The Lion from a Medical Point of View.

The president of the Bristol Medico-chirurgical Society, A. J. Harrison, M.B., delivered before that society, on October 10, a very interesting address founded on his experience in the gardens of the Clifton Zoological Society, with which he has been connected for many years, It appears in full in the current number of the Bristol Medico-chirurgical Journal. The experiences and observations mentioned in the address are not arranged in any formal anatomical, physiological, or pathological order, as the author states, but, fragmentary and disjointed as they are, they are exceedingly interesting. The first case mentioned is that of a lion, considered to be the finest lion in Europe at the time, and one that had always seemed in excellent health until a few months before his death. One morning he was found dead in his cage, and at the post mortem examination it was ascertained that an enormous hemorrhage had taken place into the abdominal cavity, proceeding from the spleen, which organ, it was inferred, had been ruptured by the exertion of coitus. The splenic enlargement, says Dr. Harrison, seemed to have been caused by hyperæmia and increase in the lymphatic and vascular elements, but as to the ætiology, he can only speculate. "Are lions," he asks, "subject to malarious attacks? and had Hannibal been a victim in the days of his youth, in his native wilds—for he was forest bred—before the civilization of captivity had fallen upon him? He had been ill a couple of months or so before his death, when his breathing was affected. Did he have pneumonia then, with carnification of the base of the right lung—or perhaps more probably a hæmorrhage from an embolism—or are lions subject to splenic fever?

Another lion, a fine creature, had become lame by reason of an ingrowing claw. The trouble went on from bad to worse, until something had to be done, and it was decided to extract the claw. The use of chloroform, says Dr. Harrison, was out of the question, for attempts to give these animals anæsthetics have been worse than failures; so it was decided to resort to the "cramp cage." With some difficulty the animal was got into this cage. "He didn't like his quarters," the account goes on to say, "and showed that even within the comparatively small dimensions he could turn round and so evade any efforts to get hold of his claw. Planks of deal, one foot broad by one and a half inches thick, were then put into the cage to limit the space. The animal was fairly furious before; but now came such a display of rage that no one who did not see it could imagine it. He fought for dear life, as he thought. Plank after plank was seized and ripped up like so much match wood, and it seemed as if the iron bars and plates, strong as they were, would not contain the infuriated beast. His mouth bled, and he broke a tooth. Several of the keepers stood on the top of the cage to prevent it from being overturned, and some of the spectators took refuge by quietly withdrawing from the scene. At length, by putting in plank after plank, above and behind, the poor brute was brought to bay, and, to save himself from his very constrained position, pushed out his paws through the bars of the cage. 'Now's your time,' I said. Blunsden immediately seized the offending claw with a pair of strong carpenter's pincers; the grip was good. The animal helped in the operation by trying his best to get his paw free, and the claw came away. It had grown into the flesh at least half an inch, most likely more; and here I can show you the very thing. In half an hour afterward the creature had quite calmed down; he seemed then to have comprehended the rationale of the operation, and he gave me the conviction that if he had had to undergo a repetition, he would have been a mild consenting party. The operation was permanently successful."

The case of another lion is mentioned, one only four months and a half old, that was found dead in its cage. It had been ailing for three or four days; its breathing was very quick and it took no food, but simply lapped a little water. At the post mortem examination the pericardium was found distended with a semi-purulent fluid, of the consistence of gruel, tinged somewhat with blood. Notwithstanding the tradition that in old times, when lions used to be kept in the Tower of London, the lion named Pompey is said to have lived there for seventy years, Dr. Harrison says he cannot believe the story. He looks upon the lion, at least in captivity, as comparatively a short-lived animal, and gives various facts on which he founds this opinion. So decided is he that in the case of a lion that died at the age of sixteen years his conclusion was that the beast's death had been owing to senile decay. The death of a lioness, described as "rather rickety," is recorded as having taken place during parturition, from rupture of the right cornu of the uterus. The animal had been in labor for five days, and one cub had been born and the other was partly extruded into the vagina.

Dr. Harrison's address deals with pathological and physiological observations on various other animals, but the space at our disposal has allowed only of our referring to those of them that relate to lions.—N. Y. Med. Jour.

THE MYSTERIOUS CLEPSYDRA.

