have not the slightest hesitation in saying that the result would have been exactly the reverse. I state emphatically that the standing operation is *not* surgical. You are not prepared for emergencies, as every good surgeon should be. You are working in a state of nervous anxiety an operator should never be in. I shall never again operate on a colt in the standing position without the case I have quoted being uppermost in my mind at the time. That is not a state of feeling conducive to good workmanship. I may perhaps be nervous, but I can confidently assert that it is not all on my own account; part of it is for the colt, and that is sufficient reason for me to oppose the standing method of operating whenever an opportunity occurs.

When wishing, for these reasons, to avoid the operation and still retain my client, I have found this to be the best means. Readily agree to his wish to have his colt castrated in this manner. Assure him that you are quite able to do it, and politely intimate that it is not the slightest trouble. Having done this, next carefully explain to him your grounds for not advising it, always adding that of course you will do it if he wishes, and nine times out of ten you will then castrate the colt in the way you yourself prefer.

To sum up, I think the reader will see that my conclusions are as follows:—

1. That of the only two really safe methods the clam and hot iron is eventually the most convenient.

2. That the standing operation is dangerous alike to animal and operator, and not, therefore, to be advised, though necessity may sometimes compel its adoption.

3. That all emasculators are risky, owing to the blood they leave collected in the scrotum.

In conclusion, I beg to state that none of this is written with the smallest intention of creating correspondence. I have never been bigoted. I have in practice given many methods a fair trial. I simply wish now to add my experience to that of others.

These remarks and conclusions I have been for some time maturing, but have never before put to paper. They are my earnest convictions, and as such I leave them.

THE USE OF THE FLESH OF TUBERCULOUS ANIMALS.¹

By Dr D. A. DE JONG, Leiden.

MANY Congresses have already discussed the question of the use of the flesh of tuberculous animals, but without arriving at any important practical results. It appears to me that it must always be very difficult for an International Congress to arrive at conclusions that can serve for the guidance of practical veterinary meat inspectors of different countries in the discharge of their duties.

I therefore at first hesitated to undertake the writing of a paper on the subject. And if I have nevertheless undertaken the task, that

¹ Translation of a Paper contributed to the Proceedings of the Seventh International Veterinary Congress.

was because I reflected, in the first place, that the conclusions arrived at on the question by former Congresses have so far been practically useful, as they have called wide attention to the value of good meat inspection, and that therefore even repeated discussion of the subject may be useful from this point of view. In the second place, I was moved to undertake the preparation of a report by the fact that the Berne Congress (at which I presented a report on the sterilisation of the flesh of tuberculous animals) took up on this subject a very different position from the former Congress, and, although not expecting to convert my opponents, I would nevertheless hope that by making a complete statement of the extent to which I dissent from them, the Berne conclusions may be given a practicable shape.

Let us in the first place notice the resolutions that have been adopted by the former Congresses. The Brussels and Paris Congresses demanded the condemnation of the flesh of all tuberculous animals, irrespective of the extent of the disease. The first and second Congresses, held in 1888 and 1891 respectively, took up the same position. However, at the last-named Congress there was received with applause a motion by Arloing, which, without surrendering the principle of total condemnation of the flesh of tuberculous animals in the raw state, was in favour of submitting all tuberculous flesh to sterilisation, heating, or salting, and approved of withdrawal from consumption only when the quality of the flesh itself makes it necessary to condemn it.

The conclusion of the third Congress on tuberculosis (1893) again proclaimed the necessity for sterilising the flesh of tuberculous animals, and recommended that sterilising apparatus should be provided in slaughter-houses. It would hence appear as if this Congress regarded the use of the flesh of all tuberculous animals as dangerous and requiring to be sterilised. However, when one examines more closely the reasons put forward by the mover of the resolution (Nocard), one recognises that the term "tuberculosis" referred only to generalised tuberculosis, and did not include the case of animals affected with other forms of the disease.

