

NOTES AND NEWS

Fourth European Conference on Microcirculation, Cambridge, England, 1966

THE Fourth European Conference on Microcirculation which was held in Cambridge from 26th June to 2nd July 1966 gave Britain its first opportunity of acting as host to the Conference. The British Microcirculation Society, under the Presidency of Dr. A. G. Sanders and Secretaryship of Dr. P. A. G. Monro was responsible for the arrangements which were excellently conceived and executed.

Although the themes of "pharmacological effects on blood vessels and surrounding tissue" and "tissue reaction to organ and tumour transplantation" were selected for special study, the proceedings ranged over a considerably broader field. The majority of the research effort could, however, be grouped into three important areas.

(1) *The form, function and architecture of the microcirculation.* With improvements in embedding and microscope techniques very detailed visual information on the structure of tissue is being made available. It is becoming clear that there are significant differences between the microvascular beds of different organs so that there is probably no standard microvasculature, just as there is no standard living cell.

(2) *The flow behaviour of blood and its constituents.* In the microcirculation it is unrealistic to imagine that blood can be treated as a homogeneous fluid. The formed elements are often large enough to fill completely the lumen of the small vessels, leading to quite different flow and diffusion behaviour from what would be expected for a simple liquid. Additional complications arise when the aggregation of components of the blood is induced by trauma, disease or the presence of pharmacological agents.

(3) *Exchange across the capillary wall.* It is apparent that the classic theories based on a balance between osmotic and hydraulic pressure are unable to account for the observed exchange behaviour and that, for example, the leakiness of the capillaries is greatest at the venous end.

Mechanisms for the dynamic control of the microcirculation, particularly the significance of the various rhythmic changes in electrical activity and blood flow rate, were also discussed and one session was devoted to clinical aspects of the microcirculation.

There is no doubt that the days of qualitative, pictorial research of the microcirculation are numbered and a distinct trend towards the collection of detailed quantitative data can be discerned. But there are special difficulties in designing equipments which are sufficiently sensitive in their operation and precise in their point of measurement for use in the microvasculature. Moreover, the stream of data which they can produce calls for sophisticated techniques of recording and handling. It was refreshing, therefore, to see the active participation of pure and applied scientists in the proceedings and one lesson which can be learned from the Conference is that much closer collaboration between practitioners in different disciplines will be essential in the future if full use is to be made of modern research techniques.

Although the Conference was nominally a European one, membership was world-wide; indeed one of the largest groups among the 270 participants came from North America

where interest in the microcirculation is particularly intense. At a business meeting this global interest was recognised by a request for the Committee to work towards an International Microcirculation Society which it was hoped would be formed at the 5th European Conference due to be held in Göteborg, Sweden in 1968.

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Two sessions were devoted to Hemorheology, these were:

(a) **Viscosity of Plasma and Blood** (*Chairmen: G. W. Scott Blair, A. Silberberg and S. Rowlands*)

Paper 54 JOHN HARKNESS and R. B. WHITTINGTON: Variation of human plasma and serum viscosities with their protein content.

55 B. O. SHORTHOUSE and M. T. HUTCHINSON: Investigation into the visco-elasticity of cell free plasma using the bio-rheogoniometer.

57 R. L. WHITMORE: The "Viscosity-plus" factor.

58 S. CHARM, F. NELSON and G. KURLAND: Flow deformation of red cells in capillaries.

59 H. L. GOLDSMITH: Some flow properties of the erythrocyte.

60 W. G. FRASHER, JR., J. HAROLD WAYLAND and SIDNEY S. SOBIN: Outflow viscometry of blood.

61 D. BRAASCH: Erythrocyte flexibility and blood flow resistance in capillaries with diameters less than 20 microns.

62 M. I. GREGERSEN, S. USAMI, S. CHIEN and R. J. DELLENBACK: Contribution of cell-protein interactions and deformability of the red cells to non-Newtonian behaviour of human blood.

(b) **Effect of dextrans *in vitro* and *in vivo*** (*Chairmen: S. E. Charm, A. L. Copley and R. L. Whitmore*)

Paper 72 J. ENGESET, A. L. STALKER and N. A. MATHESON: Erythrocyte aggregation—studies on the effects of Dextran 40 and on the quantitation of aggregation and "cohesiveness".

73 HERBERT J. MEISELMAN: The effect of the addition of dextran on the flow properties of blood.

74 D. P. DHALL, P. BENNETT, F. N. MCKENZIE and N. A. MATHESON: Effects of dextran on human platelets.

75 A. A. PALMER: Platelet and leucocyte skimming.

76 L. LEANDOER, S. -E. BERGENTZ and D. H. LEWIS: Induced red cell aggregation and the transit time of red cells and plasma through the lung.

77 L. -E. GELIN, U. BRUNIUS, A. FRITJOFSSON and D. H. LEWIS: Hemodilution and Kidney function during shock.

Hemorheology also crept into the papers given in many other sessions, the most important being:

Capillary Blood Flow (*Chairmen: E. H. Bloch and P. A. G. Munro*)

Paper 38 PATRICK D. HARRIS: Quantification of capillary RBC flow.

39 H. WAYLAND and P. C. JOHNSON: Erythrocyte velocity measurement in microvessels by a correlation method.

- 40 P. C. JOHNSON and HAROLD WAYLAND: Measurement of blood flow in single mesenteric capillaries, venules and arterioles.

Permeability of Vascular Endothelium (*Chairmen: M. I. Gregersen, B. Peric and G. V. F. Seaman*)

Paper 96 E. H. BLOCH: Dynamics of transendothelial transport.

97 M. INTAGLIETTA: Evidence for a gradient of permeability in mesenteric capillaries.

98 G. HAUCK: Genesis of stasis. A contribution by virtue of luminescence-microscopic observations.

99 A. L. COPLEY, J. P. HANIG, B. W. LUCHINI and R. L. ALLEN, JR.: On the capillary permeability enhancing activity of isolated fibrinopeptides and their role in the physiology of the blood capillary wall.

Clinical Microcirculation (*Chairmen: H. Harders, C. Piovella and A. G. Sanders*)

Paper 107 F. SKOVBOG, AA. VØLUND NIELSEN, J. SCHLICHTKRULL and J. DITZEL: Blood viscosity in diabetic patients.

110 ROE E. WELLS: Blood flow in the microcirculation of man and the flow properties of blood: a correlative study.

111 L. DINTENFASS: Rheology of blood in cardiovascular diseases.