Phytochemistry, 1971, Vol. 10, pp 1407 to 1408 Pergamon Press. Printed in England.

BOOK REVIEW

The Biochemistry of Inorganic Compounds of Sulphur: A. B. ROY and P. A. TRUDINGER. Cambridge University Press, Cambridge, 1970. 400 pp. £6.

THE EMPHASIS in this welcome and needed book is, as the authors stress in their preface, on the biochemistry of inorganic sulphur compounds and quite rightly the authors have not attempted to cover the biochemistry of organic compounds of sulphur 'except in so far as is necessary for a full discussion of the metabolism of inorganic forms of the element'. Drs. Roy and Trudinger have done an excellent job of collecting, collating and integrating much literature up to 1968 on the biochemistry of inorganic sulphur compounds.

If we accept that biochemistry is the study of the structure, organization and function of biological systems at the atomic or molecular level, then the more detailed one's knowledge of the pure chemistry of the major compounds involved (in the present case inorganic compounds of sulphur) then the more likely one is to understand, and indeed to be able to extend, the biochemistry of such compounds. In the living cell, however, the chemical reactions are enzyme catalysed, hence a knowledge of these enzymes is required before one can begin to integrate the data to obtain an understanding of the physiology of the living organism The plan of the book appeals to me in that it follows this logical sequence: chemistry, followed by enzymology, followed by physiology—and by physiology I mean knowledge of the processes occurring in the living organism (as distinct from metabolism in extracts etc.), the understanding of which is, after all, our ultimate aim.

The first 50 or so pages are devoted to the chemistry of relevant inorganic sulphur compounds (including a note on nomenclature) and these are followed by some 50 pages on methods of preparation and estimation of some of the more biologically important compounds. The next four chapters (about 115 pages) are enzymological and cover the nature and properties of sulphate activation enzymes (APS and PAPS formation), the sulphotransferases (catalysing sulphate ester formation with PAPS as the sulphate donor), the sulphatases (catalysing hydrolysis of sulphate esters), and finally two sulphotransferases catalysing sulphur transfer from thiosulphate (by rhodanese) and 3-mercaptopyruvate (by 3-mercaptopyruvate sulphotransferase) to CN^- yielding SCN^-. The next three chapters (about 100 pages) discuss the metabolism of inorganic sulphur compounds by microorganisms, plants and animals with emphasis on the microbes' contribution, an area where so much fundamental work has been done. One might add two or three later references in connection with the thiobacilli: the work of Hutchinson, Johnstone and White has continued with a numerical taxonomy study in *J. Gen. Microbiol.* **57**, 397 (1969); Taylor and Hoare [*J Bacteriol.* **100**, 487 (1969)] have re-evaluated *Thiobacillus novellus* and have described a new organism *Thiobacillus* A2 which as well as growing autotrophically on thiosulphate grows heterotrophically both faster and on a wider range of organic compounds than does *Thiobacillus novellus*; and a very useful and informative review by Rittenberg [*Advan. Microbial. Physiol.* **3**, 159 (1969)] on the roles of exogenous organic matter in chemolithotrophic bacteria. The final two chapters of some 14 pages cover some clinical and economic aspects of the subject.

The book is well arranged, well produced (I detected only one misprint: for sulphate read sulphite on p. 255, line 15 up), has author and subject indexes and something like 1600 references; it will undoubtedly be extremely useful to those interested in the biochemistry of inorganic sulphur compounds. It is unfortunate that the price is so high.

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