French views are stated as to the stabilising action of amyl alcohol and diphenylamine. As a war measure these substances were sometimes omitted, and the nitrocellulose propellant was tinted red as a distinguishing mark. While the composition of British cordite MK. I. is correctly given, cordite M.D., which superseded it, is not mentioned; the composition, however, is given of cordite R.D.B. adopted by Great Britain for land service during the War, as it utilised the solvent ether-alcohol instead of acetone which was impossible to obtain in the quantities required. There is a short section on the preparation and properties of the initial detonants, mercury fulminate and lead azide.

The fourth part deals with gases used in warfare, and after a short statement as to their first employment and subsequent tactical use, proceeds to describe the different natures of 'gas,' lachrymatory, toxic and vesicant, sternutatory, etc., and the manufacture of various types. The longest description is given to mustard gas, for the making of which the different processes are compared; the French method of reacting on ethylene with a mixture of chlorides of sulphur approaching sulphur dichloride in average composition and dissolved in carbon tetrachloride is given in some detail.

Sections are also devoted to compounds of arsenic, their physical constants, such as density and vapour tension; in some cases figures are given illustrating methods of manufacture of these bodies.

This book should prove of interest to the technical expert, not only from the presentation of its subject matter, but also as it gives reasoned views sometimes at variance with those held in Great Britain. While the explosive subjects are treated in a manner suitable for the students to whom they are addressed, there would seem to be insufficient information on the properties of the explosives. Thus the book would have been more valuable if it had included some collected information giving the heat produced on detonation of the different types of explosives and their chemical stability, their sensitiveness, rates of detonation, and explosive effects.

## Our Bookshelf.

*Manual of the New Zealand Flora.* By T. F. Cheeseman. Second edition, revised and enlarged by the Author. Edited by W. R. B. Oliver. Pp. xliv+1163. (Wellington, N.Z.: W. A. G. Skinner, 1925.) n.p.

THE appearance of the long-expected second edition of Cheeseman's manual is most welcome, and, as the editor remarks, "the present edition of the manual will long remain the standard work on the flora." It is much to be regretted that Mr. Cheeseman died before the work was completed; but his full notes on the unfinished portions have enabled Mr. Oliver to complete the book according to Mr. Cheeseman's original ideas.

The value of the new edition is shown in the fact that 192 additional species, the greater number of which are new to science, are enumerated therein. In the family Compositæ alone 40 additions have been made, while in Scrophulariaceæ 25 new plants have been recorded, 19 of these being included in the genus Veronica. All but one of these latter belong to the very critical section Hebe (now considered a separate genus). A useful feature is Mr. Oliver's continuation of the history of botanical discovery in New Zealand, covering the years 1905–24, in which he gives references to the more important work done on the flora and cites broadly the places of publication. The list of Mr. Cheeseman's publications is an apt tribute to the writer of the manual, and at the same time valuable for purposes of reference. The lists of introduced species and native names have also been revised and enlarged and are of great value to the student. It is to be hoped that a fuller treatment of the former will not be long delayed.

In the body of the book the most notable feature is the replacement of Bentham and Hooker's system by that of Engler and Prantl in the arrangement of the families. Although this brings the manual into line with many modern floras, it is doubtful if such an alteration is advisable at the present time, when systems of classification are again under consideration. It is also rather a pity that the sub-kingdoms, classes, and sub-classes are not separated from one another adequately in the text, in accordance with the synoptical key given in the appendix.

In detail the arrangement of the text follows closely that of the first edition. One difficulty which is encountered in working with the manual in herbaria is the absence of collector's numbers in the enumeration after each species, but this, of course, does not arise in the field. Nevertheless, with the exception of a few minor mistakes, especially in the references, the general arrangement and finish of the book reach a high standard.

In spite of the many additions, the book has been kept within approximately the same compass by a slight enlargement of the pages, so that the whole volume is still easily handled.

*Ticks: a Monograph of the Ixodoidea.* By George H. F. Nuttall, C. Warburton and L. E. Robinson. Part 4: *The Genus Amblyomma.* By Dr. L. E. Robinson. Pp. xii+302+8 plates. (Cambridge: At the University Press, 1926.) 20s. net.

THE genus Amblyomma is by far the richest in species of the genera of ticks, comprising many forms remarkable for the beauty of their ornamentation. Dr. L. E. Robinson considers the number of valid species to be eighty-six. Although not of such great importance as carriers of disease as some other genera—for example, the cattle ticks (Boophilus), also the genera Rhipicephalus and Dermacentor—the genus Amblyomma includes several forms very injurious to domestic animals. The South African 'Bont tick' (*Amblyomma hebræum*) is the principal transmitter of heartwater—



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