Lastly, the Berne Congress (1895) limited the condemnation of the flesh of tuberculous animals to those cases in which "on account of their extent and character the tuberculous lesions must be regarded as dangerous." The authors of the various reports presented on the subject expressed themselves as follows:—

Butel was in favour of the total condemnation of all tuberculous flesh; he regarded the entire carcase of every tuberculous animal as dangerous, and considered sterilisation the only means by which the flesh could be rendered safe for consumption.

Guillebeau expressed the opinion that the flesh of tuberculous animals, even when it appears normal, contains tubercle bacilli, but believed that the bacilli were quickly destroyed by heating to a temperature of 70-80° C. He, therefore, thought that in districts in which it is the custom to eat the flesh only in the cooked condition it might be passed as fit for food after removal of the caseous lesions, while in countries in which it is eaten in the raw state the sale of the flesh of tuberculous animals should not be permitted except in the Freibank or in the sterilised condition.

The third reporter, Ostertag, was, unfortunately, not present, and

he had not sent in any report. His view on the subject, which will be found in his text book on "Meat Inspection," and which has found almost general acceptance in the German States, is based upon a distinction between *local* and *generalised* tuberculosis—a distinction which had previously been drawn by Johne.

Ostertag takes up the position that not every tuberculous carcase is to be regarded as dangerous.

At the Berne Congress I myself contributed a report confined to the subject of the sterilisation of the flesh of tuberculous animals. I showed that in sterilisation we possess a means of rendering tuberculous flesh, which otherwise would have to be destroyed, fit for human consumption and non-injurious to health. Only in those cases in which the cost of sterilisation would exceed the value of the flesh is it better to destroy the latter. I expressed myself in favour of sterilisation in cases in which Koch's bacilli are present in the flesh, either in the muscular tissue, the muscle juice, the lymphatic vessels or glands, or the veins. I did not, however, by this intend to say that sterilisation is necessary whenever one or two bacilli are present; on the contrary, I believed "that the bacilli must be present in considerable numbers." I believed that it was only in such cases that the flesh would prove infective when introduced into the intestine.

Eventually Butel altered his motion in favour of "conditional condemnation of the flesh," and thus obtained a majority in favour of the resolution already mentioned.

I now come to the consideration of the position of the defenders of "unconditional" (total) condemnation, and that of the advocates of "conditional" (partial) condemnation.

The former consider that the flesh of tuberculous animals, meaning thereby the muscular tissue and the neighbouring soft parts, is dangerous even when the morbid process is of very slight extent, *e.g.*, when the bacilli occur simply in the lungs or bronchial glands; they consider that such flesh must be regarded as actually injurious, and therefore requiring to be condemned. They cite experiments in which animals have been experimentally infected by the injection of blood and muscle juice of tuberculous animals. Negative results of such experiments cannot, they allege, invalidate the conclusions to be drawn from the experiments yielding positive results.

On the other hand, the advocates of partial condemnation assert that in many cases of tuberculosis the virus has not travelled beyond the limits of the organ first attacked, or, at least, not further than the lymphatic glands belonging to such organ. It is alleged that within the body tubercle bacilli are disseminated solely by the lymph stream, and that they do not reach the circulating blood or the muscular tissue. The process thus remains localised, and only the actually diseased parts contain tubercle bacilli and are dangerous for human health. And the danger would not be very great even if tubercle bacilli were to gain access to the blood stream. Experiments on this head have shown that, even in very advanced cases of tuberculosis, the flesh or the muscle juice is only exceptionally capable of infecting experimental animals, and even then a positive result is obtained only by inoculation, and not by attempts to infect through feeding. Experiments have, further, shown that the blood and flesh of the living body are not appropriate media for the growth of the tubercle bacilli,

and that, even when the disease is very far advanced, it very seldom happens that many bacilli are present in the flesh of tuberculous animals. But a few bacilli taken in with the food would not be in a position to injure human health. The supporters of these opinions, therefore, consider that condemnation is necessary only when the extent of the disease gives occasion to fear "that the flesh contains a large number of bacilli."

