

VETERINARY SANITATION.

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THE subject of Veterinary Medical Sanitation, I need scarcely say, is a wide one, but it is my intention to direct attention only to some of its most important aspects.

If the *health* of a nation depends upon the purity and wholesomeness of its food supply, its *wealth*, more especially if it is a stock-raising country like ours, depends upon its powers of production, and upon the amount of immunity its animal population enjoys from communicable disease. And as not only communicable, but non-communicable disease also, is to a large extent preventible, I shall endeavour to show, as succinctly as possible, how far and in what way this country has erred in the past, and is erring now, in its methods of dealing with animal diseases.

It has been assumed that it is not to the advantage of the veterinary profession that disease should be suppressed. This is, to say the least of it, a selfish assumption, and it is not borne out by facts. I do not hesitate to say that the veterinary practitioners of this country do not benefit to the extent of 10 per cent. by such diseases. A certain proportion may benefit by their employment as inspectors, but the emoluments to be derived from these offices are both fluctuating and precarious. The other, and by far the larger proportion, do not benefit by one cent; on the contrary, they lose much, directly or indirectly: directly, because they are never called upon to treat such cases, and if they are, experience has taught us that treatment is practically useless; indirectly, because every circumstance that tends to diminish the profits of the stock-raiser renders him the more incapable of paying for the services of a professional man; and every circumstance which tends to reduce the money value of breeding animals renders the owners thereof more careless as to their wellbeing.

In considering the subject, I shall deal with it in its relation to living animals, the methods to be adopted for the purpose of suppressing disease, and of protecting the community from its ill effects, and also in relation to the transmission of animal diseases to man.

Of late much discussion has taken place as to the relative amount of work which has been done by the medical and the veterinary profession respectively in the matter of sanitation. To this matter I referred very fully in a paper which I recently read at a meeting of the Edinburgh Medico-Chirurgical Society.

If we in this country are behind our continental neighbours in the methods adopted for dealing with contagious animal diseases, we are equally behind them in the matter of meat inspection. The appointment of a Minister of Agriculture may lead to material changes in the former, the earnest co-operation of the medical and the veterinary professions can alone be productive of good in the latter direction. It has been too much the fashion for medical authorities to usurp the functions of the veterinary surgeon, and some individuals at least have attempted to claim a knowledge of animal disease which they do not possess; and, what is worse, in one or two cases medical officials have declared that veterinary surgeons are not qualified to judge

of the health of animals in connection with our food supply, while by every line they have penned they have betrayed their ignorance of the most elementary clinical facts, as, for that matter, of physiological and anatomical facts too. It is not by depreciating the value of the knowledge of the members of a profession so closely connected with itself that medical science will accomplish much in the direction of attaining to an intimate acquaintance with Comparative Pathology and Comparative Sanitation.

Several years ago I made a statement to the effect that every medical officer of health should have associated with him in his duties a veterinary officer of health, and that the two should mutually assist each other. This conviction has not been weakened by recent occurrences ; on the contrary, it has been materially strengthened.

But, to proceed with the subject-matter of my paper, I may say at the outset that many of my remarks will partake of the character of "Revelations of the Abattoir." In the matter of preventible disease of animals used for human food, we have particularly to notice pleuro-pneumonia, tubercle, and parasitism.

For over forty years this country has been the home of pleuro-pneumonia ; it is some thirty-six years since I saw eight victims of this malady lying dead or dying on the premises of my father. It is twenty-nine years since I became first acquainted with the disease professionally ; and when I look back over those years I cannot avoid asking myself the question, How much have we done to exterminate the malady ? From a very large experience, gained during three and a half years in the practice of my preceptor, Mr Kettle of Market Drayton, in one of the largest dairying and breeding districts in the world, I was enabled to collate many facts bearing upon the existence and spread of pleuro-pneumonia, and these I embodied in an essay read at a meeting of the London Veterinary Medical Association in 1862. The opinions I then gave expression to are the opinions I hold to-day ; and it was with the liveliest satisfaction I, in common with all those who have the true interests of the *Live Stock* industry of this country at heart, learned that the Privy Council had at last determined upon adopting energetic measures with the object of exterminating this pest. But while I express general satisfaction with the course adopted, I must at the same time confess to a feeling of disappointment in several points of detail.

