

proof that the arteries are "dilated," the fallacy of which will presently appear.

We read again: "When the nervous system is destroyed, dilation of the splanchnic vascular area causes all the blood to remain stagnant in the portal vessels; and probably these as well as other veins are rendered unusually lax, so that the blood is largely retained in the venous system, and very little reaches the heart." (a) And further: "When in the frog, the brain and spinal system are destroyed, very little blood comes back to the heart, as compared with the normal supply, and the heart in consequence appears almost bloodless and beats feebly . . . the veins become abnormally distended and a large quantity of blood becomes lodged and hidden as it were in them." (b) Here is the secret, both of the emptying of the arteries and of the fall of blood pressure. The blood comes to rest in the more capacious venous system (c) "out of reach of the influence of the heart." Now seeing that the rapidity of the arterial circulation is such that only one-seventh of a second is required for blood to pass from the heart to the radial pulse, how long, think you, would be required to empty the arterial system of the pithed frog, seeing that at first little blood, and very soon no blood, finds its way back through the heart, into the arterial trunks? Why, the time required would be counted by seconds rather than by minutes. There would be no time and no necessity for the terminal arteries to dilate; the emptying of the arteries and the fall of blood pressure being amply accounted for by the fact that *blood is passing out of the arterial system faster than it is being returned to it.* A precisely similar condition to that just described as resulting from nerve destruction, occurs also in the fatal stage of asphyxia. Here, too, the arteries are "contracted" and empty, and the large veins are so distended that "if cut into they spirt like arteries." (d) And here also, Dr. M. Foster tells us there is a fall of blood pressure in the midst of general arterial contraction. He says: "On account of the increasing slowness and feebleness of the heart, the blood pressure, in spite of the continued arterial contraction, begins to fall; since less and less blood is pumped into the arterial sys-

tem." (e) It will be seen that the parallel between the two cases is complete, and that the plain facts as given by the highest authorities, do away completely with the assumption that, here, the fall of blood pressure is to be regarded as a proof of arterial relaxation. Even in the slower forms of death, when the process of emptying the arteries, is more gradual, there is still no evidence of, and no necessity for, a dilation of the terminal arteries to give exit to the blood; for, granting that contraction of the terminal arteries would tend to hinder the outflow of blood, this effect would be counteracted by stronger contraction of the larger arterial trunks above, forcing the blood through and out of the numberless terminal branches ending in the capillaries.

The facts thus far presented refer only to the great vasomotor areas of the cervical sympathetic and splanchnics. It seems unnecessary to attempt to discuss the lesser and local vascular mechanisms, about which little is known, and that little comes to us under the aegis of an erroneous theory. The greater always includes the less. What happens when the life of the chief nervous centres is killed either by sudden and intended destruction, or in death from ordinary causes, happens also in a more limited area when local or subordinate centres are killed or paralyzed. Since in the former case the arteries are found contracted and empty, the same rule must be held to hold good in the case of the individual nerve and artery.

THE STIMULATION (?) OF ASPHYXIA.

Is it not a strange position to put forward in the name of medical science, that an animal dying of asphyxia is actually undergoing a high degree of nervous excitation? Yet such is actually the teaching of the text-books in physiology to-day! Dr. Burdon Sanderson, treating of asphyxia, says: "One of the effects of diminishing the proportion of oxygen in the blood is to excite the vasomotor centre, and thus to determine general contraction of the small arteries. The immediate consequences of this contraction is to fill the venous system." As the process advances "the heart's contractions become more and more ineffectual till they finally cease, leaving the arteries empty and the veins distended." (f) There is no mention here of arterial relaxation or dilation, to facilitate the outflow of

(a) Phys., 3rd Amer Ed., p. 367.

(b) Ib., pp. 240 and 220. (c) Ib., p. 154.

(d) Dr. Burdon Sanderson, Hand-book, etc., p. 332.

(e) Phys., p. 445.

(f) Hand-book, etc., p. 333.