In carrying out practical meat inspection, it is not possible to give effect to the view that flesh containing only one or two bacilli should be condemned. I am, therefore, in favour of a "conditional condemnation"—that is to say, condemnation in those cases in which the clinical and pathological examination of the slaughtered animal by the meat inspector indicates that numerous bacilli must be present.

As already mentioned, Johnes and Ostertag have laid down rules by which a "local" may be distinguished from a "generalised" tuberculosis.

From the point of view of meat inspection, the tuberculosis is held to be "local" when the disease is confined to the organ originally attacked, or to the parts standing in immediate lymphatic connection with that. On the other hand, the disease is "generalised" when the tubercle bacilli have been distributed with the blood and have set up tuberculous lesions in other organs.

Two forms of generalised tuberculosis are distinguished. The first is the "chronic generalised" tuberculosis, in which only relatively small numbers of bacilli gain access to the blood, but in which the act is several times repeated, so as to lead to the infection of other remote organs by means of the blood stream. This form is associated with few urgent symptoms.

The other form of generalised tuberculosis is "acute miliary tuberculosis." In this form a large number of bacilli within a short period gain access to the blood, and, in consequence, tuberculous emboli are developed in many places, widely separated from one another. As a rule this condition is accompanied by very acute symptoms, determined by a tuberculous process which may be termed "tuberculous septicæmia," and also by the sudden development of the disease in several organs. There are, of course, transitional stages between the two forms.

When, following the introduction of tubercle bacilli into the blood, tubercles have developed in certain organs, a further infection in this way does not occur, and if the individual survives the blood infection (as is almost always the case with the irruption of a moderate number of bacilli), the process may be further spread to various organs by means of the lymph stream. In such cases, where the process of generalisation has come to an end, one may speak of a "multiple local tuberculosis." This term may also be applied when tubercle bacilli have penetrated into the body from the outside at several places, so as to determine a primary infection of a number of organs. Such infections may occur independently of one another—*e.g.*, in the lungs, intestine, uterus, etc.—or the one may be the consequence of the other. Thus, an apparently "primary intestinal infection" may in reality be secondary, and the result of a primary lung infection, the intestine having been infected by the swallowing of sputum.

The introduction of the terms "local" and "generalised" tubercu-

losis into meat inspection ought to enable the inspector, after he has completed his pathological examination, to immediately decide as to whether the carcase should be passed or condemned. In local tuberculosis (provided the muscular tissue or flesh is not involved) condemnation would be limited to the locally affected part, the remainder of the carcase being passed; whereas in generalised tuberculosis the unconditional and complete condemnation of the entire carcase would be necessary.

However, if one takes up the position that the flesh of tuberculous animals is to be condemned when it contains many tubercle bacilli, and admits that even in generalised tuberculosis only a few bacilli may be present in the flesh, it follows that the introduction of the terms "local" and "generalised" has not quite so much value for the practical meat inspector as might at first sight appear.

In the first place, the term "local tuberculosis" is, at least theoretically, to be used with care. It has been pretty generally accepted that tuberculosis, especially in cattle, has a pronounced tendency to remain localised to the tissue near the point of entrance of the agent of infection and to the neighbouring lymphatic glands, and that it seldom proceeds beyond these limits. To explain this appearance it is assumed that the lymphatic glands adjoining the part first attacked keep back the tubercle bacilli for a considerable time, after the manner of a filter.

If the disease spreads the extension may take place either by the lymph stream or the blood stream. The latter method frequently comes into play when the walls of a capillary or of a vein become involved in the process.

Provided the tuberculous process does not remain confined to the lymphatic glands first attacked, but gradually creeps along the lymphatic vessels to a second or third group of glands, the disease will still be regarded as a local one, just as if it had not extended beyond the group first attacked.

