

account of the differences in pressure in the two kinds of vessels.

My experiments were all performed on dogs, which first received an injection of morphine, and were then thoroughly anæsthetized with a mixture of equal parts of chloroform and ether.



FIG. 1.—Pressure tracing from artery (below) and femoral vein (above).
Time $\frac{1}{4}$ seconds. From a dog.

Pulse tracings were taken on a blackened surface simultaneously from two points on the veins. At the same time a chronograph was arranged to mark seconds or fifths of seconds on the recording surface, so as to indicate the rate at which it was moving. By this means it was possible to estimate the time elapsing between the appearance of a certain wave on the tracing taken from a vein at a point near the heart, and on that taken farther away from the heart. Then, in order to estimate the rate at which a given pulse wave travelled, it was only necessary to know, in addition, the distance of the points on the veins from one another measured along the line of blood flow, or more exactly the difference in the distances of the two points from the heart (right auricle).

The recording surface employed was that of Hürthle's large clockwork kymograph.

The pulse waves were recorded by inserting a fine glass canula, with a long drawn out point, into the vein through a side branch. (See Fig. 3.) The canula was then connected by rubber tubing with one of Hürthle's venous manometers, which marked the waves on the surface of the kymograph.