel ball on a plate glass surface.

The following observations, which may be regarded as supplementary, were made by the writer some time ago with the object of finding what really happens when a glass surface is being ground, or, as it is technically termed, smoothed by an abrasive such as carborundum. Individual grains of a good abrasive have a nodular form, and the abrasion of glass appears to arise from the impact or pressure of the grains.

Two polished surfaces of glass were placed face to face with a few grains of carborundum between them, and the specimen was compared with a similar one in which steel balls of 1 mm. diameter were substituted for the carborundum. Pressure was applied uniformly over the whole surface, and while the pressure was being applied, the plates could be translated one over the other, thus producing the actual machine conditions. The observations were made by means of a polariscope. As the appearances were identical, steel balls were used throughout the later experiments, thus enabling the conditions to be better controlled.

It will be assumed that the polished appearance of glass is due to an amorphous surface layer. When the surface particles are acted upon by mechanical forces, the molecules, or possibly groups of molecules, rearrange themselves, the result being akin to the surface of a liquid. This conception was first advanced by Lord Rayleigh, and there is now a large mass of supporting evidence. When a piece of glass is worked mechanically, the surface molecules are so profoundly agitated that they are able to rearrange themselves under the action of intermolecular forces.

Fire glazing similarly consists in thermally agitating the molecules. Very small forces are sufficient to weaken the molecular cohesion by the required amount. Chemical action may produce a similar result. An optical surface may be reduced quite uniformly by the action of HF, provided the fluorides as formed are not allowed to crystallise and the bath is kept in continuous movement. When a piece of glass is fractured comparatively slowly, the forces at the edge of propagation of the fine crack must be very great, and, as before, the molecules are able to flow or rearrange themselves to form a polished surface layer. But when the fracture takes place suddenly, and almost explosively, as, for example, in the cooling of a pot of optical glass, portions of the surface may have a matt appearance to the unaided eye. This type of matt surface has been discussed very fully by M. Charles de Freminville, of Paris, who regards it as a type of multiple fracture. This explanation is more probable than the alternative one that the time of fracture is too small to permit of viscous flow.

When a steel ball is pressed lightly on the polished surface of a glass block, the appearance, when viewed between crossed Nicols, is as in the diagram (Fig. 1). The central black cone has an angle of about 20°, which remains practically independent of the pressure of the ball. The cone of strain *b*, *b* has