

aneurism would be increased. The existence of such a principle would be opposed to the established laws of physics, and, therefore, cannot be true. Neither the condensation of elastic bodies, nor of muscles, follows the alteration of shape, there being merely a change of form, but not of magnitude. Hence arteries, being composed of elastic tissue and three layers of muscular fibres, must act in obedience to physical law. An increase in diameter must necessarily cause a corresponding decrease in length, and *vice versa*. But the question has been put to rest by actual admeasurement. We ligated an umbilical cord, during a full flow of blood, in two places, and found on inspection, that the arteries were extended beyond the cut surface of the cord, while in a portion not ligated they were retracted out of sight and touch—the ligature evidently preventing retraction. One of the arteries being laid bare, was ligated in different places, and each piece accurately measured, then punctured and the blood allowed to escape, when the vessel contracted immediately, and on being again measured the length was increased. The experiment was often repeated, but always with the same result. A piece of the contracted vessel being cut loose and laid on the table, drew itself up into short crooks, like something alive, thus accounting for the apparent shortening after an artery has been cut through in the living tissue.

Having shown the impossibility of explaining any of the irian changes consistently with the muscular hypothesis, the conclusion is inevitable that no such structure exists. On the contrary, if a vascular structure be compatible with a complete exposition of all the phenomena it must be true.

The reason of the concurrent action of the iris with that of the nervous forces, is now apparent, dilatation of the irian vessels causes a corresponding shortening, and thus dilates the pupils, while contraction of the calibre of the vessels produces elongation towards the pupillary margin floating freely in the aqueous humor, and thereby closing in and contracting the pupils.

Every one has felt a disagreeable sensation when passing from darkness into a brilliantly lighted room, this depressing influence impresses the sentient extremities of the fifth nerve which ramifies on the retina, and is conveyed directly to the Trigeminal centre and depressing the force of the dilating centre,