

and being directed towards the middle line, from which it was distant not more than a few lines. The broken portion of the cartilage was not detached, being continuous by its base with the remainder of the ring. The structure of this cartilage was ossified in a marked degree; but the same was not so noticeable as regarded the thyroid. There was blood effused about the crico-thyroid muscle, near the fracture, and about the adjacent cellular membrane. Inside, the mucous lining was uninjured; but the submucous tissue, for a small space corresponding to the fracture, was infiltrated with blood. The appearances of the lungs and of the contents of the cavities of the heart were such as are usually found in deaths by suffocation. The vessels of the brain were congested.

Four persons were apprehended in connexion with the perpetration of this crime; three of whom were tried before Mr. Justice Montague Smith, at Warwick, on the 2nd of March, 1868,—the fourth turning approver.

In the evidence which I gave at the trial, I stated my opinion that the fracture in the cricoid cartilage had been produced by a strong grasp of a hand; that the breaking of the cartilage, owing to its brittleness, caused immediate and easy closure of the windpipe, and death by suffocation; that a single strong continued pressure most probably caused the fracture. In answer to the question as to whether such a fracture could be produced by a fall, I replied "that I had never seen such a case in my own experience, nor was I aware of such a case being on record." I further said that, in the case of a person falling against the hard edge of a brick-stair, and striking the ring-shaped cartilage, if brittle, it might break; but then the inside lining would most likely be torn, and the points of the fracture would be rather turned inwards than jutting outwards, as in this case; and, above all, immediate death by suffocation would scarcely result.

The evidence given by the approver confirmed the correctness of this judgment. A fifth person had, it seemed, been an actor in the affair,—cautiously described throughout as "the absent man." To this individual's care the old lady had been consigned, he finding her on the cellar steps; where he would appear—to use his own language—to have unintentionally "put the old lady's light out," having seized hold of her "very clumsy," and "squeezed her too tight," whilst his companions completed the robbery.

The result of the trial was that one of the prisoners was sentenced to fourteen years' penal servitude, the remainder being acquitted; whilst the real murderer—"the absent man"—hitherto has escaped. The Judge and counsel on either side received the facts of the mode of death as beyond dispute.

Birmingham, May, 1869.

## NOTES

ON THE

## DISEASES OF ANIMALS IN A STATE OF CONFINEMENT.

By S. M. BRADLEY, M.R.C.S.,

LECTURER ON COMPARATIVE ANATOMY AT THE ROYAL SCHOOL OF MEDICINE, MANCHESTER.

So much light has been thrown upon human physiology by the study of comparative physiology and experiments *in corpore vili*, that we may reasonably expect that a proportionate increase of light will be thrown upon the knowledge of human pathology by the observation of the diseases which affect the lower animals. To be strictly accurate, it is perhaps the etiology of disease that is likely to be especially benefited by this study, as animal therapeutics at

present are not in a highly satisfactory condition. My own observations have been limited to the animals that have suffered (and, I am able to add, as a rule have died) at the Bellevue Gardens. I have found that these animals, all in an artificial state of more or less close confinement, exhibit a remarkable tendency to develop certain diseases to which, so far as is known, they are not liable in a wild state, and which may consequently be regarded as the result of bad air and improper food. I propose very briefly alluding to some of those diseases, and for this purpose shall take the four great classes of vertebrata sequentially.

**FISHES.**—The most interesting disease that affects captive fish is the development of a fungus upon the gills. The fungus, which commences upon the free edge of the branchiæ, increases in size until it completely blocks up the interval between the contiguous gills, and the fish so affected dies as completely choked as if it were burked. When examined microscopically, the fungus presents the appearance of beaded cells, characteristic of low forms of vegetable life. The disease is contagious. Now all this appears to me, not a curious point of merely fanciful interest, but a fact of some importance to the practical physician; for "the opinion is gradually gaining ground that the malarious fevers of hot districts, yellow fever, dysentery, and cholera, are all caused by the action of different species of fungi and infusoria. In the late epidemic of fever in the Mauritius, fungi corresponding to those found in the Grand River were found in the intestinal canal." The most common causes of death, however, amongst confined fish, are want of oxygen and want of light.

**REPTILIA.**—Tubercular disease occupies the first rank in importance and frequency of the ailments to which the reptilia are liable; and, as Dr. Crisp (who has paid more attention to the subject than anyone else) has pointed out, the intestines, liver, spleen, and kidneys are more commonly affected than the lungs. The tubercular matter is generally very soft.

