



THE CONTROL OF BOVINE TUBERCULOSIS

(Address by Dr. J. G. Rutherford, V.S. Dominion Veterinary Director-General and Live-Stock Commissioner, before the Tuberculosis Congress, held recently in Washington, D. C.)

THE official programme has the subject assigned me of the "Control of Bovine Tuberculosis in Canada," the last two words having been added to the title originally sent in by me. I have but little to say on the control of bovine tuberculosis in Canada, inasmuch as while in some districts, under municipal and Provincial laws, efforts are being made to control the disease in dairy herds supplying various centers of population, very little is now being done by the Federal Government, through the Health of Animals Branch of the Department of Agriculture, which is in my charge.

CANADA'S POLICY CONSERVATIVE.

Although for some years, at a period prior to my assuming office, a very considerable amount of testing with tuberculin upon the application of owners was carried on, no appreciable benefit was found to result, and, as a matter of fact, we now confine ourselves to the testing of cattle imported or exported for breeding purposes, those on the Experimental Farms, and a few other herds which have been placed by their owners under the direct control of our officers. We, however, on the request of owners of cattle who desire them tested, supply tuberculin free of charge to any reputable, qualified veterinary surgeon, on condition that he will send to the Department the results of the tests made by him, on charts which we furnish for that purpose.

All cattle reacting to tuberculin in Canada, save those privately tested, are permanently earmarked, by cutting a large T out of the right ear.

I may as well frankly state that the reason for this apparent inertia is that, so far, no satisfactory intelligent method of dealing with bovine tuberculosis has been evolved, and we deem it wiser, before taking action, to await the results of the investigations now being conducted by veterinary scientists in various countries, in the hope that some better way of dealing with the problem may be discovered.

Our knowledge of tuberculosis, the tuberculin test, and of their vagaries, have all along been defective and incomplete, and undoubtedly is so to-day, and when we bear in mind the many legislative mistakes which, owing to this lack of exact knowledge, have been made in the past, it must be admitted that caution is commendable, and that, before taking any definite departmental action involving the large interests which are at stake in such a country as Canada, it is reasonable that we should "look before we leap," and guard, as far as may be, against the possibility of having to recede, more or less ignominiously, from a position once taken.

UNWISDOM OF COMPULSORY TESTING AND SLAUGHTER.

Many of our medical friends, and some veterinarians whose zeal outruns their discretion, advocate compulsory testing and the slaughter of all reacting animals. At first sight, to men lacking practical experience, and, perhaps, devoid of responsibility, this policy may appear a very simple solution of the problem. That it is very far from being so, however, needs but little demonstration to an audience of this nature. All practical veterinary sanitarians, dealing in large matters, are, even without taking into consideration the painful experience of those communities which in earlier days were rash enough to adopt it, well aware, not only of the great difficulties to be encountered in carrying out such a policy, but of the fact that under ordinary circumstances, in spite of the great economic waste involved, its results are by no means so satisfactory as its advocates would like to have us believe. Most of us can remember the time when the majority of veterinarians, many of whom should have known better, believed that if a herd of cattle were tested, the reactors destroyed and the premises disinfected, the disease was stamped out, and the owner might thereafter be left to follow his own courses.

Intelligent men have, of course, understood from the beginning that there must be, in the very nature of things, a period of latency or incubation between the time of infection and that when an infected animal would react to tuberculin. This period was fixed in 1899 and 1900 by contemporaneous but entirely independent experiments, carried on by the Tuberculin Committee of the Royal Agricultural Society of England, and by Drs. Nocard and Rossignol, under the auspices of the Societe de Medecin Veterinaire Pratique of France. The results in both cases were practically the same, and showed the period of incubation, while depending somewhat upon the mode and degree of infection, to range from eight to fifty days. This fact, affecting vitally as it does both the original herd and any additions or replacements which may be made, is in itself a very serious obstacle to the satisfactory working out of a policy of compulsory testing and slaughter, even with liberal compensation. Taken in conjunction with the vagaries of tuberculin, especially on second, third and fourth tests in the same herds, and the numerous ingenious methods adopted by owners, especially of pure-bred cattle, in order to defeat the test, it is sufficient to

exclude from the field of practical action this method of dealing with tuberculosis, except in small and circumscribed communities, in which all, or at least a majority of the owners, are alive to the necessity of stamping out tuberculosis, and are willing to co-operate heartily with the authorities in bringing about that result.

