INSPECTION OF DAIRY HERDS.

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THE Pasteurisation and sterilisation of milk are processes which are now carried out in many places on a pretty large scale, especially Pasteurisation. Bacteriologists are not unanimous as to the effects of Pasteurisation on microbial life, some being of opinion that it does not ensure the destruction of all dangerous micro-organisms, and especially of their spores. Sterilising is a much more certain process for the destruction of microbes ; but the process usually impairs the flavour of the milk, though the inventor of Kühn's steriliser claims that in his machine the milk retains its flavour.

However desirable it may be to subject milk to either of the above processes, other means of preserving this largely used fluid from contamination should not be neglected. Some of the provisions of the Contagious Diseases (Animals) Act and the Orders in Council relating thereto, and sections of the Public Health Acts, refer to milk-shops and dairy herds. They confer considerable powers in reference to the hygiene of these places and animals upon the local sanitary authorities. The bye-laws referring to cow-sheds and milk-shops in force in some towns are excellent, and are enforced ; but in other towns there is a lax inspection of the places that cows are kept in and milk vended. It is, however, in the rural districts that inspection is least attended to ; indeed it may be safely said that the majority of dairy yards and sheds in the United Kingdom are under no supervision whatever.

It is admitted that two diseases are not infrequently spread

through the medium of infected milk—namely, typhoid fever and tuberculosis. As regards the former disease, the cow itself is innocent, for the infection of the milk takes place after the cow has yielded it. The medical officer of health deals with the cases in which infected milk is suspected to be the carrier of the *Bacillus typhosus*. In the case of tuberculosis, it is, with few exceptions, the cow which infects the milk, and consequently the inspection of the cow is the province of the veterinary surgeon. For this and other reasons I am of opinion that on the sanitary staff of every local authority there should be a veterinary surgeon. In the case of larger towns his whole time should be at the disposal of the authority, and in the smaller towns or rural districts a sufficient portion of his time should be secured. In Dublin a veterinary surgeon is a whole time officer, exclusively for sanitary purposes, for he does not act as a practitioner in the case of the horses of his own authority.

The Contagious Diseases (Animals) Acts have been of the greatest use in Ireland and no doubt in all the rest of the United Kingdom. The contagious pleuro-pneumonia of the ox, which existed continually for nearly 60 years, decimating frequently the dairy herds, especially those of the towns, is no longer in existence in Ireland. This extirpation of the disease is admittedly the result of the working of these invaluable Acts. Until lately the supreme authority in the administration of these Acts was in Ireland the Privy Council, but the recently established Department of Agriculture and Technical Education has taken over the veterinary department of the Privy Council. The veterinary inspectors under the Contagious Diseases (Animals) Acts are, with few exceptions, appointed by the local sanitary authorities, but one moiety of their salaries is paid by the Department of Agriculture. The diseases which the Acts deal with do not include tuberculosis, consequently with one exception the

veterinary inspector takes no notice of tuberculosis. The exception is the Dublin veterinary inspector, who acts under the Public Health Act as well as under the Contagious Diseases (Animals) Act.

I am strongly of opinion that it would be desirable the whole inspectorial work under the provisions of the Contagious Diseases (Animals) Acts, and of dairies and cow-sheds under the provisions of the Public Health Acts, should be directly under the Department of Agriculture. The veterinary inspectors, aided by the city police and Royal Irish Constabulary, and assisted by the local sanitary authorities, could strictly enforce sanitary conditions in the cow-sheds both in country and town. The cows should be systematically examined in order to determine whether or not they were affected by tuberculosis. The names and addresses of all the persons connected with milk-shops, creameries, and dairy-yards should be ascertained, and it would be the duty of the medical officers of health and sanitary inspectors to ascertain whether or not any of those persons were affected by contagious disease or resided in houses in which such disease existed.

The Irish Board of Agriculture have a staff of veterinary surgeons numbering about 50. The Board contributes one-half of the salaries of the veterinary surgeons, who act under the county and town councils. The Board's staff are whole time men; but the local authorities' veterinarians are all practitioners, with the exception of Mr. Watson, who acts for the City of Dublin. The work under the provisions of the Contagious Diseases (Animals) Acts is divided between these two classes of inspectors. The whole time men act as port inspectors, and they deal exclusively with swine distemper. I am strongly of opinion that the two classes of inspectors should be wholly under the Board of Agriculture, and that tuberculosis in the cow should be made a notifiable disease.