Reptiles in confinement are also liable to a peculiar form of stomatitis. The parts about the mouth swell; there is a viscid discharge; the mucous membrane of the mouth and adjacent parts becomes ulcerated; it is eminently contagious, and, as a rule, fatal: altogether strongly reminding one of glanders in the horse. Although this disease may be occasionally tuberculous, I believe—and I base my belief on its evidently contagious character and occasional curability—that it is by no means invariably so.

**BIRDS.**—One of the most striking diseases to which confined birds are liable is a rheumatic inflammation of the joints; the phalangeal articulations being the favourite sites of attack. Wading birds are more prone to this affection than any others, and this may probably be accounted for by the small amount of blood which circulates through their slender shanks, and the small power they consequently possess of resisting cold. The disease generally commences in winter, the joints, if not very much injured, frequently recovering themselves in summer. The affected joints swell; the limb becomes distorted; and if the disease goes on to any extent, the foot at last reminds one of nothing so forcibly as the hand of an old washerwoman badly affected with rheumatic arthritis. In a bad case, the phalanges at length rot off one by one, and the bird has at last to "stump it" on its tarso-metatarsal bone. Some birds—and this applies especially to ducks and hens—are subject (as the result of close confinement and overfeeding) to fits of apoplexy, technically called "megrimms." After death the brain is found gorged with blood, and occasionally there is cerebral hæmorrhage.

Taking birds *en masse*, it may be stated that pheasants and moor fowl bear confinement the worst; the raptorial birds (particularly the falconidæ) the best.

**MAMMALIA.**—It becomes necessary now to specify the diseases of some of the different orders, instead of taking them altogether.

**Ruminantia.**—The diseases of ruminants have become of national importance, and have been so thoroughly investigated that it is not necessary for me to dwell upon them. Their liability to lung affections, epidemics of pleuro-pneumonia, &c., is remarkable. Sheep are very liable to the presence of acephalocysts in various organs; though it is certainly not at all clear that this tendency to hydatid

formation is the result of confinement. In the College of Surgeons there are nine specimens of hydatids in the sheep, situated in the lungs, brain, bones, liver, mesentery, and kidney. It is the presence of the *Cysticercus tenuicollis* in the brain that makes sleep "giddy"—giddy it may well be with such "a bee in its bonnet."

Of the diseases of pachyderms I need say little, as their great representative, the horse, has met with ample justice at the hands of Youatt and Stonehenge. The hog is very liable to the mumps and the mange, and is more frequently the subject of tubercle than any other pachyderm. A female Asiatic elephant that I dissected last year at Bellevue, died apparently from cystitis.

*Rodentia*.—Rabbits, when kept in ill-ventilated hutches, are subject to a contagious and very fatal disease called the "sniffles." Its name is sufficiently characteristic of the disease.

*Marsupialia*.—Kangaroos and opossums are, like all phytophagous animals, very subject to tubercular affections.

*Carnivora*.—One of the most notable things to observe, in referring to this order, is their small liability to tubercular affections, as contrasted with vegetable feeders. They die from inflammatory diseases of the lungs and abdominal organs often enough, but comparatively rarely from tubercle. This remark, however, does not apply to the carnivora kept in menageries; here the intensely bad hygiene, the filthy air, and the constant exposure to wet and frequent changes of temperature, are sufficient to destroy the soundest constitution; and the carnivora so confined are very frequently the subjects of tubercle. The carnivora are also very liable to rickets and liver affections. Of six seals that have died at Bellevue within the last year, I found abscesses of the liver in five cases. This may possibly be partially accounted for by the too frequent and unnatural feeding they undergo in a state of confinement.

*Quadrumania*.—Everyone knows that monkeys are exceedingly prone to tubercular affections. This fact seems to me not merely attributable to climatic influences (powerful though they undoubtedly be), for caged monkeys die almost as freely in hot climates as in cold; nor is it the result of rebreathing a polluted atmosphere, or an unsuitable diet, for in many gardens—notably those at Amsterdam, the Jardin des Plantes, and Regent's Park—everything wise is done in the way of food and ventilation. I cannot but think that the immoral habits of monkeys are in a great measure the cause of their great mortality. Lemurs are very subject to cataract, sometimes affecting one eye, more commonly destroying both. Monkeys are also liable to venereal affections. I have several times seen them suffering from gonorrhoea, and in one or two cases have seen what I believe to be a genuine chancre. I hope ere long to again find a victim afflicted with an ulcer of this description. In such case I shall not fail to inoculate him, and so, perhaps, be enabled to finally determine whether the disease may be produced *de novo* by dirty communication.

