

proximately 14 minutes is required for a complete determination; this time includes the mixing time of 10 minutes. As many as eight repeat determinations using new RISA would not exceed the total radiation resulting from a chest roentgenogram. The accuracy, speed and convenience of this device make it possible to increase the scope of blood volume studies in the laboratory, in the operating room and in the clinic. (Williams, J. A., and Fine, J.: *Measurement of Blood Volume with a New Apparatus*, *New Eng. J. Med.* 264: 842 (Apr. 27) 1961.)

BLOOD PRESSURE Error between two observers in the estimation of consecutive blood pressures was evaluated. Blood pressure was estimated to the nearest even number using a mercury manometer with a standard cuff on supine subjects. Two observers alternately recorded pressures on 510 patients. The observer error is significant (2.6 mm. \pm 0.81) for the systolic but is not significant (0.8 mm. \pm 0.45) for the diastolic blood pressure. The frequency distributions of the recordings of the two observers differ significantly for systolic and diastolic blood pressure. (Anderson, W. F., and Cowan, N. R.: *Observer Error in Recording Arterial Blood Pressure*, *Blood* 23: 169 (Mar.) 1961.)

BLOOD pH In 243 patients, pH values of blood, measured at 37.5 C., were compared with the corresponding values determined at room temperature and corrected by means of Rosenthal's formula. Discrepancies of 0.05 pH unit and even higher were observed between the two sets of values. As much as 0.03 unit may be due solely to instrumental variation. Ideally, blood pH measurements should be made at the body temperature of the patient, but practically, measurements made at some standard temperature in the normal range, such as 37.5 C., are usually satisfactory. (Faulkner, W. R.: *Evaluation of Error in Measurement of pH of Blood at Room Temperature*, *Cleveland Clin. Quart.* 28: 116 (Apr.) 1961.)

PULMONARY BLOOD FLOW Pulmonary blood flow may be measured in man using a constant infusion of radioactive kryp-

ton and employing a modification of the Fick principle. This method permits the estimation of right ventricular output in transient as well as steady states. It also permits the frequent repetition of measurements, as many as five determinations being possible in one minute. Because of the very short biological half-life of Kr^{82} and the doses used, the radiation exposure to the patient is minimal. The handling of the samples containing krypton requires considerable care and the amount of blood loss may be considerable since at least 10 ml. are required for each determination. Blood flow measured by this method and by the direct Fick method, both at rest and in a steady state of exercise, agreed within 10 per cent in 24 of 28 determinations. (Rochester, D. F., and others: *Estimation of Right Ventricular Output in Man Using Radioactive Krypton (Kr^{82})*, *J. Clin. Invest.* 40: 643 (Apr.) 1961.)

CARDIAC OUTPUT Arterio-venous oxygen difference exhibited a remarkably small range of variation in a series of resting human subjects. The mean value was 39.8 cc./l. with a standard deviation of \pm 5.8 cc./l. Consideration of the Fick equation for determining cardiac output indicates a linear relationship between cardiac output and oxygen uptake. Since cardiac index (cardiac output/liter of body surface area) is not a valid standard of blood flow for individuals of varying age, sex and body size the arterio-venous oxygen difference is suggested as a standard relation to the normality of blood flow values. (Reeves, J. T., and others: *Cardiac Output in Normal, Resting Man*, *J. Appl. Physiol.* 16: 276 (Mar.) 1961.)

CARDIAC OUTPUT Cardiac output was not influenced by meperidine-atropine premedication as shown by ballistocardiography. The "lytic cocktail" (chlorpromazine, promethazine and meperidine) increased it. Barbiturate induction causes a fall of cardiac output. A marked increase of cardiac output is caused by trimetaphan (Arfomad). Peripheral vasoconstriction decreases and peripheral vasodilatation increases cardiac output. (Goett, V., and Klensch, H.: *Investigations Concerning Circulation during Anesthesia and*