LIMITATIONS OF TUBERCULIN AS A DIAGNOSTIC AGENT.

This conclusion on my part has not been rashly arrived at. Ever since tuberculin was first used as a diagnostic agent in bovine tuberculosis, I have been studying its action, and during the whole of that period my opportunities for such study have been considerably greater than fall to the lot of the average veterinarian.

Let us go a little more into detail. A herd of, say, one hundred cattle, kept under ordinary stable conditions, is tested, and twenty-five reactors are found. These twenty-five animals, together with any which, owing to the disease being in an advanced stage, may fail to react, but which are detected by clinical examination, are slaughtered and the premises carefully disinfected. It is not so very long, as I have already said, since many veterinarians were teaching that such a herd was safe and sound, and that provided any animals added were carefully tested before being brought into contact, no further danger need be apprehended. This is, of course, very far from being the case. In the first place, a re-test after three months will, depending to some extent on the virulence of the particular infection—a point of great importance—and the sanitary conditions, reveal, perhaps, from five to ten new re-actors. Even after these have been destroyed and the premises again disinfected the herd is by no means safe. The ten reactors, taking that as the number, have been living in close contact with the remaining sixty-five, and it is quite likely that three months later several of the latter will be found to be affected. Here also comes into play the uncertainty of tuberculin in repeated tests—a most serious consideration. In spite of Professor Valle's important and valuable discovery, which I may say does not by any means apply in all cases, it is quite within the bounds of possibility that a number of animals, affected to a greater or less degree, will fail to react when tested for the third or fourth time. This acquired tolerance to tuberculin is one of its most serious limitations, and constitutes another difficulty somewhat hard to overcome. Let us admit, however, that after the lapse of a longer or shorter period and a number of carefully-conducted retests, the survivors of the original herd are properly pronounced healthy.

We must now take into consideration the question of additions and replacements, one which, from a business standpoint, is in the majority of instances of paramount importance to the owner. It is not enough to have the new animals tested before bringing them on the premises. The same limitations, viz., that of the incubative period, applies to such tests as those with which we have been dealing. New arrivals must be isolated, not only from the original herd, but from each other, and submitted to a re-test at the expiry of at least three months before being allowed to come in contact with any other cattle.

Two further points here demand our attention. We have hitherto, presumably, been speaking of tests honestly applied to the cattle of an honest owner, and by a capable, intelligent and experienced veterinarian. We must now first consider some of the nefarious methods employed by dishonest and unprincipled owners to nullify the test and so defeat the end in view.

The old method of dosing beforehand with tuberculin, although still followed in many herds, has largely lost its value through the discovery of Professor Valle, above referred to, and is now, as a rule, only employed when the testing veterinarian is agreeably complacent, or a few years behind his age. It has, among the more astute dealers and breeders, been largely superseded by the practice of administering one or other of the modern antipyretics, combined for the sake of safety with other drugs, to such animals as are known to be tuberculous, or which show any rise of temperature when undergoing the test. This plan is beautiful in its simplicity. Temperatures are quietly taken from half an hour to an hour before the veterinarian makes his rounds, and the febrifuge, mixed with a little sugar and disguised in a handful or two of meal, is licked up by the animal without fuss or trouble. There is no drenching, no handling, no excitement; the temperature drops, and although there may be and often is thermal irregularity, there is no distinct rise, and, above all, no tuberculin arch.