The destiny of old clock work movements, when they are curious, is to figure in museums. Their rusty springs, broken-toothed wheels and out-of-center axes permit them to be no longer anything but the witnesses of a vanished art. This is an irresistible law. So it cannot be denied that a piece running in spite of this law three hundred and fifty years after its construction, without having undergone the least repair, is a remarkable object. Such is the case with a clock that is in operation at Mr. Pottin's, at Ivry-Port, and the age of which has been estimated by Mr. Morie Davy, the lamented superintendent of the Montsouris Observatory. Let us say at once that if it has escaped the sad fate of aged mechanisms, it is because it has no mechanism, since it is, in fact, a sort of clepsydra (Fig. 1).

Externally, we see merely a cylinder about six inches

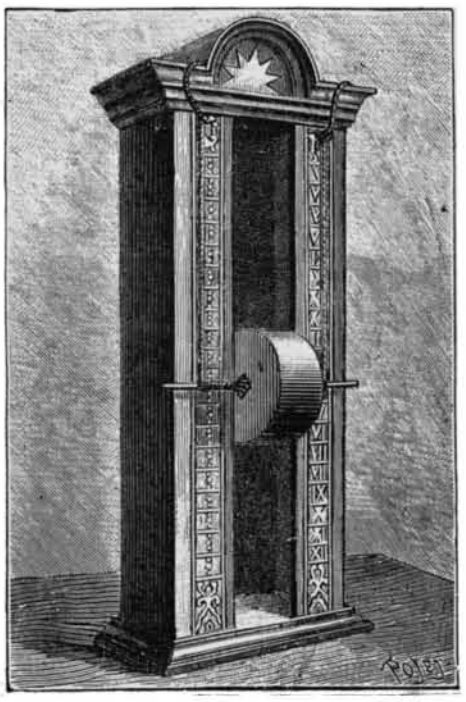

Fig. 1.—THE MYSTERIOUS CLEPSYDRA.

in diameter, suspended by two strings winding round the extremities of a small rod that passes through its axis. If, after having finished the winding of the strings by revolving the cylinder upward, we leave the apparatus to itself, the cylinder, after oscillating for a couple of seconds to find its perpendicular, will begin slowly to descend, and take eighteen hours to travel, with precision, the entire length of the scales to the right and left, whose divisions are of copper set into the walnut of the case. This curious result is obtained as follows: The cylinder (see diagram, Fig. 2) is di-

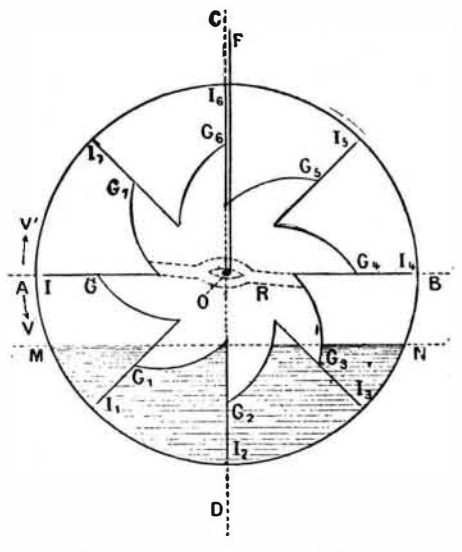

Fig. 2.—EXPLANATORY DIAGRAM.

vided into eight compartments, which are exactly equal and symmetrical with respect to the axis, O. These compartments, G, G_1, etc., communicate with each other through three small apertures, I, I_1, etc. Central channels, R, put them in connection also in pairs. Thus G_7 communicates with G_3, G with G_4, G_1 with G_5, and G_2 with G_6. The cylinder is filled with liquid up to the level, M N. Let us suppose it suspended by the string, F, wound around O, to the right of the vertical, which passes through the center of gravity of the system, C D; evidently, gravity will cause the apparatus to revolve in the direction shown by the arrow, V. But in this motion there is produced a change of level of the liquid to the left and right of C D, in the system of communicating vessels formed by the compartments, G, and the small apertures, I. The liquid rises to the right and descends to the left until the center of gravity passes through the vertical including F. The descent of the cylinder then ceases, and is again resumed in measure as the two levels tend to become equal by the slow communication through the orifices, I. As such equalization can take place only so long as the cylinder is suspended, the slow motion of descent continues indefinitely. It takes place in a perfectly regular way, because all the parts of the cylinder are symmetrical with respect to the central axis. An examination of Fig. 2 will readily show that it is possible for the compartments to communicate during the descent only through the small apertures, I. It will be seen also that the winding up of the apparatus is exceedingly simple. It suffices to revolve the cylinder in the direction shown by the arrow, V'. The string winds around the central axis, and, in measure as the apparatus ascends, the compartments become emptied, through the central channels, R, into their mates, whence it results that, no matter what the height be, the system left to itself will find its perfect equilibrium at the end of two or three oscillations.