I do not propose to discuss the vexed question should compensation be given to the owners of tuberculous cows, the carcasses of which are confiscated, but I am sure compensation would lead to more frequent notification. The chief point would be to get a systematic inspection of the dairy cows by the veterinarians of the Board, assisted to some extent by the constabulary. As practically there is no inspection of the kind in the rural districts in Ireland, it would be a great gain to public hygiene if the health of our dairy stock were carefully inquired into and proper means taken to enforce cleanliness and ventilation in the cow-sheds. It is no exaggeration to say that the conditions under which cows are kept, especially in rural districts, are unfavourable to the health of the animals and the purity of the milk.

As regards the English Board of Agriculture, their work in reference to the Contagious Diseases (Animals) Act is almost entirely carried on by the officers of the Local Authorities, as only three veterinary surgeons are directly attached to the Board. If the Board were to undertake the supervision of all the dairies in England and Wales, they would require a very large staff. I am aware that there is a tendency to decentralise sanitary administration, as is shown, for instance, by the gradual transference of many of the duties of His Majesty's inspectors of factories and workshops to the officers of local authorities. I am, however, of opinion that the duty of inspecting the animals of the farm and the dairy yards would best be carried out in both England and Scotland by the Officers of the Boards of Agriculture.

DR. KIRKPATRICK believes that in the direction indicated in the papers there is room for much good work. Hampered by Koch's theory scientists appeared to the public as divided on this sanitary question, and consequently could not hope for lay support. The danger could hardly be over-estimated. MacFadyen estimated

that 70 per cent. of the cattle were tuberculous, statistics verified by examination after the slaughter of the animals. The dairy yards of the city were well adapted for the growth of bacilli. Cattle whose lungs are infected are a constant source of infection to the others. Pure milk exposed, as it often is, in these dirty byres in wide, open vessels, is readily infected by tuberculosis.

DR. MATSON thought that feeding of the cattle is of importance. He has seen in Canada cattle fed in underground cellars fattened on grain for the English market. Animals so deprived of natural food and fresh air cannot be healthy, and such cows cough and vomit matter which is almost certain to convey tubercle. The precaution of boiling all milk before use should be adopted.

SIR CHARLES CAMERON wished to remind the Section that the recent Viceregal Sanitary Commission declared that the cows in the city dairy yards were much better fed than those in the rural districts. They stated that the Dublin dairy yards were incomparably superior to those in the urban districts; the hygienic arrangements were better, and the milkers and other attendants much cleaner. The Dublin cows are sent to grass for seven months of the year; their milk contains 14 per cent. of solids as against 12 per cent. in the country. A veterinary surgeon examines their udders regularly during the winter season, and the personal cleanliness of the attendants is ensured by a by-law which makes dirty hands punishable by a fine, and during the last year forty milkers were fined for having their hands dirty.

PROFESSOR MCWEENEY believes that a codification of our sanitary laws is a necessity; as it is, a whole library of legal books is wanted to find out the law on sanitation. They (sanitarians) want one big Act which will include everything. Sterilisation of milk is out of the question—it makes ordinary milk unsightly and unpalatable; spores resist boiling for three hours under a pressure of two atmospheres. Pasteurisation kills typhoid germs at a temperature of 140° F., and 190° F. kills the tubercle bacilli; no creamery should be allowed to vend milk until it has been properly Pasteurised. As for the Dublin dairy yards, he considers them a disgrace to civilisation; they are kept in an intolerably filthy state, and, as for the attendants, he thinks if they had the German sanitary law in force here some 90 per cent. of the milkers would be arrested, and be forcibly washed. The condition of the cows with their flanks caked with fæces and their unwashed udders in

city byres, where the fresh milk is allowed to remain in open shallow vessels in which not infrequently fæcal matter floats, is abominable. In Germany the fæcal matter would be washed off the cow, and the milk would not be allowed to remain in the byres to be infected. Cows cough and sneeze and usually swallow some of the sputum, passing the tubercle in the fæces, and of course infecting healthy animals and contaminating the milk. There can be no proper supervision of dairies without a bacteriologist; a veterinarian cannot make an exhaustive microscopic examination of milk or perform the necessary biological experiments; this is the work of a biologist, and can be done by a biologist only.