

THE CYCLOL REVIVED

Chemical Aspects of the Structure of Small Peptides An Introduction. By Dr. Dorothy Wrinch. Pp. viii+194. (Copenhagen: Ejnar Munksgaard, 1960.) 3.50 dollars.

REVIEWING the chemistry of the proteins in 1937, D. Jordan-Lloyd wrote "the chemistry of the proteins is a mystery no longer", and this enthusiastic overstatement was not out of touch with much informed opinion at that time. The prevailing optimism of the late 'thirties concerning our understanding of protein chemistry was, to a large extent, based on two newly postulated general hypotheses; these were the Bergmann-Niemann periodicity hypothesis and Dr. D. Wrinch's cyclol hypothesis. Although neither hypothesis was ever completely accepted, the former, indeed, being later conclusively disproved, both were of crucial significance in the development of protein chemistry, leading as they did to a renewed interest in the subject and to much important experimental work; for this reason their proponents will always occupy an honoured position in the history of protein chemistry. Very recently, something like the Bergmann-Niemann hypothesis, in much modified form, has been revived by Prof. Šorm, while, in the present book, Dr. Wrinch modifies the cyclol hypothesis and extends it to small peptides.

It is most unlikely that the views now advanced by Dr. Wrinch will command widespread acceptance; the reason for this is fundamentally semantic. Dr. Wrinch starts from the undoubted fact that in certain compounds containing amino-acid residues, such as the ergot alkaloids and the aspartyl-lysine 'dipeptide' from bacitracin *A*, these residues are not combined through simple amide linkages. She then argues that the existence of such compounds "means the repudiation of the peptide hypothesis, for if a hypothesis is subject to unpredictable exceptions, no predictions from it are reliable", and proceeds to a detailed examination of all the possible ways in which amino-acid residues might be combined, arriving finally at a generalized structural theory in which the 'cyclol' and 'amide' structures figure as special cases. Such an approach is, however, mathematical rather than chemical and will not be accepted by organic chemists. For an organic chemist, a peptide is defined as a compound made up of amino-acid residues joined head-to-tail by amide linkages, and the exceptional compounds cited by Dr. Wrinch are, quite simply, not peptides; Dr. Wrinch, on the other hand, appears to define a peptide as a compound made up of amino-acid residues, without restriction as to the manner in which these residues are joined together. In her earlier writings, Dr. Wrinch posed the question "Are proteins peptides?" and gave a possible answer to this meaningful question; now, however, she asks "Are peptides peptides?" and most organic chemists will find this a meaningless question.

In spite of these objections to her main thesis, Dr. Wrinch's new study is both significant and valuable. It is certainly possible, and some think probable, that the active centres of enzymes and other biologically active proteins involve some chemical modification of the simple peptide chain; Dr. Wrinch's systematic classification of such modifications will be of real value in stimulating further thought on this important topic. All organic chem-

ists and biochemists interested in biologically active proteins should read this little book for, although they will probably disagree with its conclusions, they will derive from it much stimulation.

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OPERATIONS RESEARCH AND SYSTEMS ENGINEERING

Operations Research and Systems Engineering By Charles D. Flagle, William H. Huggins and Robert H. Roy. Pp. x+889. (Baltimore, Md.: The Johns Hopkins Press; London: Oxford University Press, 1960.) 116s. net.

THIS book consists of a collection of the lectures given in the annual two-week course for management at the Johns Hopkins University, under the same title as the book. The lectures came from various academic departments and also the Applied Physics Laboratory and the Operations Research Office. They will be useful to the student entering on a career in operations research or industrial engineering, and also to directors, managers, and men of business generally who want to know what operations research is about, how it works, and what are its methods and achievements.

There are three parts, the first dealing with philosophical, historical, social and psychological aspects of the subjects. Some of the lectures, considering their length, are rather thinly spread with ideas of significance or importance; and it would surely be possible to say as much with fewer words. However, the lecture by Ellis A. Johnson, on "Operations Research in the World Crisis in Science and Technology", is a most important exposition and assessment of some of the great global forces which are shaping the future of mankind. The second part (more than half of the book) deals with methods and includes accounts of models, statistics, computers inventory, programming, queueing, simulation, design of experiments, information theory, system dynamics, and feed-back and stability. It must be stated that while each lecture is informative the accounts are only introductory. For example, the chapter on queueing theory gives an admirable account of what the subject is about and what it can do, but it does not go very much into mathematical methods. The third part, possibly the most valuable section of the book, is concerned with case studies. Three of these are industrial and concern the functioning of a hospital, a newspaper firm, and a telephone company. For the last-named it is the cost and value of reports which are studied. All three present thorough investigations and reveal the complex structure of practical operations research problems.

The subjects of operations research and systems engineering have developed rapidly in recent years, and the book under review demonstrates conclusively that what has been developed is not just a fashion but something much more permanent. The new way of looking at the operation of the total system, consisting of men and machines, has come to stay—at least in a society concerned with the reduction of waste, the improvement of efficiency, and progress towards a generally higher standard of living. To anyone concerned with this new point of view the book may be thoroughly recommended.

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