who underwent open heart operations with extracorporeal circulation disclosed the following changes in the postoperative period: mild anemia, minimal hemolysis of erythrocytes, leukocytosis, "atypical" lymphocytes, slight reticulocytosis and minimal prolongation of the prothrombin time. (*Battle, J. D. and Hewlett, J. S.: Hematologic Changes Observed After Extracorporeal Circulation During Open Heart Operations, Cleveland Clinic Quart. 25: 112 (April) 1958.*)

CARDIAC PACEMAKER To undertake open heart operations without a pacemaker at hand no longer seems justifiable. The electrodes should be placed on the heart of any patient in whom atrioventricular block occurs during the operation, even though the ventricular rate appears satisfactory at the time. The pacemaker should be used in children whose ventricular rates fall below 90, and in adults whose rates drop below 80. (*Olmsted, F., Kolff, W. J., and Effler, D. B.: Electronic Cardiac Pacemaker After Open Heart Operations, Cleveland Clinic Quart. 25: 81 (April) 1958.*)

PULMONARY COMPLICATIONS Temporary overloading of the pulmonary circulation is the most important single factor in the initiation of capillary damage that marks the beginning of severe pulmonary complications after open heart operations. Overloading may occur by forward overfilling, through collateral vessels and by retrograde overfilling. Other possible factors are pre-existing pulmonary vascular disease, oxygen intoxication of alveolar and capillary cells and exsiccation of the lungs. (*Kolff, W. J., and others: Pulmonary Complications of Open Heart Operations: Their Pathogenesis and Avoidance, Cleveland Clinic Quart. 25: 65 (April) 1958.*)

OPEN HEART SURGERY Extracorporeal circulation and hypothermia were used for open heart surgery in a series of 46 patients. Low flow extracorporeal circulation and hypothermia have proven to be complementary for open heart surgery. This procedure is supported by the high venous oxygen saturation and the minor alteration in the lactic acid levels in the blood during perfusion. Difficulties in temperature control have been solved by the use of a heat exchanger in the extracorporeal system. Cardiac irritability has not been a serious problem. (*Sealy, W. C., Brown, I. W., and Young, W. G., Jr.: Report on Use of Both Extracorporeal Circulation and Hypothermia for Open Heart Surgery, Ann. Surg. 147: 603 (May) 1958.*)

OPEN HEART MORTALITY With the use of extracorporeal circulation techniques, the mortality rate is now well under 5 per cent in the less serious cardiac defects. DeWall achieved a rate of 2.5 per cent in 40 consecutive cases; Spencer reports thirteen consecutive aortic commissurotomies with no mortality; Lillehei reports a mortality rate of 8 per cent in the last 25 consecutive patients undergoing complete correction of tetralogy of Fallot. (*Heimbecker, R. O.: Heart-Lung Machine in Open Heart Surgery, Canad. M. A. J. 78: 534 (April 1) 1958.*)

AORTIC VALVE SURGERY Two techniques for aortic valve surgery under direct exposure have been devised in dogs. Both utilize a pump-oxygenator which returns blood to the femoral artery while the aorta is clamped two inches distal to the aortic valve. To maintain myocardial integrity in one method, oxygenated blood is perfused through the coronary system in a retrograde fashion after inserting a cannula into the coronary sinus. The second method utilizes the induction of cardiac standstill with potassium to prevent myocardial damage. Both methods permit restoration of normal unsupported circulation in most instances. (*State, D., and others: Direct Visualization of Aortic Valve in Dogs, West. J. Surg. 66: 79 (March–April) 1958.*)

MYOCARDIAL CONTRACTILITY The effect of cardiac bypass with potassium induced arrest and right ventriculotomy was investigated in fourteen dogs and ten patients. Direct measurements of myocardial contractility in these studies showed that the heart was still capable of doing the same amount of work following re-