The slaughter of contaminated as well as of diseased animals is only what I have persistently advocated for years, and the experience gained by other nations has shown that it is the only reliable method of dealing with the plague if it is to be effectually suppressed ; but, surely, in a matter of this kind, which affects the prosperity of every individual in the State, the burden should be borne by all. Why has it been made a local burden ? The answer is, because the Privy Council has not the power to make it an imperial one. Obviously, the comment to be made on that fact is, the sooner the better Parliament gives the Privy Council such power. It is plainly an injustice to saddle any community (or rather, the tax-payers of a community) with the cost of suppressing an outbreak of disease with whose inception or introduction it has had nothing earthly to do. Why, for instance, should the tax-payers of Edinburgh be burdened with a great outlay for the purpose of suppressing an outbreak of pleuro-pneumonia, when

neither the authorities nor the owners of animals can be in any way held responsible for the introduction of the malady? In other words, why should we suffer for the sins of others?

The incidence of taxation for the purposes of this order is much more equitably distributed in Ireland than it is in this country; for, according to the *Irish Times* of 10th March, "one-half of the amount of compensation comes out of the local rates, and the other out of the General Cattle Diseases Fund, which is levied over the whole of Ireland." It must be plain to all that a burden so widely distributed can be borne with much greater ease than can the same burden placed on the shoulders of a comparatively few individuals.

Another grave defect in the new order is the manner in which inspection is to be carried out. I fail to see why the Privy Council has not taken this matter into its own hands, as was done in dealing with cattle plague; and from circumstances which have come within my own knowledge, I feel perfectly justified in making the statement that this defect, coupled with the one before mentioned, will do much towards counteracting the beneficial working of the order. That the step taken is one in the right direction must be acknowledged by all who are desirous of seeing this foul blot erased from our escutcheon, and of once more rejoicing in the establishment of a clean bill of health which can be presented to colonial and foreign purchasers of our pedigree cattle.

That the step taken will be unpopular with another section of the community goes without saying; I mean that section which adopts the narrow view that we should take care of our own pockets. The suppressive measures hitherto adopted have been abortive. And in spite of all that has been recently stated in favour of the alternative method of inoculation, I do not hesitate to say that in this country, as well as in every other in which it has been practised, it has proved itself a rotten support on which to lean, and its value is rightly appraised by all those countries in which the rigorous prohibition of importation of animals from Great Britain has been established. They have profited by the lessons taught by other States; we, or many of us, seem inclined to trust—as by a blind fatuity—to an *ignis fatuus*, which has never done anything more than lead those who have followed it astray.

The experience of the Netherlands has been frequently held up as an example; and I have it as an official fact that since May 1885 only one case of the disease has been detected in that country, and that in an animal which had strayed across the frontier from that greatest of all inoculating countries—Belgium.

The Danish Government has, during the last seventeen years, suppressed seven outbreaks of the disease by prompt slaughter—not only of the diseased animals and those that had been in contact with them, but also by the slaughter or isolation of all animals within a tolerably extensive radius around the infected places.

They have reaped their reward in an absolute immunity from the disease; and while they boycott us, we have, if we are true to our free-trade principles, nothing to urge against importation of their clean stock.

Not only have we sent the disease to Denmark on four or five different occasions, but we have been the means of introducing it into several other countries—notably into the Dominion of Canada and

into the United States; and what is the result there?—an embargo on all stock from infected districts, and the application of harassing regulations in connection with the introduction of stock from healthy districts. We have experienced the same treatment by some of the New South Wales legislatures, and that too in face of the fact that inoculation has been in the past, and is now, extensively practised there. It has been urged that inoculation should be made compulsory over the whole of the country. This proceeding is manifestly impracticable, and if it were carried out no man could insure our customers against the risk of infection from chronic cases of pleuro-pneumonia, and, unfortunately, the records of our abattoirs show that too many such cases exist. During the last six months half-a-dozen such cases have come under my observation and two of them at least in inoculated animals, one of which was operated upon by an experienced inoculator.

