

happened, if we inject digitalis the distended ventricle slowly recovers itself, and soon returns to its normal condition. If we still continue injecting digitalis the systole becomes longer and the diastole less complete, especially at the apex which remains white and firmly contracted. This gradually extends over the whole ventricle, the heart finally comes to a standstill in firm contraction.

When either digitalis or aconite are given in such doses as to produce standstill of the heart, the pulse becomes quick and the blood pressure falls.

“In aconite poisoning the aortic pressure falls because the over distended ventricle is unable to contract upon its contents. Each contraction only sends a small quantity of blood from the upper portion of the ventricle. In digitalis poisoning the aortic pressure falls, because the over-contracted ventricle permits but little blood to get into it and can consequently send but little forward. The result is similar in both cases, but the cause in one case is just the reverse of that in the other.”—Balfour.

The action of digitalis on the circulation in full medicinal doses may be summarized as follows :—

1. It makes the ventricles beat more powerfully.
2. It makes them beat slower.
3. It contracts the arterioles.
4. It raises the blood pressure.

These effects take place even after the vagi are divided and the spinal cord destroyed. It therefore follows that they are due (necessarily for the most part) to a direct action on the structures of the heart itself and on the vessels. This is further confirmed by the fact that when digitalis is directly applied to the isolated frog's heart it slows and renders its movements more powerful.

The increased vigour of the contraction is due to a stimulation of the intra-cardiac motor ganglia, while the slowing is principally brought about by stimulation of the peripheral terminations of the vagus in the heart. Digitalis also has a stimulating action on the vagus centre in the medulla.

Dr. Lauder Brunton has quite recently shown that the reason