

### BLOOD VOLUME DETERMINATIONS

A modification of the standard method of determining the blood volume with chromium tagged red cells has permitted the routine application of this procedure for evaluating patients to undergo surgery. The values of such determinations include: the diagnosis of preoperative hypovolemia; the prevention of hypotension due to overhydration; the diagnosis of unsuspected internal postoperative hemorrhage; the correct diagnosis of postoperative hypotension. It can be used for serial determination of blood volume. (Albert, C. A., and others: *Value of Blood Volume Determinations in Surgical Procedures*, *Surg. Gynec. & Obst.* 107: 635 (Dec.) 1958.)

### PLASMA VOLUME DETERMINATION

A comparison is made of plasma volume determinations made with the Evans blue dye (T-1824) and with the use of radioactive iodinated human serum albumin (RISA). Mean blood volume values indicate that T-1824 gives a smaller value. The error of the RISA method is  $\pm 6.5$  per cent, and that of the T-1824 is  $\pm 17.0$  per cent. The principal error of the T-1824 method is a function of the variation of the optical density of the plasma. (Senn, L. V., and Karlson, K. E.: *Methodologic and Actual Error of Plasma Volume Determination*, *Surgery* 44: 1095 (Dec.) 1958.)

**SHOCK** Evidence is presented that a bacterial endotoxin appears in the blood of the animal in hemorrhagic shock and that it is the cause of irreversibility to transfusion. The source of this toxin appears to be such gram negative bacteria as may be present in the animal's tissues and the endotoxins normally present in the gastrointestinal tract. Endotoxin is believed to be constantly available and becomes free to inflict injury on the peripheral circulation and to paralyze flow resulting in death when the endotoxin-neutralizing potential of the reticuloendothelial system is destroyed. The protective effect of reserpine and of dibenamine given prophylactically suggests that the endotoxins act adversely on peripheral vessels by intensifying the local action of epinephrine or nor-epinephrine. (Fine, J., and others: *Bacterial Factor in*

*Traumatic Shock*, *New England J. Med.* 260: 214 (Jan. 29) 1959.)

**SHOCK** A toxic polysaccharide fraction was isolated from plasma of animals in irreversible hemorrhagic shock. This polysaccharide fraction shows responses typical of bacterial endotoxins and converts the reversible to the irreversible state of hemorrhagic shock. The entire amount of toxic polysaccharide circulating in the irreversibly shocked animal is innocuous to a normal animal, but only a fraction of the total is lethal to an animal in reversible shock. The loss of functional integrity of the reticulo-endothelial system is believed to be caused by endotoxemia. (Ravin, H. A., Schweinburg, F. B., and Fine, J.: *Host Resistance in Hemorrhagic Shock. Isolation of Toxic Factor from Hemorrhagic Shock Plasma*, *Proc. Soc. Exper. Biol. & Med.* 99: 426 (Nov.) 1958.)

**OCULOMOTOR REFLEX** Traumatic shock in rabbits was produced by a 4-hour compression of the femoral muscles in the screw-press. Blood pressure, respiration, temperature, vasomotor and oculomotor reflexes were registered during the experiment. All experiments showed extreme persistence of oculomotor reflexes, especially those of the medial rectus muscle. In many experiments these were the last to be eliminated immediately before arrest of respiration. (Lindenbraten, V. D.: *Time Sequence of Elimination of Oculomotor Reflexes in Traumatic Shock*, *Byull. Eksper. Biol. i. Med.* 43: 39, 1957.)

**STRETCH REFLEXES** Stretching of the dog's lungs by positive pressure ventilation caused marked peripheral vasodilatation and often sustained hypotension. Systemic circulation was maintained by a heart-lung machine. The reflex was prevented by vagotomy. (Salisbury, P., and others: *Stretch Reflexes from the Dog's Lung to the Systemic Circulation*, *Circulation Res.* 7: 62 (Jan.) 1959.)

**PULMONARY ARTERY PRESSURE** In 15 healthy persons brachial and pulmonary artery pressures were measured simultaneously during consciousness, phenothiazine sleep and barbiturate anesthesia. The influence of ad-