Mr. Morie Davy attributes the construction of this clepsydra to an artist of the time of Henry II. It is probable that workmen of less skill have attempted imitations of it, since in the region of Brie, where Mr. Pottin obtained it, at least twenty more have been found, but all incapable of operating. At the Exposition of Retrospective Arts, in 1889, there was to be seen a copper cylinder having much analogy with the one just described and bearing the inscription: Clepsydra of the Time of Charlemagne." Were not a few centuries too many given to this product of ancient art? We cannot say. We have simply desired to make known a very simple and very accurate instrument which certainly very few clockmakers even know of. From this standpoint it merits particular mention.—La Nature.

The Invention of the Bicycle.

A monument has been recently erected at Bar-le Duc to the two Michaux, father and son, who are credited with the invention of the modern bicycle. The Petit Lyonnais tells the story of the invention as follows:

"The Michaux had a small locksmith shop in Paris. One day a bizarre machine was given to them to repair—a small saddle resting upon a snake-like frame and holding together two light wheels. The machine was put in motion by the 'rider' striking the ground with the tips of his toes. The queer thing was painted yellow, and called a draisine, from its inventor, the German forester, K. V. Drais. A 'ride' on this was very tiring, impossible uphill, and, above all, very ungraceful. But the young bloods in the time of the Second Empire managed very well with it, and got lots of fun out of the machine. Young Ernest Michaux conceived the idea of adding pedals to the front wheel, and became thus the inventor of the modern velocipede. His idea found little favor at first; more attention was given to the tricycle. As early as 1863 a Paris hatter named Brunnel visited his customers on a tricycle.

"The International Exhibition of 1867, however, gave an impulse to bicycle riding by drawing the attention of the public to several new improvements added by the Michaux. The Prince Imperial learned to ride, and the aristocracy, with the Prince of Sagan at their head, followed his example. The latter had two high-wheeled machines built to order. One was of aluminum bronze, with wheels of rosewood; the other was built entirely of steel, beautifully engraved with hunting scenes. The bicycle school of the Michaux was now always full. They could no longer fill all orders, and formed a company for the manufacture of their machines. They also built a velodrome, with an asphalted track, on which also a kind of hurdle race could be run. Here was a ditch, which had to be crossed on a narrow plank, and a kind of Irish bank. Lawsuits among the partners broke up the concern, the war of 1870 came, and people had other things to speak about. In the meantime the English and Americans improved the invention, and it was reintroduced into France from across the sea."—Public Opinion.

A Novel Logging Device.

There is a wood pile in Lead City, S. D., widely known throughout the Black Hills mining region. It belongs to the Homestake Gold Mining Company, and is composed of timbers about the size of railroad ties, which are used in supporting the walls and roofs of the drifts and tunnels of the mines. A narrow gauge railroad brings the logs, which have been sawed flat on two sides, to a point on the mountain slope about 600 feet above the valley, and they are then thrown into a wooden chute about 4 feet wide and 2 feet deep. The inside surface is kept smooth and slippery by a small stream of water. If the logs were allowed to run directly to the ground, they would speedily excavate an enormous hole besides damaging themselves, so the lower end of the chute is curved upward, and the logs leave it at an angle of about 60 degrees with the horizontal and rise from 150 to 200 feet in the air, turning over and over, and finally landing on the enormous pile already there. A useful fact in connection with this method is that the logs sort themselves in the pile according to their size: the heavier ones, having a greater momentum, are all found at the side farthest away from the chute.