That a rigid and universal system of inspection is required is amply proved by a case which has recently occurred in this city, wherein three animals were sent to one of the Auction Marts for sale by a farmer residing in the North, and on slaughtering it was discovered that the whole three were the subjects of pleuro-pneumonia.

The question of consumption of the flesh of animals that have been affected with pleuro-pneumonia is one that has not been prominently brought before the notice of sanitary authorities, simply because it has never yet been shown that such flesh is injurious to the consumer, neither indeed could it be so shown, seeing that the disease is essentially a bovine disease, and has not, to my knowledge, been communicated to other than to bovine animals even by such crucial methods as inoculation or intra-venous injection, and there is no disease with which we are acquainted in man that bears any analogy to it. I have myself fed dogs with pleuro-pneumonic lungs without producing the slightest sign of illness; this, however, is what one would expect, seeing that the disease is not propagated by ingestion even in bovine animals, nor have we any evidence that it directly renders the flesh of animals infected by it unwholesome; certainly, in the worst cases, material changes are observed in the muscular tissue, but when such exist the flesh is always condemned.

Tuberculosis is the disease *par excellence* which at the present day demands, from a sanitary point of view, our most earnest and thoughtful consideration. Terribly fatal and unmanageable as it is in man, its disastrous effects upon the constitutions of animals are equally pronounced. Its increase amongst our bovines is simply appalling; and it is no exaggeration to say that the number of cases that come under our observation exceed by twenty or thirty per cent. those met with about ten years ago.

At one time it was thought that only particular breeds of our cattle were the victims of the disease, and this to a large extent was true; but now we find it, at least in this country, in every class of cattle, and I have no hesitation in saying that large as have been the losses to the community by pleuro-pneumonia they bear but a very small proportion to those caused by this fell malady. But, as with many other things in this life, the greater evil has not attracted as much attention as has the lesser.

Not only our young stock, but our milk-producers and our flesh-

producers, are found to be subjects of the disease, and that, too, in many cases where during life the animals appear to be in perfect health. It is this treacherous character of the disease that undoubtedly adds to its danger.

It has become the fashion of late, in certain quarters, to account for its increase amongst town dairy cows by the action of such adverse influences as insanitary surroundings. Such influences doubtless play their part in hastening on the evolution of the symptoms when the disease already exists in the bodies of animals submitted to them, and also favour its spread when prolonged cohabitation is kept up. From the large bulk of evidence in my possession, I am warranted in saying that in the vast majority of cases which occur in the dairy cows of this city the disease is in existence when the animals are purchased, and as these animals are drawn from the rural districts of the north of England, from Ireland, and from Scotland, it is manifest that the disease has a very wide existence. I am frequently called upon to examine cows in an advanced stage of consumption which have been in the holder's possession for only a few days or a few weeks, and the aggregate loss far exceeds that which is experienced from pleuro-pneumonia, or indeed any other malady.

The sanitary aspect of this question is an exceedingly grave one in the face of the fact that cows affected with the disease frequently give a large yield of milk; and it is a further fact that its lesions are in many instances localised in the udder itself.

The infective nature of milk and other fluids and products of the body has been proved by countless experiments, carried out in very different species of animals, and we have a large amount of indirect evidence tending to show that these infective qualities of this most necessary article of diet are transmitted to man.

Since I have been interested in this question (now for many years), I have held that the milk never becomes nocuous (harmful) unless the udder is affected. Other observers have held with equal tenacity that the localisation of the lesions in the udder is not necessary to render the milk infective, and the strongest advocate of this view up to very recently was perhaps Professor Bang, of Copenhagen. In a letter which I received from him last month he informs me—as the outcome of a series of experiments recently carried on by him—that he has now come to the conclusion that the milk of tuberculous cows and tuberculous women in which there are no lesions in the mammary glands only exceptionally contains the contagion. He at the same time, however, points out that the milk from tuberculous udders is extremely dangerous, and that the tubercle bacilli are to be found, not only in the milk itself, but in the cream, butter-milk, and butter made from it; and that such milk is sometimes infective by ingestion, even after exposure to 65° C. of heat, and by injection into the peritoneal cavity after exposure to 80° C.

