'PLASTHETICS'

The British International Plastics Annual, 1947
Pp. 274 + 183. (London: Croome Hill International,
Ltd., 1947.) 63s.

THIS work is designed for that large body of users of plastics who require a central source of information on the varied aspects of the industry. It provides technical data on the materials available commercially, and practical advice on the machinery and technique in their treatment. For the present, the authors are only concerned with developments in the British Commonwealth and the United States, so that this volume bears the title "British International Plastics Annual". Later they visualize a true international plastics annual published in many countries and in many languages but identical in matter. A system of standardization is thus essential, and this is one of the objects the Annual sets out to achieve.

The book deals with all modern plastic materials, and these are laboratory-synthesized resins and plastic products from 'Acrylic to Zein'. The authors introduce the descriptive word '*Plasthetics*' (derived from *plastics*, *synthetics*) to cover these products.

An introduction to organic chemistry, colloids and analysis is followed by a general description of the main groups of plasthetics, which number about thirty types. The properties of synthetic plastics are treated under general, physical, mechanical, optical and electrical properties, the effect of chemicals and finally the standards of the American Society for Testing Materials. In the section on fabrication processes we find compression, transfer, jet and injection moulding, as well as the manufacture of laminates, foil and sheet. There is also a useful section on diathermic and infra-red heating. The miscellaneous applications of plastics are very varied, and include varnishes, lacquers, yarns, safety glass, printing and adhesives, also medical and biological uses.

A comprehensive directory section gives technical data on upwards of eight hundred British and American commercial grades of plastics, machinery and equipment, together with the characteristics of two hundred solvents and plasticizers. This section includes the societies, trade associations and educational facilities in the plastics industries.

A work of this kind in its first issue can scarcely hope to be free from blemishes, and the publishers provide a questionnaire asking for comments and constructive criticism. Certain criticisms are noted by the reviewer. The index is not adequate for finding the extensive information provided. Some organic formulae require correction, for example, the breakdown of naphthalene (p. 20). The COOH and other groups are sometimes built into the aromatic ring (for example, in the phthalic acids, p. 114) when they are only substituents. The sensitization of colloidal gold by gelatine (p. 29) is rather out of place, and emphasis on its protective action would have been more to the point. Some of the formulae for mechanical properties (pp. 144-153) require revision and correction, and the symbols should be those used in current practice by engineers.

Such criticisms, however, are of a minor character compared with the major qualities of this work. This Annual should be of great value to the members of the industrial world for whom it is intended. It is probable, however, that a wider range of readers

will be eager to possess copies so far as the limited supplies will allow. The production of the book is of a high standard. Its useful contents, added to clear printing, good binding, and general appearance, will make it a worthy ambassador for British enterprise in the countries which it may ultimately reach.

S. R. CARTER

TEXTILE FIBRES**Matthews' Textile Fibers: their Physical, Microscopical and Chemical Properties**

Fifth edition, prepared by a Staff of Specialists under the editorship of Herbert R. Mauersberger. Pp. xvi + 1133. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1947.) 75s. net.

THE conversion of fibrous materials into cloth or felt has commanded the attention of civilized man from earliest times, and over the years a great deal of skill in the manipulation of a wide variety of naturally occurring fibres has been acquired. The existence of subtle differences between the various grades of fibres is well established, and the selection and blending of raw materials plays an important part in successful commercial processing. Prior to 1904, when the first edition of "Matthews" was published, most of the information on textile fibres was an accumulation of the observations of inquiring growers and industrialists; but in more recent times scientifically trained chemists, physicists and biologists have been attracted by the many problems involved in elucidating the structure of fibres and in investigating their physical and chemical properties. Great advances in our knowledge of the basic characteristics of textile fibres have resulted from work of this type, and there are now sufficient data available to justify a chemical interpretation of the fine structure of most fibrous materials. Probably the greatest contribution of the scientific worker to textiles has been, however, the development of the rayon industry to a size comparable with that of industries concerned with the natural fibres. New rayons with extremely interesting manufacturing possibilities have been introduced, and the day is not far distant when fibres will be made to precise specifications laid down by users.

This great expansion of activity in the field of textiles, and the consequent spate of original contributions, created a need for an authoritative publication collecting together most of the existing knowledge, and this has been met by the new and fifth edition of "Matthews"—the result of a united effort by some forty-seven experts. The work has been carried out under the general direction of H. R. Mauersberger, who is a well-known editor of textile publications, and his collaborators include eminent specialists such as K. R. Fox, F. C. Atwood, P. Larose, R. F. Nickerson, E. R. Schwarz, W. A. Sisson, H. DeWitt Smith, and W. von Bergen.

Detailed accounts of the production and properties of both natural and man-made fibres are given, together with descriptions of lesser-known brush, cordage and fur fibres, and there are chapters on fibre testing and fibre identification. Although due emphasis is given to microscopical characteristics, physical and chemical properties, and research concerned with the study of fibre structure, the results of more technical investigations are not neglected. Thus data on the statistics of fibre production and