

Polyethylene oxide and polyvinyl alcohol in common with the cellulose ethers give strong flexible water-soluble films and some information is disclosed on the preparation and possible uses of the films. The data relative to polyethylene oxide are quite detailed in this respect.

The chapters on polyacrylic acid derivatives including polyacrylamide cover a broad spread of information and deal very effectively with different methods of polymerization and the physical and chemical properties of the types available. The somewhat unusual polyvinyl pyrrolidone, a fall-out from the high pressure acetylene chemistry of REPPÉ is also well described.

The final chapter is entirely new to this second edition and describes some different ethylene imine polymers. These materials which are cationic and react in some ways similarly to simple amines have only recently become available commercially. A number of application areas including adhesives, ion exchange resins, photography and textiles are specified.

This volume makes no pretence of being a theoretical treatise and its practical approach should be of value to anyone concerned with the everyday problems of thickening, binding or emulsifying aqueous systems.

H. BATES

Applied Spectroscopy Reviews, Volume I

Edited by E. G. BRAME Jr. Marcel Dekker: New York, 1968. 6 in. × 9 in. 456 pp.
\$16.50

THIS is the first volume of a continuing series covering '... the entire field of spectroscopy ... applied to the various fields of science ...'. The reviewer can see no point in publishing a series having such wide terms of reference, especially as duplication of effort has already resulted from the proliferation of much more specialized series dealing with recent advances. The articles in volume one are of a high standard and spectroscopists will regret that personal copies will be a luxury on account of the low fraction of material that will be of direct interest to them. Chapter 1 is entitled 'Atomic fluorescence spectrometry' and is a short comprehensive account of this new development in flame photometry. Basic theory is presented and useful comparisons are made with cognate methods. The next chapter, 'Integrated intensities of adsorption bands in infra-red spectroscopy' points out the difficulties encountered in measuring absolute intensities and gives a useful compilation of data (including a correlation chart) for a wide variety of structural units. Chapter 3 is an interesting account of 'Internal reflection spectroscopy': this is an aid useful to infra-red spectroscopists working with solid or liquid samples. The following chapter 'Methods and applications in the examination of small samples by high-resolution n.m.r.' is an excellent exposition of the optimum conditions required by microcells, spectrometer settings and signal enhancement techniques in the pursuit of high sensitivity. Chapter 5 covers developments in 1965 and 1966 in 'Chemical far infra-red spectroscopy' in the areas of instrumentation and techniques but it deals mainly with applications to organic and inorganic compounds in this 300 to 10 cm^{-1} region. Chapter 6 will be of the most interest to readers of *Polymer*, namely, 'The examination of polymers by high-resolution nuclear magnetic resonance'. This is a useful collection of experimental methods and of configurational data obtained for a wide variety of polymers. The following chapter, 'Infra-red spectra of adsorbed molecules' is a review of techniques and vibration spectra observed for molecules adsorbed on metals and on metal oxide surfaces. The final chapter on 'Instrumentation, special characteristics and applications of soft X-ray spectroscopy' describes methods of X-ray excitation, dispersion and detection and also includes data on inorganic materials.

L. H. SUTCLIFFE

Treatise on Coatings, Volume I. Film-Forming Compositions, Part 2

Edited by R. R. MYERS and J. S. LONG. Marcel Dekker: New York, 1968. 6 in. × 9 in.
xl+434 pp. \$28.75

THIS book is the second out of three comprising Volume II of what is going to be a monumental, comprehensive, but very expensive reference work on Paint Technology. The work

will eventually comprise five volumes, each in several parts. Each chapter has been written by a different author and is essentially complete in itself. The topics covered are: Chapter 1. Styrene-butadiene latices, 2. Starch polymers, 3. Cellulose esters and ethers, 4. Drying oils, 5. Paint and painting in art, 6. Rosins, 7. Urea and melamine resins, 8. Vinyl resins and 9. Vinyl emulsions. The treatment given by the different authors varies very considerably. All of the chapters contain the technology of the particular binder under discussion but beyond this the treatment is far from uniform. Some chapters discuss pigmentation and give paint formulations while others omit this discussion entirely. The theory, when included, is cast at a rather low level and unfortunately is repeated somewhat in chapters dealing with similar topics, for example emulsions. A critical comparison of related topics would have been desirable, for example a comparison of styrene-butadiene, acrylic and vinylacetate emulsions would have been welcome. The authors are largely North American and naturally write from the North American viewpoint referring to North American raw materials. There are, however, two chapters by British authors which helps to provide some balance from the point of view of a reader on the east side of the Atlantic.

In spite of these shortcomings, judging from the parts I and II, this treatise will be very useful for reference. The libraries of most paint companies will wish to purchase it.

N. B. GRAHAM

Symposium on Fibrous Proteins. Australia 1967

Edited by W. G. CREWTER. Butterworths (Australia): Sydney, 1968. 7 in. + 9½ in. 432 pp. 200s

THE book is a collection of papers presented at the Symposium on Fibrous Proteins held in Canberra, Australia, in August 1967. It covers a wide selection of topics subdivided into the following sections: I. Relation between amino-acid composition, and conformation of polypeptides and proteins; II. Muscle and flagella; III. Collagen and elastin; and IV. Keratin.

As is usual with a collection of papers from an international meeting, both the quality and information content vary widely. In some contributions the amount of new information conveyed is negligible because all has already been revealed on more than one previous occasion. Consequently the value of the book must be judged on whether the collection of data presented is both useful and accessible. Undoubtedly there are very interesting and informative contributions to this volume. In Section I there is a valuable general article by ARNOTT which describes a procedure for optimizing the conformations and positions of molecules in crystals. The method has particular application to establishing the conformations of linear biopolymer systems (polypeptides and polynucleotides) for which the X-ray diffraction data are of poor quality and low resolution. Other main topics covered are the structure of lysozyme (NORTH), the stability of α -helices in proteins and polypeptides (FRASER *et al.*), hydrogen bonding and the conformation of polypeptides (RAMACHANDRAN *et al.*), the structure of silk fibroins (LUCAS *et al.*) and theoretical considerations of the conformations of polypeptide chains (LIQUORI). In the last article the computed conformation of gramicidin-S is presented again and since this differs from the prediction of another theoretical group, the experimental determination of the structure of this molecule is awaited with great interest.

In Section II the application of ELLIOTT's toroidal X-ray camera is beautifully demonstrated by the diffraction patterns shown by CHAMPNESS and LOWEY from bacterial flagella and by ELLIOTT from paramyosin. The conformations of both of these systems are discussed and a model is proposed for *Salmonella flagellum*. SUSAN LOWEY describes the enzymic degradation of myosin and a physical study of the resulting subunits. Other articles in this section are concerned with the biosynthesis of flagellin, the structure and denaturation of tropomyosin B and studies of interactions of subunits of myosin, myosin with actin and other small molecules with muscle proteins.

The section on collagen and elastin contains eight papers on the physical chemistry, biosynthesis and chemistry of collagen systems and two on elastin, while the last section on keratin, the largest in the book, reflects the general interest of Australians in wool. It