Manchester, May, 1869.

## RARE CAUSE OF DEATH IN SO-CALLED EPILEPSY.

By G. MACKENZIE BACON, M.D.

IN THE LANCET of July 11th, 1868, I recorded three cases of sudden death in epileptics, and endeavoured to show that to ascribe such deaths to "epilepsy" was to give no definition at all, and that the real cause might often be traced out post mortem. The following case is one of the same kind, and is, I think, very instructive:—

A man was admitted as an "epileptic," and after a series of fits, increasing gradually in severity, died suddenly. To certify such a death as due to "epilepsy" is to entirely mistake the nature of the case, as the post-mortem showed, yet we cannot doubt that many cases are disposed of in this summary way, much to the detriment of any scientific investigation of epilepsy.

I subjoin an outline of the case, only remarking that I ventured the diagnosis of tumour. A man, aged fifty, an itinerant blacksmith, was admitted, under my care, in the Asylum on the 17th of October, with the history of a blow

on the head, and an illness of only five days. The certifying surgeon described him as "a melancholic, having a tendency to suicide," but when admitted he was in a state of restless delirium, and had, during the first few days, attacks of slight unconsciousness, with syncope. He was stoutish and aged. After a few days he had a succession of convulsions, like ordinary epileptic fits, and got rapidly into a comatose state, from which there seemed little chance of recovery; but five days later he rallied somewhat, and took nourishment, though he had numerous "fits," which chiefly affected the left side of the face.

Nov. 1st.—He was partly hemiplegic on the left side of the body and face, but conscious, and the fits did not recur so frequently. He was much weaker, and had a bed-sore forming. The patient remained much in the same state till Nov. 9th, when he died suddenly, a few minutes after the night-watch had left him.

*Post-mortem examination*.—There was no sign of injury to the skull or brain. There was a largish collection of serum in the ventricles, and on slicing the hemispheres, so as to expose the central parts, a most remarkable difference was manifest between the corpus striatum and optic thalamus on the right and left sides,—the right being very much the larger, and so filling up the ventricle as to leave very little of a cavity. This enlargement was not due to any adventitious growth, but to a swollen condition of the parts. Dr. Gedge, the demonstrator of minute anatomy in the University, examined the brain for me by the microscope, and found no fresh elements nor signs of atrophy on the opposite side.

County Asylum, Cambridge, 1869.

## ON A CASE OF COMPOUND COMMINUTED FRACTURE OF BOTH LEGS.

By WILLIAM S. J. H. MUNRO, M.D., M.R.C.S.

JAMES B—, aged seventeen, whilst at work in the Writhlington Coal Company's pits on the 14th of March, 1867, got both his legs broken by a block of coal falling on them, about midway between the knee and ankle joints; the lower portion of each leg being completely doubled backwards; the tibia and fibula in each projecting through the wounds; small pieces of bone lying on their surfaces, whilst a piece of about an inch and a half was separated (and fell on the ground when removing the clothes) from the left tibia.

On being taken home, he was immediately placed on the floor, and both legs brought to their normal shape and length, when the whole of the sound surface was enveloped in resin plaster on moleskin, and a full-length, soft, leather-lined splint was applied to the sound aspect of each leg,—the injured one in each case being supported with two short splints of similar construction, and applied so as to leave between their nearest extremities as much space as would be necessary for dressing the sores. Strips of resin plaster were now applied over the splints, from the knee to the toes of each leg, firmly keeping the splints in their position, and the feet at the same time from swelling; and afterwards removing the portions of plaster between the ends of the short splints on each leg over the situations of the sores. In this way he was put to bed: the left leg laid in Liston's iron splint, and the sores on each leg dressed with strong turpentine liniment.

April 11th.—All has gone on well since the accident; the sore on the left leg healing rapidly, that on the right has healed so far as to admit the splints and plasters being removed from it, and to be put up in a strong starch bandage.

30th.—The sore on the left leg has healed; have taken off the splints and plaster, and put it as the other, which is now so well that the patient can raise it with its own power.

May 9th.—As the left leg seems a trifle shorter than the other, he is ordered out of bed, and to go about carefully on crutches, putting his weight on the right leg, but merely hanging the left suspended from his neck.