warmed for 24 hours, but a significant loss was not detected except in blood stored longer than 21 days. Tolerances to temperature variation and mechanical stress tolerance are reduced when blood is stored for more than 14 days. (*Shields, C. E.: Temperature and Mechanical Effects on Stored Blood, Transfusion 9: 291 (Sept.) 1969.*)

HEPATITIS ANTIGEN The hepatitis antigen is a specific factor in the sera of patients with viral hepatitis and is detected in a simple two-dimensional immunodiffusion system which employs sera from patients receiving multiple transfusions. It is present during the early stages in more than 80 per cent of patients with both types of viral hepatitis, but not in patients with other forms of hepatic disease. The hepatitis antigen was found in 25 of 4,084 apparently-healthy blood donors. Fifteen recipients of blood from these hepatitis antigen-positive donors were followed a minimum of three months. Four of the 15 died of their underlying diseases within two weeks of transfusion. Of the 11 surviving recipients, seven developed typical clinical and laboratory signs of viral hepatitis, associated with the appearance of hepatitis antigen in their sera. The other four recipients remained well and without the antigen three to six months after transfusion. Sixty-one recipients of 484 units of antigen-negative donor blood were followed in the same manner. Only four cases of hepatitis, all lacking the hepatitis antigen, were observed in this group. This test appears to have great potential for the detection of infectious blood donors. (*Gocke, D. J., and Kavey, N. B.: Hepatitis Antigen: Correlation with Infectivity of Blood Donors, Transfusion 9: 287 (Sept.) 1969.*)

GREEN PLASMA IN BLOOD DONORS Recently, many female blood donors have had extremely green plasma. Elevated levels of ceruloplasmin, a blue-green plasma protein, are found in pregnancy, after estrogen administration, and with rheumatoid arthritis. Since the possibility existed that the greenness of plasma in the donated blood was related to estrogen usage, female blood donors were asked specifically whether they were taking oral contraceptive tablets. Ceruloplasmin levels in 15 units of blood whose plasma appeared extremely green were determined by an oxidase assay method. Twelve of the 15 units had prominently elevated ceruloplasmin, as much as two to three times the normal levels. Most of the green plasmas were from donors taking oral contraceptive pills with estrogen components. These green plasma units possibly may have deleterious effects, but at the present time the authors believe they are suitable for transfusion. A green color in plasma should no longer suggest only the presence of a *Pseudomonas* organism producing a green pigment. (*Wolf, P., and others: Green Plasma in Blood Donors, Transfusion 9: 288 (Sept.) 1969.*)

TRANSFUSION REACTIONS In answer to the question whether it is safer to transfuse a patient with blood of his own group after he has received five or more units of "safe" group O blood than it is to continue using group O, one expert answered, "I have personal knowledge of severe hemolytic transfusion reactions occurring when group B (or A) blood was given to patients of group B (or A) soon after they had received multiple transfusions of low-titer group O blood. The basis for their reactions was persistence of transfused antibody, which could be demonstrated in the patient's plasma. The patient's blood had been, in effect, converted temporarily to group O and had reacted accordingly and sometimes disastrously when he was transfused with blood of his original group." Another expert answered the same question by stating that in determining when group-specific blood can be used, the important thing is not the number of units of group O blood that were transfused, but rather the presence or absence of circulating antibody in the recipient. Crossmatches between freshly drawn blood from the patient and group-specific donor blood should be done. If these (including the antiglobulin technique) are compatible, the unit can be transfused. (*Busch, S.: Questions and Answers, Transfusion 9: 166 (May) 1969.*)

