

Advances in Food Research

Vol. 12. Edited by C. O. Chichester and E. M. Mrak. Pp. ix + 433. (New York and London: Academic Press, 1963.) 100s.

IN this twelfth volume of a valuable series of reports on technological and scientific advances in knowledge of food handling the editors have collected seven contributions from experts of varied experience and nationality. In a paper on chemistry of non-enzymatic browning, T. M. Reynolds of the C.S.I.R.O. Division of Food Preservation, Australia, not only discusses the reactions at present known between aldoses and amines in concentrated and dried foods but also poses a series of important questions which call for further investigation.

Osmophilic yeasts, which cause spoilage of dried fruits, concentrated fruit juice, honey, maple syrup, curing brines and salted meats, are reviewed by Hiroshi Onishi of the Noda Institute for Scientific Research, Chiba-ken, Japan, with special attention to the characteristic tolerance of high concentrations of sugar and salt by such yeasts. It is emphasized that further work on the genetic origin of these high tolerances is needed.

Transport and storage are the subject of two papers from the United Kingdom. W. Hugh Smith, of the Agricultural Research Council Ditton Laboratory, assembles the present information on the use of carbon dioxide in the transport and storage of fruit and vegetables, and K. C. Hales, of the Shipowners Refrigerated Cargo Research Association, Cambridge, reports on designs in refrigerated shipping and on types of cargoes and their particular requirements.

A more recondite problem is set forth by J. S. Pruthi from the Central Food Technological Research Institute, Mysore, India. He discusses the physiology, chemistry and technology of passion fruit. This fruit has had a limited market owing to its relatively short storage life. The paper gives a most interesting survey of improvements in handling and in the preparation and use of passion fruit products for man and for animal feeding.

From the Technical Centre of the U.S. General Foods Corporation, Martin Glicksman contributes a most useful account of the utilization of synthetic gums in the food industry. Advances in the preparation of cellulose derivatives, polyvinyl compounds and other types of synthetic gums and resins have made this an increasingly important field of food technology, and this paper deals with nutritional and technical aspects.

The final paper, by Eiichi Tanikawa of the Laboratory of Marine Food Technology, Hokkaido University, Japan, is concerned with the fish sausage and ham industry in Japan. It is fascinating to discover how fish can be reddened and processed to form 'ham'. The handling and storage of processed fish foods is considered in detail.

There are certainly more components in food than man may dream of, and these papers help to widen the views of all who are interested in the problem.

A. M. COPPING

The Production and Uses of Natural Graphite

By A. R. Tron. (Department of Scientific and Industrial Research: Warren Spring Laboratory.) Pp. viii + 83. (London: H.M. Stationery Office, 1964.) 5s. 6d. net.

THE underlying theme of this instructive little book is to present a re-appraisal of the economic value and intrinsic properties of the natural mineral graphite in face of the ever-increasing tendency to use artificially produced material. The versatility of natural graphite in the arts is perhaps not generally recognized. Most of the world's production, about 70 per cent, is consumed by the metallurgical industries, in crucibles, foundry facings, moulds, retorts, pouring nozzles, refractory bricks and other similar articles. In the manufacture of lubricants, brushes for electrical machinery, batteries, pencils, stove polishes, electrodes, explosives and paints, to mention a few other

applications, natural graphite plays a prominent part, while one of the most modern uses explored by the West German graphite industry is in the production of graphite blocks for nuclear purposes.

The author's argument is that this great variety of usage of natural graphite, coupled with variations in degree of purity, has tended to a lack of understanding between producers and industrial users of the mineral; this is further accentuated by the absence of any universally accepted methods for testing and classifying such desirable qualities as durability, flakiness, and particle toughness. The conclusion is drawn that in these circumstances many users are over-specifying purity of the raw graphite involved to the detriment of varying grades of the natural mineral which may be potentially satisfactory for the product concerned; in some instances these impurities would have no critical effect on performance.

That there is a serious deadlock in the industrial situation as regards production and consumption of natural graphite at the present time is abundantly clear from the author's findings. Producers want to be assured well in advance of planned exploitation of a long-term market of particular grades satisfactory to users; the latter, however, appear reluctant to adjust formulae and manufacturing techniques to suit new graphite producers; meanwhile competition resulting from increasing use of less expensive forms and grades of artificial graphite is growing. "If it is to compete effectively with this new trend, the natural graphite industry in all parts of the world will have to be prepared to support a more extensive research effort to discover and develop new outlets for natural graphite, and to improve technological preparedness." This book is commendable for the impartial manner in which the facts are presented, and it merits the close study of producer and user of graphite alike.

H. B. MILNER

British Transistor, Diode and Semiconductor Devices Data Annual, 1963-64

Edited by G. W. A. Dummer and J. Mackenzie Robertson. Pp. lxxi + 1610. (London and New York: Pergamon Press, 1963.) 200s. net.

British Miniature Electronic Components Data Annual, 1963-64

Edited by G. W. A. Dummer and J. Mackenzie Robertson. Pp. xviii + 1356. (London and New York: Pergamon Press, 1963.) 140s. net.

American Subminiature Electronic Component Parts Data Annual, 1963-1964

Edited by G. W. A. Dummer and J. Mackenzie Robertson. Pp. xiii + 679. (London and New York: Pergamon Press, 1963.) 140s. net.

British Miniature and Microminiature Electronic Assemblies Data Annual, 1963-64

Edited by G. W. A. Dummer and J. Mackenzie Robertson. Pp. xii + 335. (London and New York: Pergamon Press, 1963.) 105s. net.

THE increasing importance of electronics in technology is exemplified not only by the number of text-books and manuals dealing with the subject, but also by the number and size of the publications furnishing data on the range of transistors and other semi-conductor devices and electronic components which are available.

In the series of electronic data annuals published by the Pergamon Press, there are two new volumes: the second volume of *British Transistor, Diode and Semiconductor Devices Data Annual* and the third volume of *British Miniature Electronic Components Data Annual*. Under the same editorship, that of G. W. A. Dummer and J. Mackenzie Robertson, are also two companion volumes, *American Subminiature Electronic Component Parts Data Annual* and *British Miniature and Microminiature Electronic Assemblies Data Annual*.