The fact that the lymphatic glands implicated may show various morbid changes, from reddening and œdematous swelling to ultimate caseation and calcification, is explainable on the supposition that the tubercle bacilli remain in the lymphatic glands and exercise their pathogenic action in the tissue of these glands. As a matter of fact, it is known that the lymphatic glands have the power of arresting corpuscular elements, and they may in this way keep back tubercle bacilli. It does not by any means necessarily follow, however, that a tuberculous lesion confined to a lymphatic gland may not at some time detach tubercle bacilli into the circulating blood, provided it is not completely isolated from the sound tissue after the manner of sequestrum. Furthermore, it is not probable that a lymphatic gland will arrest all the bacilli that have penetrated into it, but rather that it will allow many to pass, and that some of these may gain access to the blood through the large lymphatic vessels. Indeed, anatomical and physiological considerations would lead one to think that this must be the rule, and that therefore emboli and generalised tuberculosis would occur much more frequently than is actually the case. The harmlessness of the entrance of tubercle bacilli into the blood stream, and the non-occurrence of emboli and their consequences, is explainable by the experimentally demonstrated fact that tubercle

bacilli introduced into the blood in small numbers disappear or are destroyed there, and it may be concluded therefrom that the blood is not a favourable medium for the life of the tubercle bacillus.

It follows that even in a local tuberculous lesion, provided it is not yet completely isolated as a sequestrum, tubercle bacilli may gain access to the blood, but that they are as a rule without any injurious effect there owing to their being quickly destroyed.

In the strict sense of the word, therefore, there is no such thing as a localised tuberculous process. But when, in spite of the fact that bacilli pass from a lesion to the blood, the process remains localised, this is not solely the effect of the filter action of the lymphatic glands, but is mainly to be ascribed to the property of the circulating blood, in virtue of which the tubercle germs are in most cases destroyed.

In occasional cases this does not appear to occur. Thus, observations have shown that in cases of pronounced local tuberculosis of the bronchial and pulmonary glands, with subsequent secondary infection of the mesenteric glands through the swallowing of sputum, examination of the lymphatic glands embedded in the muscles furnishes no definite result, but that a few rather old tubercles are found in the kidneys. Obviously these can have had their origin only in bacilli transported into the kidneys by means of the blood stream.

Such cases do not come under the head of chronic generalised tuberculosis, in which tubercles are formed in many organs in consequence of a continual infection of the blood, nor can they be regarded as examples of "multiple local tuberculosis" of hæmatogenous origin, in which continual blood infection has come to an end after the development of secondary tubercles. Such cases show that the blood occasionally fails to destroy small quantities of tubercle bacilli.

Ought the knowledge of these facts to prevent us from passing the flesh of animals affected with the so-called "local tuberculosis"?

I must answer this question with a decided negative, for in the great majority of cases the presence of a few bacilli in the blood and flesh is not actually injurious; and although it is true that in certain very rare cases the tubercle germs become carried in the blood stream to remote organs, and there lead to the formation of occasional small lesions, it does not follow that the entire carcase is dangerous to health.

In what cases, it may now be asked, ought the flesh of tuberculous animals to be condemned as dangerous to human health?

I.—In the first place, this is the case in acute miliary tuberculosis.

In acute miliary tuberculosis great numbers of bacilli suddenly gain access to the blood; the previously chronic tuberculous process then takes on an acute character, and serious symptoms set in.

At the *post-mortem* examination in many cases tuberculous lesions visible to the naked eye are to be found in very few organs. For the most part they are only to be discovered on microscopic examination.

The presence of large numbers of bacilli in the blood involves a great danger to human beings eating or handling such flesh.

Reference must here be made to the recent valuable investigations by M'Fadyean.¹

¹"The Situation and Order of Development of the Lesions in Bovine Tuberculosis." By J. M'Fadyean. See this Journal, September 1898.

