

ing the relative harmony of the various portions of the brain, and while depressing or paralyzing some, cause additional functional activity in others. In this wonderful "harp of a thousand strings," causes which impair or silence some, may induce others to vibrate with increased intensity.

It may be objected that the loss of energy, dullness, impaired vision, and other signs of cerebro-spinal depression, sometimes present, are inconsistent with excitation of this portion of the sympathetic system. But it must be remembered, that besides the inherent differences between the functional activities of these two nervous systems, the lassitude and other symptoms referred to, are the effects of the waste going on in the body; are not among the causes producing the disease; are often long postponed, and do not constitute an essential part of its phenomena.

The inhalation of chloroform and æther, and occasionally the intoxication of alcohol are followed by glycosuria. Bernard and Dr. Harley have shown that the injection of either of these substances or of ammonia into the portal veins is more certainly productive of that result. Both these distinguished observers attribute the effects of the latter experiment to irritation of the liver and its blood vessels. Dr. Harley is of opinion that the terminal branches of the pneumogastrics are thus excited, that they convey a corresponding impression to the medulla oblongata, which is from thence transmitted through the cord and sympathetic by way of the splanchnic nerves to the vessels of the liver, which dilate in consequence. Dr. Harley here evidently had not the fear of the advocates of the present vaso-motor theory before his eyes, for his view of the case is as reasonable towards that theory as we could desire. We quote his view, as first stated, from Dr. Anstie (*Stim. and Narcot.* p. 279), who, while differing in opinion from Bernard and Harley, has furnished the results of several experiments, which show that at least the full narcotic and paralyzing effects of æther inhaled, are not favourable, and indeed in his hands failed, to produce sugar in the urine; while he adds, "any one may readily convince himself experimentally (as I have done) that a much less quantity of æther will

produce diabetes within a few hours, if life be prolonged." (pp. 284). His argument is that diabetic urine is a part of the full narcotic and paralyzing effects of æther, but his experiments prove rather that it is the moderate, or earlier effect of æther, which elsewhere he shows to be that of a stimulant, which produces diabetes. Indeed it was by a dose of æther, swallowed, from which he experienced flushing of the face, palpitation of the heart, increased frequency and force of the pulse, which at one time became bounding, (evident signs of vaso-motor excitation) that he found among the results the production of artificial diabetes. (*Ib.*, pp. 286-7). With these results from Dr. Anstie, notwithstanding his argument, and under the ægis of Bernard and Harley, we may well leave this part of the subject with the reader, with the single additional observation that the slight variation of the pulse in æther and chloroform inhalation shows the vaso-motor centres and nerves to be but slightly affected in ordinary cases; and as the sympathetic system is the last to become paralyzed in extreme narcosis from these agents, its ganglia may, and the facts show that they are, often undergoing the primary stage of excitation after the sensory centres of the cerebrum are functionally paralyzed. Where the process is not pushed to the paralyzation of the sympathetic (in which case death would be imminent), the excitation of this system, in the earlier stage, or the more moderate use of the anæsthetic, fully accounts for the vascular dilatation, as the result of vaso-motor excitation, and with this for the temporary diabetes.

The inhalation of the nitrite of amyl also produces sugar in the urine. Dr. B. W. Richardson was manifestly in error when he, doubtless inadvertently, alluded to this drug as "the most potent known paralyzer." Dr. Minor, (*Virginia Medical Monthly*), in an article "On nitrite of amyl as a cardiac stimulant," refers to "the powerful action of amyl nitrite, and the beneficial results which might follow its administration in certain cases calling for prompt cardiac stimulation." (*Practitioner, Braith. Ketros.* Jan. 1879, p. 231). Dr. C. T. Williams (Brompton Hospital) regards it as "a violent cardiac stimulant." (*Ib.*, Jan. 1874, p. 95.) The remarkable flushing it produces is well known.