Our Bookshelf.

L'Industrie chimique des bois : leurs dérivés et extraits industriels. Par P. Dumesny et J. Noyer. Première partie : *La distillation du bois ;* Deuxième partie : *Fabrication d'extraits divers.* Deuxième édition refondue et considérablement augmentée. Pp. vi+432. (Paris : Gauthier-Villars et Cie ; n.d.) 50 francs.

Two distinct aspects of the technical chemistry of wood are dealt with in this book, namely, the working up of the volatile products from the thermal decomposition of wood and the preparation of tannin and other extracts from various classes of cellulosic materials. Unlike the majority of books of this nature, the authors have intentionally restricted theoretical descriptions and classification and have, so far as possible, concentrated on technical points and works' processes. In this way the maximum amount of information useful to the manufacturer has been secured, and general organic text-books can be consulted for the more theoretical underlying principles.

The utilisation of olive stones or grignons, which are available in enormous amounts as a waste product in Spain from the crushing and extraction of olives, receives special attention, as such material is suitable for wood distillation. In addition to full details regarding the working up of acetic and acetone and phenolic substances, the preparations of various acetates and other secondary products are described, with particulars of analytical examination.

The use of the wood of the chestnut tree for the preparation of a tannin extract receives very detailed treatment, and on the whole this is the most interesting and complete section of the book. The description of processes has been in most cases amplified by very clear diagrams and illustrations of plant. The extracts of the oak and various other woods are dealt with in less detail. Standard methods for the analysis of such extracts are also given. The economic side has not been neglected, and comparisons of present-day conditions with those before the War have been reviewed. The work as a whole, especially the second part, contains a considerable amount of general useful information, and those interested in this branch of applied chemistry will find it of particular value.

J. REILLY.

Les méthodes physiques appliquées à la chimie (*Collection de physique et chimie*). Par P. Job. Pp. viii+251. (Paris : Gaston Doin et Cie, 1926.) 30 francs.

PROF. JOB'S book is divided into two main sections dealing first with pure substances, then with mixtures, solutions and heterogeneous systems. There is also an appendix in which the principal properties are reviewed with special reference to units, definitions and experimental methods. In his preface the author emphasises the importance of physical methods in chemistry by referring to the advances which followed the use of the balance by Lavoisier, the introduction of the spectroscope by Kirchhoff and Bunsen, and of the electrometer by Curie. He begins by showing how physical methods can be used for the identification of pure substances, and for the determination of their purity, their molecular weight and their constitution. The physical methods used for the last determination include optical methods for the study of organic compounds, electrical methods for the study of complex ions, and X-ray methods for the study of crystals. Thus the last method is cited as having established the octahedral symmetry of the complex ions of a number of co-ordination compounds, and the tetrahedral symmetry of hexamethyltetramine $C_6H_{12}N_4$, a condensation product of ammonia and formaldehyde in which six bivalent methylene groups, occupying the six edges of a tetrahedron, are linked to four tervalent atoms of nitrogen occupying the four corners of the figure.

The section on mixtures begins by describing the use of physical methods for determining the percentage composition of a mixture, *e.g.* by thermal analysis ; but it then goes on to deal with the more difficult problem of determining the presence of definite compounds both in the solid and in the liquid and gaseous states, *e.g.* of the salt K_2CdI_4, or of the ion CdI_4'', in aqueous solutions, as established by studying the heats of mixing, the ultra-violet absorption coefficients, and the cryoscopic properties of a series of solutions. A few examples of the study of reaction velocities are also described. Attention may be directed to the number and clearness of the figures which are used to illustrate the text.

Ministry of Agriculture and Fisheries. Research Monograph No. 2 : *The Physiology of Animal Breeding, with special reference to the Problem of Fertility.* By Dr. F. H. A. Marshall and John Hammond. Pp. 45 +6 plates. (London : Ministry of Agriculture and Fisheries, 1926.) 2*s.* net.

BEFORE science can bring the much-needed reinforcement to the crafts of agriculture, two things at least are necessary. There must be research that shall provide accurate information concerning those aspects of agricultural practice that to-day present difficulties and are sources of embarrassment to the agriculturist, and the agricultural community must become aware that such information, having been secured, awaits evaluation. The Ministry, in a series of monographs written by members of the staffs of the different agricultural research institutes, seeks to place in the hands of the farmer an account of the work of these institutes and a demonstration of the bearing of the results of research conducted therein upon agricultural problems.

Whilst most research institutes would seem to need a chorus to interpret their functions and their fruits, the Animal Nutrition Institute at Cambridge is exceptionally fortunate in having Dr. Marshall and Mr. Hammond, who can not only discover fact but can also explain it in the language of everyday life. In this monograph on "The Physiology of Animal Breeding" they have succeeded in presenting a great mass of information in an eminently readable form. The earlier sections, dealing with the anatomy and physiology of the reproductive systems, puberty, rut, œstrus and the sexual cycle, form an adequate foundation to a general discussion of fertility in farm animals. There is nothing new in the subject matter, for the authors exhibit their characteristic caution in