

## EDITORIAL

### REPORT ON THE VI INTERNATIONAL CONGRESS OF BIOCHEMISTRY

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THIS took place in New York from 26 July to 1 August, 1964. It was held in two modern hotels equipped for such meetings, namely the New York Hilton, and the Americana Hotels, and was attended by more than 6,000 biochemists. The Congress was magnificently organised by the Committee concerned under the Chairmanship of Dr. Stanford Moore. The President of the Congress was Dr. John T. Edsall. The Congress was held under the auspices of the International Union of Biochemistry, whose President was Dr. Severo Ochoa, and Secretary-General Prof. R. H. S. Thompson.

The Congress was divided into 10 Sections; Symposia took place in the mornings, and sessions for individual papers in the afternoons. There had been some selection in the papers proposed. The ten Sections were as follows; I Nucleic acids, II Proteins, peptides and aminoacids, III Biochemical Genetics, IV Mechanism of enzyme action, V Special topics in biochemistry, VI Carbohydrates, VII Lipids and sterols, VIII Cellular organization, IX Metabolism and its control, X Bioenergetics. Each Symposium was of much interest, and contained recent work. No one could attend more than a small part of the Congress because Symposia took place simultaneously. Nevertheless, it was easy to pass from one communication to another; the times were well documented. Another valuable feature was the provision of discussion rooms, which gave maximum opportunity for threshing out details over a cup of coffee. In the Symposia 202 papers were given, and in the Sessions 1,577 communications, making a grand total of 1,779. As would be expected the standard was high, and the field well covered.

In a short account, one cannot do more than draw attention to the high lights, and these will inevitably be coloured by any main interest. The 1,577 papers given in the Sessions do not lend themselves to a short review; but Biochemical Pharmacologists will find them well worth a search for the "nuggets of Gold" which they contain. In the Symposia there was much interesting pure chemistry of biochemical interest, such as the chemistry of the phosphagens, and also nearer to biochemistry in the enzyme field the biosynthesis of squalene and sterols, with its fascinating light on nature's use of stereospecificity. But there was also a noticeable swing towards considerations of structure and of biochemical events in the subcellular sphere; one symposium was devoted to cellular organization and another to metabolism and its control. Naturally, there was much attention given to nucleic acids and genetics (e.g. progress in coding, the effects of small lengths of nucleic acids as templates, reached by partial digestion). Fluorouracil was found to act mutagenically on

tobacco mosaic virus. It is interesting that it is now believed that the single stranded RNA in the virus goes through a double stranded replicative phase. The effect of histones in inhibiting the action of RNA polymerases seemed to be an important lead to an understanding of the function of the protein part of nucleoprotein.

It was gratifying to have the full peptide structure of chymotrypsinogen, independently confirmed, and to know the effect of alterations in the structure of the peptide oxytocin upon its function. Again it was exciting to hear of the synthesis of insulin, so soon after the determination of its amino acid structure. Much attention is evidently being given to —SH groups, both as to their part in structure due to formation of —S—S— bonds, and also as to their position in the complicated molecules, whether they are tucked inside or exposed on the outside of the molecule, a very interesting development of earlier work. Intensive study of certain enzymes, such as ribonuclease, glyceraldehyde-3-phosphate dehydrogenase and phosphoglucomutase, all points to getting an approach to an understanding of the active centre of the enzyme, apparently connected also with serine and imidazole. The suggestion too that the substrate may itself alter the shape of the enzyme protein surely foreshadows an important generalization. There was also new information on the multiple forms and sub-units of enzymes, and—a kind of extension of this—the proof that fatty acid biosynthesis was due to a multi-enzyme complex.

The mitochondrion is being dissected and its components resynthesized, involving the delineation of coupling factors for the different stages of oxidative phosphorylation.

The Symposium on membrane ultrastructure both summarized previous work and brought to light new points, demonstrating the binding of some enzymes like ATPase to membranes, and shedding new light on the mechano-proteins of muscle tissue, actin and myosin. It seems that splitting off of phosphate does occur in muscular contraction. Finally we were led to consider problems of biosynthesis, with the examples of isocytochrome C and histidine. Also there was the detailed work on the regulation of the glyoxalate cycle, and the whole question of feedback inhibition. The latter subject is advancing rapidly, and extends for instance even to the control in the animal of glycolysis at the phosphofructokinase level by an increasing accumulation of citrate, formed in the tricarboxylic acid cycle. Induction of enzymes also received some attention. In summary, to one who had the good fortune to attend the first Congress in Biochemistry in 1949, it is quite astonishing that so many problems which then seemed insoluble have now been either solved, or are on the way to solution. This justifies more than ever the value of continued effort in research, and gives hope for the future.