

The temperature of storage must be below -60°C for tissues impregnated with Eagle's solution containing less than 45% glycerol and below -130°C whenever the concentration of glycerol is higher.

Practical applications (tissues and organ banks) and the possibility of congealing and storing whole animals without harm are discussed.

M. WELSCH

Antibiotics in Medicine. L. P. GARROD (Editor). British Medical Bulletin **16**, No. 1, 1960. The British Council, London, 1960. 20s.

THE monograph: *Antibiotics in Medicine*, prepared under the eminently competent scientific editorship of Professor L. P. Garrod, devotes an introduction and fifteen papers, written by well-known specialists to the basic and practical problems of antibiotics. It will be of the highest value to the clinician wishing to make a rational therapeutic and prophylactic use of the numerous now available anti-infectious drugs.

Four chapters are of especial interest to the biochemical pharmacologist.

In the first one, "Chemistry and classification of antibiotics", E. P. Abraham and G. G. F. Newton, show how it is now possible to group the many known antibiotics into natural families on the basis of either their chemical structure or the mechanism of their biosynthesis.

The second one, by E. F. Gale, deals with the "Selective toxicity of antibiotics". It gives a clear and up-to-date picture of what is known of the modes of action of antibiotics at the molecular and cellular levels: inhibition of cell-wall synthesis by penicillin, cycloserine and bacitracin, gross cell-permeability alterations by surface-active antibiotics such as tyrocidin and polymyxin, interference with protein synthesis by chloramphenicol and the tetracyclines.

In the third one, "Drug resistance and mechanisms for its development", M. R. Pollock, first briefly describes the biochemical peculiarities that can be held responsible for microbial drug-resistance. He next discusses the respective roles of biological mechanisms that can conceivably induce more or less stable changes in individual bacteria and therefore, thanks to natural selection, promote population changes: enzymic induction and genic alterations such as gene mutation and gene recombinations of various kinds.

The last one, by J. M. Robson and G. A. H. Buttle deals with "The pharmacology of antibiotics". Perforce, since our knowledge is yet rather limited, the biochemical aspects are less stressed than in the other papers.

M. WELSCH

Glutathione. E. M. CROOK (Editor). Biochemical Society Symposium No. 17. Cambridge University Press, 1959. 116 pp., 15s.

EVER since Hopkins isolated pure glutathione nearly 40 years ago, the elucidation of the function of this ubiquitous substance has posed considerable problems. Some of the latest views on possible roles for glutathione were discussed at a Biochemical Society Symposium held in London in February, 1958.

The first two articles deal with the chemistry and methods of determination and are by F. A. Isherwood on the "Chemistry and biochemistry of glutathione" and by C. G. Thomson and H. Martin on "Techniques for determining glutathione in animal tissues". The next two sections are concerned with possible metabolic roles for glutathione in plants and animals: "Enzyme systems associated with the oxidation and reduction of glutathione in plant tissues" by L. W. Mapson and "Glutathione metabolism in animals" by P. C. Jocelyn. In these articles particular reference is made to the oxidation/reduction of glutathione, its coupling with TPN and with vitamin C, and to the role of glutathione as a coenzyme.

The remaining three sections are concerned with more specialized aspects of glutathione metabolism: "Glutathione and neural tissues" by H. McIlwain, "Glutathione and its analogues in the lens" by S. G. Waley, and "Thiols and radiation damage" by D. B. Hope. The latter article, as its