

A NEW METHOD OF MEASURING BLOOD-FLOW (A DEMONSTRATION OF THE APPARATUS):—BY O. S. GIBBS, M. B., CH. B., Pharmacology Dept., Dalhousie University, Halifax, N. S.

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Blood is allowed to flow through a very light valve in a small balloon surrounded by water in a glass container. As the balloon expands the surrounding water is displaced into a Condon recorder¹. By arranging the outflow pipe at a suitable height no resistance is offered to the blood flowing into the balloon.

When a certain amount of water has been displaced by the blood (which may be varied from 2.5-5.0cc.) into the recorder, this tilts and closes the contact. The results of this are three-fold. Firstly the contact is recorded on the drum, the current is passed into an electric valve which closes the outlet pipe, but opens a valve leading to a water pressure of about two metres. Water rushes into the balloon chamber and compresses the balloon forcing the blood onwards through an outlet outlet valve which are similar to those described in a previous paper.²

During this time however the contact on the recorder is held closed due to the action of a small electric magnet which is also activated by the same current as the valve circuit.

When the balloon is emptied the current is cut off and the recorder and electric valve return to their original positions. The means of breaking the circuit is by using a mercury manometer in the water pipe near the valve. When the valve opens, naturally the pressure falls momentarily in the manometer. As however the balloon is emptied the pressure once again rises in the manometer, but the inertia of the mercury causes it to overshoot the normal level. This overshoot is

¹Condon, N. E. Proc. Physiol. Soc., June, 1913.

²Gibbs, O. S. Trans. Nova Scotian Inst. of Sci., 1928.

utilized to break momentarily the circuit, which immediately releases the recorder contact, and thus the break becomes permanent.

This instrument works up to a rate of about 15 litres per hour, and fulfils the necessities of my work which requires no resistance to the outflow of blood, and a positive return. Besides this the apparatus can be strongly built and in consequence requires little attention during an experiment.

Full detail of this apparatus have been sent to the *Journal of Physiology*.