In reference to the flesh of tuberculous animals, it was shown by Bouley more than eight years ago that the juice of muscles of a tuberculous cow was infective in the pig; and Gaultier has more recently shown that dessication and salting for several days, great changes of temperature and freezing, do not affect the virulence of the bacilli.

In a paper prepared by Lydtin, Fleming, and Van Hertsen, and read

at the International Veterinary Congress held at Brussels in 1873, an interesting chart bearing upon the co-relation which exists in the prevalence of tuberculosis as between animal and human is given. In that chart it is shown that in 52 administrative districts in the Grand Duchy of Baden, in the year 1881, an intimate co-relation existed in this respect. There was, however, one notable exception, and that in the case of Werthiem, where the percentage of consumptive people was 0.28, and in cattle 0.60, but a good explanation of this is afforded in the fact that this town exports a large quantity of sausage made from flesh of an inferior quality.

Some of our medical *confrères* have of late been claiming credit for having directed attention to this subject, and in proportion to the vehemence of their assertions have deprecated the part taken by members of my own profession in this discussion.

I have elsewhere pointed out that this is unjust, but here I will only say that I first publicly directed attention to the matter in the year 1872, and that I have on various occasions since that time drawn public attention to it, and have urged the necessity of legislative measures being adopted for the suppression of the malady.

Various resolutions to this effect have been passed at different veterinary meetings held in this country within the last ten years, and in 1884 a copy of a series of resolutions bearing on this subject, which were passed at the National Veterinary Association, was forwarded by the President of the Association to the Lord President of the Privy Council and to the President of the Board of Health; but, notwithstanding this, all our efforts in this direction have proved futile, for up to the present the responsible authorities have not taken one single step towards dealing with this malady, nor is there any law which empowers us to deal effectually either with diseased animals themselves or with their milk.

In reference to Anthrax, while it adds its quota to the annual losses sustained by our food producers, I need say very little, seeing that it has recently been scheduled as a contagious disease, and we may hope that the measures taken will materially diminish its prevalence, even though they may not be the means of exterminating it.

Of the Parasitic Diseases, Distomatosis holds a prominent position as a diminisher of our food supply, and, judging from the revelations of our slaughter-house, it has a wider prevalence than is generally supposed, not only amongst sheep, but, what is of far greater importance, amongst cattle. I am speaking within bounds when I say that every year several hundreds of livers of cattle killed in our abattoir present evidence of the ravages of the Fluke worm, and it is often the cause of great loss to dairymen by its existence in new purchases.¹

Pronounced Hydatid Disease seems less prevalent than it was some years ago, though this may be accounted for by the fact that there has been a great diminution in the influx of Danish cattle into this part of the country.

Dietetic Disease produces the greatest ravages amongst our ovine population, but here, as in the case of Rot, much might be done by way of prevention. We have all, doubtless, during the last few months

¹ I may mention here that on a recent occasion I was requested to see a cow, and on going into the byre (containing about 28 cows) I found one cow dead, one dying, and a third in a very emaciated state; all had been purchased within the month, and on making a *post-mortem* examination of the two first-mentioned, I found liver disease of at least twelve months' standing.

heard or read of the losses sustained from Braxy in this country. In the fearfully degenerated condition exhibited by the kidneys, one finds an explanation of the actual cause of death in these cases; but it must be noted that these organs are vicariously sacrificed as the result of their depurative function. Many of the so-called cases of Braxy are nothing more nor less than Anthrax, or of congestion or inflammation of important organs, the latter also being brought about in most instances by dietetic irregularities.

The natural outcome of the remarks just made is a consideration as to how far the dealing with such sanitary questions may be amended, especially in reference to the health of the community. Seeing the danger that may arise from the consumption of the flesh and milk of diseased animals, I am of opinion that the magistrates of every town and city should be empowered to make such regulations as they may think fit or may be advised in reference to the method of dealing with such animals; but, looking at the difficulties surrounding the inspection of meat, I would suggest that an International Conference of Pathologists, Medical Men, and Veterinary Surgeons should be held, and the whole matter thoroughly discussed.

In the matter of ordinary inspection of meat I cannot help thinking that it might be put on a much better footing if the lay inspectors of abattoirs and markets were instructed to retain the carcasses and organs of all diseased animals, and if these were inspected daily by a competent Sanitary Board, whose decision as to the disposal thereof should be final.

