

## Science Notes.

### THE HARVEIAN ORATION.

A SHORT account of the above, which was delivered by Dr. Lauder Brunton, and briefly noticed in last week's "Reflections," may be of interest to readers who have neither time nor opportunity for a detailed report.

The name of Harvey is familiar to everyone as that of the discoverer of the circulation of the blood, but any study of his writings must convince the reader how much more he knew than the actual fact of circulation. Unfortunately, we are unacquainted with the extent of his researches in the direction of pathology and therapeutics, owing to the destruction of his manuscripts at the time of the Civil War. From the physiological point of view, however, his observations and knowledge appear to have been very wide. He remarks on the sounds accompanying the beat of the heart, and compares them to those in the œsophagus of a horse when drinking; it is true that Harvey did not explain the cause of each sound, but that matter has been a subject for dispute until quite recently. Harvey was also acquainted with the fact that drugs applied externally are absorbed by, and act upon the, body, and it is interesting to note that Christopher Wren (a contemporary of Harvey, and the architect of St. Paul's Cathedral) was the first to inject various drugs into the blood.

Much that is now known concerning the control of the organs of circulation by the nervous system has, of course, been demonstrated since Harvey's time, but he observed that the heart had the power of pulsating quite apart from any stimulation outside itself, and that when cut in pieces its fragments continued to pulsate. The heart beats automatically, but it can be hastened or restrained, its force can be increased or decreased, according to the needs of the body, and in response to the control of the nervous system. When the blood vessels are fully dilated, as they are after death, we find that almost all the blood of the body can be contained in the veins alone. During life, therefore, it is necessary that the nerves should so stimulate the muscular walls of the vessels to contract, that they accommodate their capacity to the amount of blood present in the body as a whole, and the nerves may also cause contraction of all the vessels except one particular set or group, thus enabling whatever organ is specially active and in need of blood, to obtain an increased supply. This, of course, is familiar to all under one aspect or another; we know that severe study is impossible, or, at any rate, difficult and harmful in its effects immediately after a heavy meal. Continued brain activity often produces coldness of the extremities. Mosso showed, in a convincing manner, how the blood supply increases with increased activity in any organ, by placing a man on a delicately-balanced board and demonstrating that every time the man began to think his head became lower than his feet. Another observer had made similar experiments, but he considered that it was the "vital spirits," not the blood, that moved from one part of the body to another, and so disturbed the balance.

Dr. Lauder Brunton, in speaking of the disturbance in the circulation, sometimes produced even in healthy persons, by prolonged and severe muscular exertion,

condemned the practice of compelling school-boys to run races or join in paper chases. Intermittent exertion of a group of muscles, or of the whole body, leads to better nutrition, increased strength, and hypertrophy, whereas over-exertion leads to impaired nutrition, weakness, and atrophy.

The natural movements of all young animals, though often rapid, are fitful, irregular, and varied in character. If the colt, instead of being allowed to frisk at its own free will, were put in harness or ridden in races, its nutrition would be interfered with, its powers diminished and its life shortened. These facts, which are so well known to breeders of horses, deserve the careful attention of teachers in schools, and the medical advisers of their pupils, for it is hardly possible to doubt that the child differs in no way, where such matters are concerned, from the colt or any other young animal.

## Notes on Art.

### EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY.

THE thirty-ninth Annual Exhibition of this Society, in the rooms of the Royal Society of Painters in Water-Colours, Pall Mall, is as full of interest as usual. It must not be supposed that its attractions are limited merely to representations of landscape or portraiture, for the fact is, photography now plays an important part in relation to natural science, generally, and to medical science in particular, as many of the exhibits abundantly show. A medal, for instance, is bestowed upon No. 462, a photomicrograph, by Dr. Edward Leaming, of the "Purkinje cell," stained by the Golgi method, and magnified 190 diameters. We are also confronted, in No. 448, with photomicrographs of Bacteria, among which are to be found "Bacillus Subtilis," "Bacillus Typhosus," and "Spirillum Rubrum," all magnified 1000 diameters and suitably stained!

It is, however, to the artistic side that we and many of our readers will turn with preference, and it is in this division of the Exhibition that very remarkable progress is evident. It is, in many cases, difficult to believe that we are not looking at hand-painted pictures in sepia or Indian ink; and, moreover, the frequency with which really artistic productions are met with—they may almost be said to abound—shows a general and growing facility in photographic manipulation. The progress, indeed, seems remarkable when some of us can remember the earliest portraits on plates of silvered copper which it was necessary to hold at a certain angle, or nothing could be seen at all.

It would be difficult to find any more beautiful exhibits than those of the Autotype Company, whose carbon process lends itself to the delineation of the most delicate coin in low relief to the reproduction of an ancient manuscript, or to a faithful rendering of an "old master," whether painted or engraved.

There is one side of industrial life which photography has revealed to us, and that is the underground working of our mines and collieries. Look, for instance, at the wonderful pictures representing underground life in the "Festiniog Slate Quarries," No. 174, by Mr. J. C. Burrow; or No. 343, "The Interior of a

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