without drinking takes from fifteen to eighteen pails of water, the whole of the liquid passes through the heart. Hardly a fifth of it takes that direction, and the other four-fifths take the course just described. This mechanism is to be noticed principally with those animals which take a large amount of food of slight nutritive qualities. Parts are disposed in the following manner in this extra circulation: the portal vein has the same coats as the other veins, but its hepatic subdivisions are surrounded by a loose tissue called the "capsule of Glisson," and such a disposition must of course facilitate the passage of the blood; whereas the hepatic veins are closely connected to the substance of the liver, and have an evident muscular texture. The fibres are longitudinal; they thus retract upon themselves, and carry the structure of the liver in the same direction. These veins do not contract, but they become shorter, the object of this action being, to render the circulation more active as the liver gets congested. The muscular structure is especially noticeable in the inferior cava, the muscular parietes of which are almost as strong as that forming the auricles. The contractile fibres begin below the hepatic veins, and terminate immediately above the renal veins.

M. Bernard showed the inferior cava of a horse where the above-named structure seems to constitute another heart, and to be the starting point of another circulation. The vein, in fact, presents pulsations when in the act of driving the blood backwards. In order that the latter, when forced downwards by the contractions of the inferior cava, may enter the renal veins, there are, below the latter, little valves which prevent the blood from entering the iliac veins, the blood being forced to pass through the renal veins, which vessels then assume the characters of arteries. The *hepatico-renal* circulation is not constantly going on. When a man is fasting, for instance, the amount of blood reaching the liver is inconsiderable, and it passes altogether through the hepatic veins and the heart. The arterial blood of the kidneys experiences the ordinary pressure, and the renal secretion is limpid, acid, and contains much urea. But things go on differently during a plentiful digestion; for the blood, taking a shorter course, is carried in great quantities to the kidneys, which organs quickly free it from its more fluid parts; the urine then increases, becomes dull, alkaline, gives saline precipitates, and very little urea.

The lumbar and azygos veins prevent obstruction in the inferior cava, and are intended for the conveyance of the blood from the lower extremity and the pelvis to the auricles. Birds, fishes, and reptiles, have a renal portal vein, by which a certain quantity of blood passes directly through the kidneys, whilst another quantity passes through the lungs. Prussiate of potash is eliminated by the urine five minutes after ingestion; but Doering, having introduced this salt in the lower portion of the jugular vein, observed traces of it in the upper part of the same vessel only thirty minutes afterwards. This difference led physiologists to suspect that there must be unknown means of transit for the rapid passage of fluids to the urinary organs, and M. Bernard has the merit of having shown by which vessels this circulation is carried on. We recommend these views of a young and eminent physiologist to the attention of our readers, and sincerely hope that the subject will be thoroughly investigated in this country. The matter is of sufficient importance to deserve attentive consideration. We regret that want of room precludes our giving a sketch of the experiments by which M. Bernard strengthens his theory It should, however, be noticed, that he concludes his investigations concerning the functions of the liver by endeavouring to prove that the hepatic circulation is one of the causes of the evolution of animal heat.—*Lancet.*