In the first place, this author, on the ground of *post-mortem* examinations conducted by him, describes the organs which may be found diseased in cases of bovine tuberculosis, and gives an account of the lesions that were present in six cases of very advanced tuberculosis. He then combats Ostertag's opinions with regard to the signs of generalisation, and asserts that many organs, such as the liver, spleen, kidneys, and many lymphatic glands, more readily become affected by the lymph stream than by the blood stream—a view with which I can only partially agree.

He then described three experiments with cows, in which he injected large quantities of tuberculous material into the jugular vein. The cows, which after a short time were slaughtered on account of urgent symptoms, all showed acute (hæmatogenous) miliary tuberculosis of the lungs. On macroscopic examination the bronchial and mediastinal lymphatic glands were found to be diseased, the others normal, with the exception of the second case, in which a pharyngeal and a prescapular gland were tuberculous. To a naked-eye examination in these cases of acute miliary tuberculosis the lungs were found to be the main seat of disease, but on microscopic examination the liver and spleen in the first case, and the spleen in the third, were found to be tuberculous.

From these results M'Fadyean draws the following conclusions:—

1. Infiltration of the whole of the lungs with tubercles of approximately the same size is a never-failing proof of generalisation.
2. In the absence of the lungs, a naked-eye examination of the other organs affords no criterion with regard to generalisation of the process.
3. In cases of generalised tuberculosis the spleen, liver, and kidneys may show no macroscopic lesions even when myriads of embolic tubercles are visible in the lungs.
4. The tubercles which are found in the spleen, liver, and kidneys, and in the lymphatic glands generally, on macroscopic examination, are generally the result of lymphogenous infection, and no proof of generalisation by means of the blood stream.

It must be observed with reference to these conclusions that M'Fadyean had in view only the acute miliary tuberculosis which is fatal and always accompanied by striking symptoms, but not the chronic generalised tuberculosis.

The diagnosis of acute miliary tuberculosis in the slaughtered animal requires the presence of a great many (not merely a few) embolic tubercles of approximately the same size in the lungs. Hence, in order to prevent the possibility of any doubt, the examination of the animal before slaughter is indispensably necessary, so as to observe whether acute urgent symptoms are present.

M'Fadyean's fourth conclusion I can endorse only with a large reservation. In chronic generalised tuberculosis the organs mentioned become infected by way of the blood stream, as is evident from M'Fadyean's own experiments. The fact that the liver, kidneys, and spleen show tubercles, while these are absent from many of the deep-lying lymphatic glands, merely proves that infection of the lymphatic glands by means of the blood stream takes place more slowly and requires a larger amount of the virus than the other organs, or than infection by means of the lymph stream.

The experiments cited also prove that in cases of acute miliary tuberculosis:—

1. The animal shows acute symptoms of disease, and

2. On macroscopic examination miliary tubercles are not to be found in various organs.

M'Fadyean has also published other experiments¹ which show the dangerous character of the flesh in cases of acute miliary tuberculosis, which might have been inferred from the large number of bacilli thrown into the blood stream.

* * * * *

These experiments, and others by different authors which I omit to mention here, show that when the number of bacilli entering the blood is not great the flesh may be regarded as comparatively harmless.

In the cases above referred to, the blood and muscular tissue were found to be virulent only once, but the popliteal glands three times. This shows that the admission of very many bacilli into the blood renders the lymphatic glands more dangerous than the muscles and blood, and that in such cases the muscles, on account of the lymphatic glands in them, are highly dangerous.

In view of the fact that the infectivity of the material was proved by inoculation and not by feeding experiments, it may again be asserted, in harmony with the results of earlier experiments, that "even in acute miliary tuberculosis the flesh is dangerous in only a few cases."

II.—In addition to the cases of acute miliary tuberculosis, the flesh of tuberculous animals ought to be condemned when it contains a large quantity of infective material.

