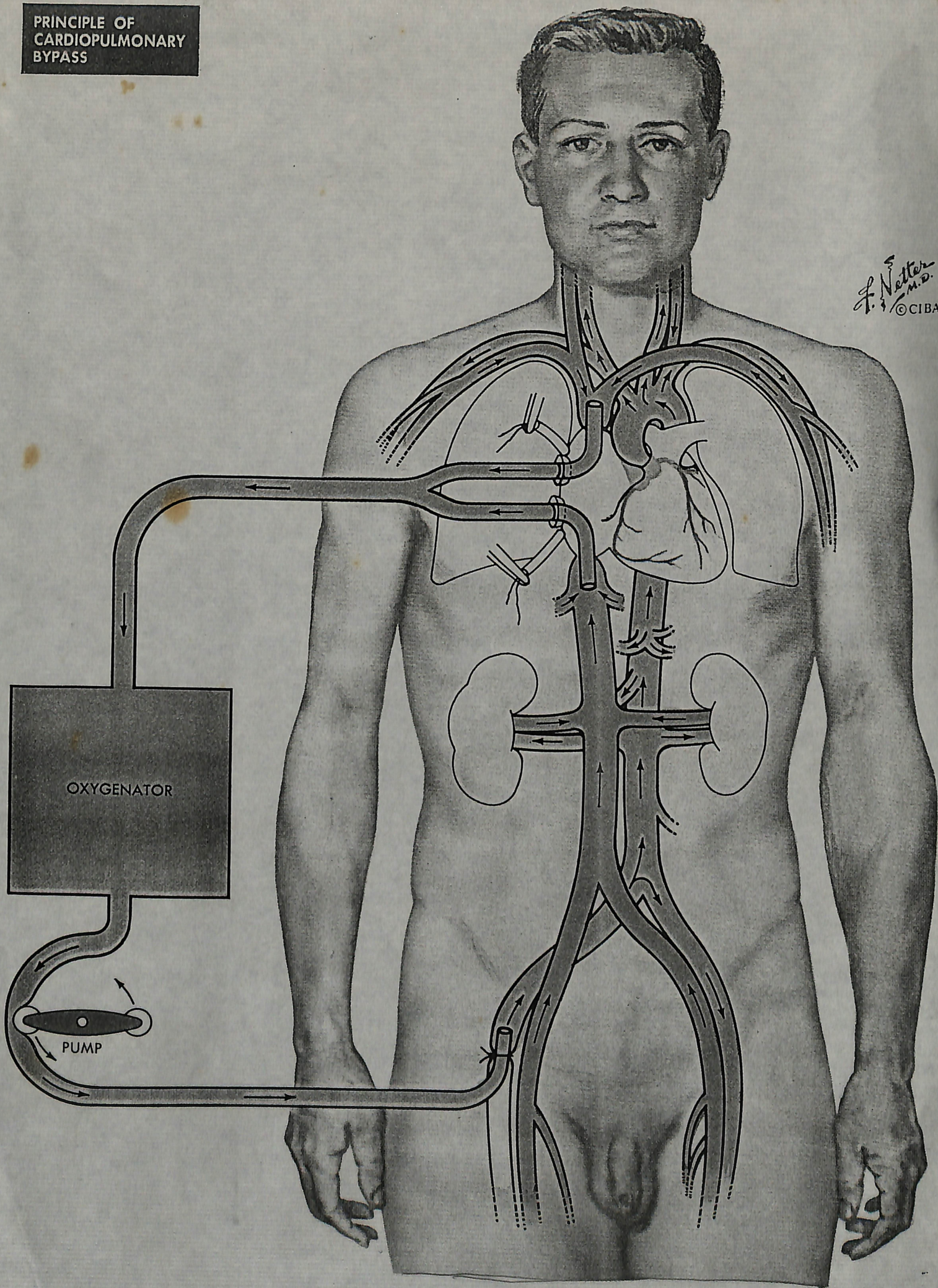


PRINCIPLE OF
CARDIOPULMONARY
BYPASS



F. Netter
M.D.
© CIBA

opened, this blood is gently but continuously aspirated and returned, along with venous blood, to the heart-lung machine.

Two plastic cannulas, passed through the wall of the right atrium into the *venae cavae*, are usually used to lead venous blood away from the heart to the pump oxygenator. Cotton tapes are then placed around the *cavae* and their enclosed cannulas. Before these tapes are tightened, some vena caval blood continues to flow around the cannulas and through the patient's heart and lungs; thus, at this time, these organs are only partially bypassed. After the tapes have been tightened, all systemic venous blood is shunted to the extracorporeal circuit.

and all venous blood flows to the heart-lung machine.

The rate of flow of venous blood, from the patient to the extracorporeal circuit, can be increased either by elevating the patient's systemic venous pressure, by blood transfusions, or by reducing the pressure in the venous cannulas, by suction.

After passage of the venous blood through the pump oxygenator, where gaseous exchange takes place, the blood is returned to the patient through a cannula inserted into the *peripheral artery*. For this purpose, the common femoral or the external iliac artery is usually chosen. Occasionally, the cannula may be inserted through a stab wound in the ascending aorta or into the proximal left subclavian artery.