MEETINGS

NEW STRUCTURAL METHODS

OXFORD—1966

A SYMPOSIUM on "Newer Physical Methods in Structural Chemistry" was held during July 18–21 in New College, Oxford. The meeting was somewhat out of the ordinary in that it was organized not by a scientific society but by the journal *Laboratory Practice*, and running alongside the conference a small and most useful exhibition of equipment relevant to the main themes had been arranged. The experiment was successful, and it is tempting to think that it would be welcome in other areas.

The meeting provided an opportunity, taken by more than 120 delegates, to catch up on and discuss recent developments in two areas—first, mass spectrometry and, then, optical rotatory dispersion and circular dichroism. These topics had been suggested by the president, Sir Robert Robinson, and he, together with Prof. Carl Djerassi and Prof. W. Klyne, had been largely responsible for indicating the direction that the symposium should take.

The thirty-one papers presented divided somewhat in favour of mass spectrometry (by 19 to 12). To some degree this division of interest was real, but Prof. Djerassi, who gave the first paper, has been a pioneer in both fields. He dealt with the migration of alkyl groups and oxygen functions in fragmentation processes. It was apparent in this, as in other papers, that the mapping of a fragmentation pattern requires extensive studies (accurate fragment masses, metastable peak observations, isotopic labelling) if a reasonably certain interpretation is to emerge. In this area some particularly elegant experiments involving labelling by both deuterium and carbon-13 were described by Dr. B. J. Millard (Liverpool). Dr. D. Williams (Cambridge) described many other examples of rearrangements, and the story was taken up by Prof. M. Fetizon (Paris) and Prof. A. Maccoll (University College, London), who discussed respectively the relation of fragmentation pattern to stereochemistry and the behaviour of ureas and thioureas on electron impact.

Computer techniques are popping up practically everywhere, and it was no surprise that when attention turned to rotatory dispersion, two contributors discussed the application of such techniques in the interpretation of optical rotatory dispersion curves of polypeptides and proteins. The Cotton effects of aromatic compounds are also attracting a good deal of attention. Prof. Klyne and Mr. R. J. Swan (Westfield College, London) presented some new results in this area and Dr. K. Kotera (Osaka) put forward a rule of the octant type to correlate his observations on a series of lycorine alkaloids and related compounds. But then Dr. G. Snatzke (Bonn) presented a different treatment, and it was evident that something of a controversy is in the making. In the open forum which followed, Prof. Djerassi emphasized the difficulties involved: since guesswork has a fifty per cent chance of predicting the sign of the Cotton effect of a given compound, an especially extensive range of examples is required before a "rule" can graduate to the status of a rule.

One of the most elegant papers in the second section was that given by Prof. S. F. Mason (East Anglia) on the non-empirical determination of absolute configuration using circular dichroism. Aromatic chromophores were again concerned, and the treatment based on coupled oscillators which has already been published for calycanthine was extended to several related compounds, to Tröger's base, and to diphenyl systems of the aporphine alkaloid series.

The conference was set at a cracking pace and although the open forum was a valuable session, longer breaks for discussion between papers—when points at issue were still fresh in the mind—would have been welcome.

R. BONNETT

MICROCIRCULATION METHODS

IN connexion with the fourth European Conference on Microcirculation recently held in Cambridge (June 26–July 2) a four-day symposium on methods suitable for use in the study of the microcirculation of the blood was organized by Prof. H. Wayland of the California Institute of Technology. The number of participants was restricted to twenty-seven so that workers with scientific, medical and engineering interests were brought closely into contact during a series of meetings and short specialized lectures.

During the past thirty years a great many disciplines have become involved in the study of the microcirculation but knowledge of the processes of flow and exchange which occur is fragmentary and largely qualitative. Most of the effort at the meetings was concentrated on techniques for measuring four microcirculatory parameters—microvascular geometry, exchange across the capillary wall, intracapillary pressure, and the velocity of blood and its components. The choice of ancillary equipment and methods of data processing was also discussed.

There was agreement at the meeting on the desirability of knowing the total geometry of the vascular pattern in each tissue and organ, the fluctuation with time of the distribution of blood, and the variations under physiological and specific pathological conditions. The quantitative description of the vascular pattern should include the number, length and diameter of each type of blood vessel and, if possible, the thickness and composition of the walls, the branching angles, the distance between branches and the presence or absence of specific peripheral networks. Data on the endothelial surface area for each type of blood vessel, the volume density of capillaries and the maximum diffusion distances were also required. Such information, which is not at present available, would permit better and more detailed correlation of structure with function and the construction of vascular models for analysis of variables. Dr. C. Piovella (Pavia, Italy), Prof. E. H. Bloch (Cleveland, U.S.A.), Dr. H. J. Berman (Boston, U.S.A.), Dr. W. Bolt (Cologne, Germany) and Dr. S. S. Sobin (Los Angeles, U.S.A.) divided the methods available for such studies into three categories; first come the '*in vivo*' techniques of angiography, microscopic visualization of the blood vessel at the surface of tissues and organs, and the introduction of optical fibres into the depths of a living tissue. The second category includes perfusion after death with a dye or a fluid medium that hardens into a cast, and the third the immediate capture of the living state for subsequent analysis by rapidly freezing the tissue or injecting silicone elastomers into the living preparation. In all cases, much patient and often tedious routine measurement will be needed in order to provide the required data. Two simple but potentially useful suggestions were, first, that investigators who work with a particular organ, tissue or membrane preparation should describe its vascular pattern in a quantitative and reproducible manner and, secondly, that a reference marker of a stated length (preferably placed initially in the optical path) should be incorporated into all figures and illustrations of the microvascular system.