

and its possibilities in the refinement of proteins is illustrated by N. Isaacs.

It is natural that a volume on Dorothy's contributions includes many papers on protein structures, as she has been involved in the development of the entire field. She has initiated and stimulated much work in the area and many leading crystallographers have spent some time in her laboratory. Examples are ferritin (P. M. Harrison), leghaemoglobin (B. K. Vainshtein) and penicillopepsin (M. N. G. James, I.-Nan Hsu, T. Hofmann and A. R. Sielechi).

Some papers deal with the relation between protein structures such as dehydrogenases (M. Adams, I. G. Archibald, J. R. Helliwell, S. E. Jenkins and S. W. White), actinidin and papain (E. N. Baker) and the symmetry of proteins (T. Blundell, T. Sewell and B. Turnell).

As expected for a *Festschrift* to Dorothy there is a section on insulin as she has devoted so much of her research to questions related to that molecule. Some crystallographic problems were described (M. Vijayan) in the method section. In the main insulin part we find all aspects covered – precursors (D. F. Steiner), destabilizing agents (R. A. D. de Graaff), evolution (S. Falkmer and S. O. Emdin), semi-synthetic approaches (V. K. Naithani, H.-G. Gathner, E. E. Büllesbach and H. Zahn) and the main chemical synthesis (P. G. Katsoyannis). Other studies reported concern pharmacokinetic work (M. Berger, H. J. Cüppens, J. G. Davies, P. A. Halban, S. M. Hoare, R. E. Offord, A. Lewill-Bentley and S. P. Talley), work on the hydrogen bonding in insulin (N. Sakabe, K. Sakabe and K. Susaki), and solution phenomena (D. Mercola and A. Wollmer). Two contributions dealing with largely the same insulin work as Dorothy's are reported from China by the Beijing Insulin Structure Research Group and by Zhang You-shang. The section adequately concludes with a comparison of different insulin structures (J. F. Catfield, S. M. Catfield, E. J. Dodson, G. G. Dodson, C. D. Reynolds and D. Vallaby) and the chemistry, structure and function of insulin (D. Brandenburg).

It is unavoidable that a review of this *Festschrift* becomes rather lengthy as the contributions cover so many aspects of science. The *Festschrift* should be in the possession of every crystallographer not only because of the outstanding contributions but also because it gives an excellent insight into one of the great eras of crystallography.

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Solid state reactions. Monographs in modern chemistry, Vol. 12. By HERMANN SCHMALZRIED. Pp. 254 (101 figures and 6 tables). Completely revised 2nd edition. Weinheim, Deerfield Beach (Florida), Basel: Verlag Chemie, 1981. Price DM 98.00.

A first edition of this book has already appeared in the German (1971), English (1974) and Polish languages but was not reviewed in *Acta Crystallographica*. This, second, edition has been thoroughly revised, enlarged and comple-

mented in a number of sections; it follows the plan of the first edition, using the same chapter headings but with changes of detail. There are nine chapters and an idea of the scope of the book can be obtained from their titles: 1. *Short introduction to the bonding, structure and imperfections of solids* (10 pp.); 2. *Short introduction to solid state reactions* (8 pp.); 3. *Crystal defects* (18 pp.); 4. *Thermodynamics of point defects* (22 pp.); 5. *Chemical diffusion in the solid state* (34 pp.); 6. *Reactions in the solid state – ionic crystals* (37 pp.); 7. *Reactions in the solid state – metals* (38 pp.); 8. *Reactions between solids and gases or between solids and liquids with a solid reaction product* (33 pp.); 9. *Some technologically interesting solid state reactions* (37 pp.). In addition there are lists of symbols and units, author and subject indexes and an appendix (not in the first edition) of 18 problems. Some 450 literature references are distributed among the various chapters; about two thirds of these refer to sources written in English while most of the remainder come from the German literature. This broad coverage of the literature is to be welcomed. The first English edition had 214 pages so the present edition has been expanded by about 25% in content and is also more generously dimensioned than the first English edition.

The materials and reactions considered are taken entirely from inorganic and metallurgical chemistry; organic solid-state reactions, where a somewhat different approach would be required, are not considered. The range of topics covered is comprehensive but the number of reactions discussed is limited, with emphasis placed on in-depth, quantitative analyses. Thermodynamic aspects and matters of mass transport (diffusion) are stressed; although less attention is paid to structure and the role of defects, these are not ignored. The overall treatment is condensed and rather formal. The sometimes complicated symbolism is clearly typeset; I did not find any errors and the language is clear, with only a rare infelicity having escaped the editorial filter.

This book could serve as a very useful text in a high-level graduate course in solid-state chemistry, but I do believe that the instructor will find it necessary to provide an appreciable amount of assistance over the sticky patches. However, the efforts involved will be repaid – mastery of the subject matter of this book will give an excellent basis to anyone seriously interested in inorganic solid-state reactions.

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Structural aspects of biomolecules. Edited by R. SRINIVASAN and VASANTHA PATTABHI. Pp. xiii + 428. Madras: Macmillan India, Ltd, 1980. Price Rs 50.

This volume contains the text of 15 lectures which were delivered at the International Winter School on Current Trends in Biomolecular Structure, which was organized in Madras in January 1978. The lectures cover topics concerned with the chemical, structural and conformational aspects of biomolecules, obtained by the application of X-ray diffraction methods, optical and spectroscopic methods, and