THE VENOPRESSOR MECHANISM

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"We have yet to explain in what manner the blood finds its way back to the heart from the extremities by the veins." So wrote William Harvey:1 and now 300 years later the explanation is still not wholly complete. As a major factor in the venous return, Harvey described the valves in the veins and showed, by moving a finger along a vein in the arm, that "while these valves readily open in the right direction," i.e., toward the heart, they "entirely prevent all contrary motion." And he accompanied the description with a drawing, copied from Fabricius,2 showing a man's forearm with a ligature above the elbow and the hand grasping a rod, while the veins swell. In the grip of the hand in that drawing is the first suggestion of a venopressor mechanism.

It is always dangerous to read subsequent knowledge back into the words of the first author in any field. Yet one can not resist the impression that Harvey, in this drawing along with his account of the valves in the veins, recognized that the vigorous contraction of the muscles of the forearm propels blood from the muscles into the veins and on toward the right heart. If so, he would have been entirely in accord with the modern view that any muscle that is rhythmically relaxed and contracted, so that its capillaries are alternately filled from the arteries and emptied into the veins, acts as a peripheral pump, a "booster."3


3 Booster: A pump used to increase the pressure of