Another question of equally as great importance as the one just discussed, is the origin or transmissibility of such diseases as scarlet fever and diphtheria from animals to man.

This scarlet fever craze (for I can only so designate it) has now been in existence for several years, not only in this country, but in America, and some very remarkable hypotheses have been propounded by certain medical men, who have based their conclusions upon very insufficient data. Some time ago I made a remark in a letter to a newspaper to the effect that if the cow had to bear all the burdens that some would heap upon her she would soon become extinct.

In October 1884 I penned the following remarks in the *Journal of Comparative Medicine and Surgery* in response to a request by Dr Stickler of New York that I would furnish him with my opinion as to the transmissibility or otherwise of scarlet fever from animal to man, or *vice versa*.—

“Assuming the transmissibility of scarlet fever from man to animals, or *vice versa*, to be a fact, and assuming the existence of this affection independently in animals, such transmissibility, or such independent existence of the disease, has never come under my immediate observation.”

“I am satisfied in my own mind that statements of a very sweeping character are often made which have no foundation in actual fact, and that a great tendency exists in the medical mind of the present day to accredit our domestic animals, particularly the cow, with the dangerous property of being splendid media for the transmission of human zymotic diseases, or, according to some, of being actual generators of those diseases.”

In 1882 Mr Power made a statement to the effect “that in his opinion the cow may develop, immediately after parturition, a poison, which may have the power of inducing a scarlatinal form of disease in

those persons who may partake of her milk at this period." In answer to this, I say—"If such were the case, we should hear more of scarlatinal attacks in those dairy districts in England in which the first milk secreted, the beestings, is highly esteemed and largely used for the purpose of making custard; and seeing that scarlatina, according to some authorities, is so easily propagated in the calf, we, who have spent a large part of our lives in breeding and rearing districts, would most certainly have met with such cases if the cow were the progenitor of scarlatinal poison. The fact that milk is such a powerful absorber and retainer of all volatile matters, and that it is such a splendid pabulum for the nourishment of all forms of life, seems to me to be largely overlooked in inquiries into this and kindred subjects. The contamination of milk is, in my opinion, more often extrinsic than intrinsic."

The recent discussion which has taken place in this country in reference to the so-called Hendon disease, will, in the long run, be the means of showing how easy it is to raise a cry of wolf when there is no wolf in existence.

I must most emphatically express the opinion that none of the eruptive diseases between which a resemblance to scarlet fever has been traced are in any way related to that disease; and further, that scarlet fever of the human subject has not been, nor can it be, transmitted to cows.

Within the past month a medical officer of health in England has reiterated an opinion previously expressed by others, that not only scarlet fever, but diphtheria also, has its origin in the cow. This statement I have also controverted in medical journals and elsewhere, and I may ask my fellow practitioners, if they have ever been able to associate the existence of an outbreak of diphtheria in man with a similar and pre-existing outbreak in cows.

Not only have cows, but also poultry and pigs, been credited with generating and disseminating this affection. That this malady may be transmitted experimentally or accidentally to both these animals I do not deny, but I think I may with safety say that natural or spontaneous outbreaks are rarely, if ever, met with in these creatures.

The disease which has been described as diphtheria in fowls is only one phase of tubercle, but so remarkable is the resemblance, that for several years I was in the habit of describing this particular form of tubercle in my lectures as diphtheritic aphtha, and continental veterinary surgeons, especially Mègnin, held similar opinions; but to show that it had no connection with diphtheria hominis, M. Trasbot of Alfort, upwards of ten years ago, induced a pupil of his, M. Faiés, to place in contact with the mucous membrane of his mouth and pharynx some of the product from the buccal membrane of a supposed diphtheritic fowl, and with entirely negative results.

Diphtheria is recognised as one of the most pronounced maladies to which man is liable, and the constitutional conditions produced by it are such as to interfere materially with all the normal functions. In view of this fact, I would ask if it is at all probable that cows affected with diphtheritic mammitis would continue to yield milk, or, if they did, would not the milk be so pronouncedly bad that no dairyman in his senses would dare to mix it with the regular yield, or if he did so, would it not be detected by the purchaser or consumer?