rated into the basic control loop; *i.e.*, a cardiac output loop, an autoregulation loop, baro- and chemoreceptor loops, etc. Following this most intriguing analysis of circulatory regulation, Guyton made it clear that one of its most important features (and a postulate on which the validity of the model heavily depends) is based on recent evidence (which is not yet unequivocally documented) that normal interstitial fluid pressure is negative, about −7 mm. of mercury, and that compliance of the interstitial fluid system (ability to retain fluid at a specific pressure) is very low at negative pressures but increases rapidly at very slight positive pressure to permit massive edema formation. This sort of function curve and mechanism of fluid accumulation acts as a safety valve for the circulatory system to prevent increase in blood volume in the presence of fluid retention. The discussion of this presentation generally seemed to accept the logic and accuracy of Guyton's model, but raised the issue of the incomplete state of our knowledge and experimental techniques in dealing with tissue pressure phenomena.

In addition to models of the total cardiovascular system a number of models dealing with various circulatory segments and tissue systems (including some which utilized highly modified living preparations and biological materials) were presented, *i.e.*, heart, kidney, exchange (capillaries) vessels, cell membranes, the cell itself, lung. Dr. D. A. T. Dick (Oxford University, England) described an approach to the molecular structure of living cells by mathematical analysis of water flux based on data from tracer studies. He illustrated the principle and credibility of his approach by means of the findings in answer to three important questions regarding the molecular structure of the cell. (1) Are protoplasmic proteins in solution? (2) Is there an intermocular structure in the cytoplasm? (3) Are there water filled pores in the cell membrane? The answers (all in the affirmative) were consistent with prevalent current opinion from existing data derived with in-vivo and in-vitro systems and electron microscopy.

In general, most of the other presentations dealt with control systems and exchange systems analysis which, although heavily dependent on computer use, complex mathematics, physics, etc., stemmed from critical, primary physiologic data and principles: Control of cardiac output (W. S. Topham, University of Utah). Baro-receptors (I. Hatakeyama, Yokahama University, Japan; A. M. Scher, University of Washington). Regulation of body water content (E. B. Reeve, University of Colorado), Oxygen exchange (H. Bailey, Rose Polytechnic Institute; D. S. Smith, University of Miami; G. Thews, Gutenberg University, Germany).

S. G. HERSHEY, M.D.

Anesthesia

SPINAL ANESTHESIA A method is described using 1.5 ml. of 1 per cent lidocaine to produce spinal anesthesia for repair of myelocele and myelomeningocele. It has been used successfully without complications or marked hypotension in 26 cases in which the infants were from 2 to 41 hours postpartum. (*Calvert, D. G.: Direct Spinal Anaesthesia for Repair of Myelomeningocele, Brit. Med. J. 2: 86 (July) 1966.*)