

nerves, are vaso-constrictor. In the cases of the corpora-cavernosa of the penis and the sub-maxillary gland, dilation is the result of complete or partial loss of local tone; in fact, vaso-dilators act by inhibiting and vaso-constrictors by augmenting the activity of the local mechanism giving rise to local tone.

From the erection of the penis which follows stimulation of the nervi-exigentes, and the injection of the sub-maxillary gland, which follows stimulation of the chorda-tympani, inhibition of the heart by stimulation of the *vagus* or pneumogastric.

Just as the rhythmic contraction of the heart fibres is stopped by the *vagus*, so the true contraction of the arterial fibres is stopped by the change of nerve segments. Thence it is self-evident that dilation is in all cases synonymous with inhibition and constriction—in all cases mere augmentation of local tone. It is possible that dilation may be brought about in different ways, and so also with contraction. This is a tempting view and useful as a working hypothesis.

The general effects of dilation are briefly these: Supposing that the total quantity of blood issuing from the ventricle remains the same—that is to say, supposing that the quantity of blood put into circulation is constant, the surplus passing through the dilated area must be taken away from the rest of the circulation; consequently the fulness of the dilated area will lead to an emptying of the other area.

This is seen very clearly when the dilated area is a capacious one. At the same time, *local dilation* causes a *local diminution* of peripheral resistance. This in turn causes a lowering of the general arterial pressure. The effects of local constriction—similarly local and general—are naturally the reverse of those of dilation.

In the vascular area directly affected less blood passes through the capillaries in a given time, and in consequence less total interchange between the blood and the tissues takes place (diminished nutrition of the tissues), though each unit-volume of blood which does pass through more deeply affected. The blood pressure in the corresponding arteries is increased, and, if the area be large, the pressure in even distant arteries may be heightened.

This subject is of vast practical importance to every medical practitioner who wishes to understand the disturbances of the circulation of the blood which occur in the system.

It is not by any means exhausted, or much more than touched upon, but if what has been written will help to interest the profession in the study of functional and reflex disturbances, I shall be satisfied.

W. E. B.

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