Respiration

LUNG FUNCTION AFTER CARDIAC SURGERY Pulmonary diffusing capacity

($D_{L_{CO}}$), alveolar–arterial oxygen tension difference while breathing air ($A\text{-}aD_{O_2}$) and physiologic deadspace ratio ($V_D/V_T \times 100$) were studied preoperatively, immediately following open-heart surgery, on the first postoperative day, and 20 days later in 12 patients with severe mitral stenosis. Average values for $D_{L_{CO}}$ were 9.8, 4.1, 5.6, and 6.9 ml/min/mm Hg, respectively. Total $A\text{-}aD_{O_2}$ values were 31, 52.5, 49.8, and 35.2 mm Hg. The corresponding non-shunt components of the $A\text{-}aD_{O_2}$ were 25.3, 38.6, 40.9, and 23.8 mm Hg. $V_D/V_T \times 100$ values were 47, 53, 56, and 49 per cent. Following cardiac bypass the distribution of pulmonary blood flow is uneven, as evidenced by a decrease in pulmonary diffusing capacity, an increase in physiologic deadspace, and an increase in the non-shunt component of $A\text{-}aD_{O_2}$. (*Kaplan, S. L., and others: Effect of Cardiac By-pass on Pulmonary Diffusing Capacity, J. Thorac. Cardiov. Surg. 57: 738 (May) 1969.*)

OXYGEN TOXICITY Pure isobaric oxygen therapy for 72 hours produces pulmonary hyaline membranes in guinea pigs. Coagulation profiles were made for guinea pigs after 48 hours of inhalation of pure oxygen to determine whether hyaline-membrane formation is preceded by changes in the clotting or fibrinolytic systems. Statistically significant decreases in total profibrinolysin, free profibrinolysin and fibrinolytic inhibitor were found. Other changes in the coagulation profile suggested partial activation of the clotting mechanism. These results demonstrate that deficient fibrinolysis precedes the development of hyaline membranes, and suggest a causal relationship between hyaline membrane disease and deficient fibrinolysis. In neonatal and adult human hyaline membrane disease, deficient fibrinolysis has been demonstrater after the membranes already have been formed. (*Phillips, L. I., and others: Fibrinolytic Deficit in Oxygen Intoxicated Guinea Pigs, Aerospace Med. 40: 744 (July) 1969.*)

RESPIRATORY CARE The Bird Mark 7 respirator (IPPB) effectively treated 42 episides of severe acute respiratory failure in 32 patients with chronic obstructive pulmonary disease. Mean P_{CO_2} decreased within 24 to 48 hours by 32.5 mm Hg, from the pre-IPPB level of 80.8 mm Hg. No patient died in the first three days, only six patients (14 per cent) died within the first two weeks, 33 episodes ended with removal from the respirator, and 21 patients (50 per cent) ultimately were discharged from the hospital. Pressure-cycled respirators can be as effective as any other type of respirator, including those that are volume-cycled, if they are properly used and the results monitored by frequent arterial blood gas and *p*H measurements, with due regard to regulation of inspiratory, expiratory and oxygen flows. (*Billingham, M., and Eldridge, F.: Use of a Pressure-cycled Respirator (Bird) in Respiratory Failure Due to Severe Obstructive Pulmonary Disease, Ann. Intern. Med. 70: 1121 (June) 1969.*)

HOT-WATER DISINFECTION Oxygen therapy equipment (Bird respirator, nebulizers, Bennett monitoring spirometer and anesthetic bags and face masks) used on patients with respiratory infections (*Staphylococcus aureus, Pseudomonas pyocyaneus,* diphtheria) were dismantled, washed with commercial detergent, then immersed for 15 minutes in an instrument-boiler sterilizer with a thermostat set to keep the water between 80 and 85 C. Cultures taken after the equipment was removed from the water and allowed to cool showed complete disappearance of gram-negative bacilli, with only "skin flora organisms" growing in a few cases. This latter was attributed to handling of the equipment with bare hands after sterilization. The authors concluded that this was an efficient, economical, rapid and safe method for disinfecting such equipment. (*Roberts, F. J., Cockcroft, W. H., and Johnson, H. E.: A Hot Water Disinfection Method for Inhalation Therapy Equipment, Canad. Med. Assoc. J. 101: 30 (July) 1969.*)

OXYGEN EFFECTS ON THE EYE Increased oxygen pressure results in two overlapping groups of effects on the eye. These overlapping groups have "physiologic" or "pathologic" consequences. Included in the former category are retinal vessel constriction and reduction in the peripheral visual field. They can be expected to occur immediately