This brings us to the second of my two further points, viz., the veterinarian making the test. While, with all its limitations, I have great confidence in the diagnostic properties of tuberculin, I must confess to a feeling of suspicion with reference to all charts that are in any degree what I may term colorless, unless I know that the man who signs them is an honest, conscientious, wide-awake and experienced veterinarian. Too many men take it for granted that everything is fair

and above board, and depending entirely on their thermometer readings, allow themselves to be hoodwinked by dishonest and unscrupulous owners. I could go into many details, and perhaps furnish some amusement by recounting a few of the artful dodges resorted to in order to keep the veterinarians away from their cattle between temperatures, so as to permit of their being safely manipulated, but time will not permit. One thing, however, should be emphasized, viz., the fact that in the overwhelming majority of cases we have, in addition to the temperature rise, a distinct clinical reaction, some of the most salient features of which may be, and often are, only temporary, while others persist until at least twenty-four hours after injection. Among the temporary signs which may be noticed, as a rule, from six to twelve hours after injection, are, in severe cases, rigors, often accompanied by staring coat, general excitation and frequently diarrhoea. In less well-marked cases we have coldness over the loins, quarters, thighs and tail, sub-acute excitation and general malaise. Even when these symptoms have passed off the animal maintains a standing posture, and is more or less stiffened; there is loss of appetite, rumination is suspended, and in milch cows the flow of milk is diminished.

Close attention to, and observation of, the animals undergoing the test are, in my opinion, indispensable. Even with them it is possible for mistakes to be made, without them the tuberculin test is very apt to be badly discredited. The older veterinarians here will recollect that, prior to the discovery of tuberculin, much attention was paid, both by teachers and practitioners, to the clinical diagnosis of bovine tuberculosis. Of late years this phase of practice has been almost entirely lost sight of, the younger men practically depending on tuberculin as a diagnostic. This state of affairs is regrettable, and should be remedied by cultivating, with regard to cases of tuberculosis, that habit of painstaking observation which alone makes for success in the diagnosis of most of the other maladies to which dumb animals are subject.

ECONOMIC WASTE OF COMPULSORY SLAUGHTER

I might, perhaps, explain that the foregoing remarks on the necessity of care and exactitude in making tests are intended to emphasize the idea that only skilful and specially-trained men can with safety be employed in this work, no small difficulty in itself, when it comes to undertaking a universal and compulsory testing policy. There is still more to be said against compulsory testing and slaughter. Many reactors are but slightly affected, and while, in the case of beef cattle in good condition, the loss from their slaughter may be insignificant, it is a very different matter when valuable pure-bred herds, or even common grade stock, thin in flesh, are condemned. It is true that with the latter the question of compensation may be more easily settled than with the former, but the matter of economic waste is only one of degree, for while the pure-bred reactors might live out their natural lives and produce much valuable, and, with proper precautions, healthy stock, the thin grades might be fattened and slaughtered under careful supervision for purposes of human food. For the reasons given above I am convinced that, at least on any large scale, the policy of compulsory testing and slaughter is not a practicable one.

QUESTION OF VOLUNTARY TESTING

Turning to the policy of voluntary testing, or testing in response to applications from owners, now followed in parts of the United States and in several of the countries of Europe I would point out that not only do most of the arguments against compulsory testing apply to it with equal force, but several other factors come up for consideration. Among these, perhaps, the most important is the fact that in testing only those herds in a country that are voluntarily submitted to the authorities, the progress made in the direction of eradicating tuberculosis must, of necessity, be not only very slow, but very uncertain. Professor Bang admits that, under the experience of repeated and often disappointing tests, the patience and courage of our Danish friends not unfrequently fail, and they become weary of well doing and relapse into carelessness. This phase of the matter is one which must be taken into account, and when with it is considered the fact that the last to ask for the test are, as a rule, the breeders of pure-bred stock, whose herds are the principal agents in disseminating disease, the ultimate ineffectiveness of voluntary testing is pretty clearly demonstrated. Owners must obtain fresh blood from time to time, and unless a man is heart and soul with the authorities in their efforts to clean up his herd, and takes every possible and minute precaution accordingly, it is, so long as tuberculosis exists in the country, only a matter of time until his stock relapses into a condition of disease.

(Continued on page 486)