This is frequently but not always the case in chronic generalised tuberculosis.

I should be in favour, for example, of excepting from condemnation cases in which chronic generalisation has not led to the development of embolic processes in the muscles and in the lymphatic glands belonging to them—cases in which not many bacilli have gained access to the blood. This would apply also to cases of generalisation involving several of the internal organs, but in which tubercles have not been formed either in the deep-lying lymphatic glands or in the muscles.

Animals affected with chronic generalised tuberculosis seldom appear to be very ill during life; in many cases, indeed, their general condition is excellent.

When tubercles are not present either in the flesh or in the lymphatic glands the carcase should not be condemned, even although the kidneys and spleen contain tubercles.

When I speak of the lymphatic glands of the muscles I mean only those that are deep lying and belong exclusively to the muscles—not the superficial groups which may be infected from tuberculous lesions of the organs or serous membranes in their neighbourhood. The carcase is therefore to be condemned when tuberculous processes are found in the muscular tissue or the lymphatic glands of the muscle.

I ought here to observe that no scientific educated meat inspector

¹ "The Infectivity of the Blood, Muscular Tissue, and Lymphatic Glands in Generalised Tuberculosis of the Ox." By J. M'Fadyean. See this Journal, December 1898.

will condemn the carcase in every case in which generalised, but not acute miliary, tuberculosis is present, and in which, although the organs are diseased, there are no lesions in either the muscular tissue or its lymphatic glands.

The objection that in chronic generalised tuberculosis the muscular tissue and glands may have become involved in the morbid process at the moment of slaughter or a short time previous, although no visible lesions are present in these parts, may be opposed by the statement that in such a case the number of the bacilli would not be large.

III.—On practical grounds I must add to the cases already mentioned, those in which there is a "multiple local tuberculosis."

In such a case examination of the muscular tissue and its lymphatic glands, especially the latter, shows that these have been infected with tuberculosis, and that from them the virus has been further disseminated, especially by way of the lymphatics; the presence of such a large quantity of infective material in the flesh would be dangerous to human health, and therefore in such a case condemnation ought to be carried out.

In the cases included under the headings I. and II., the condition of the lymphatic glands will enable the meat inspector to decide.

Of course, the whole of the flesh cannot be examined, nor is it necessary that all the lymphatic glands should be diseased; it is sufficient if single groups of deep-lying lymphatic glands show lesions which cannot be ascribed to direct infection from tubercles in the adjacent organs or serous membranes. In this connection it ought to be observed that disease of the lymphatic glands is not always manifested by the presence of tubercles visible to the naked eye; œdema, hyperæmia, and swelling of the glands may also be signs of tuberculous disease.

I think I have now enumerated all the conditions on which the flesh of tuberculous animals ought to be condemned. By way of completion I would here add:—

1. In cases of so-called local tuberculosis the diseased parts of the carcase must be condemned, but the remainder should be passed.

2. In generalised tuberculosis the same rule ought to be followed, except in cases of (*a*) acute miliary tuberculosis, in which the whole animal ought to be condemned, and (*b*) of chronic generalised tuberculosis with lesions in the muscular lymphatic glands (or muscles), in which case also total condemnation is to be practised.

3. In multiple local tuberculosis the same rule ought to be followed as in chronic generalised tuberculosis, that is to say, the whole animal must be condemned when lesions are present in the muscular tissue or its lymphatic glands.

I will only add to this that in cases of healing of tuberculous lesions, calcification of tubercles, etc., the healed parts may be regarded as not dangerous.

I should consider my task as not completed if I did not devote some words to a number of other points which must be taken into consideration in judging the carcasses of tuberculous animals. These are as follows:—

1. Emaciation and wasting. These two conditions, which may be

the consequence of tuberculosis, in judging the carcase of a tuberculous animal must be kept separate from the term tuberculosis, and be given independent consideration. If the tuberculous disease by itself would not justify condemnation of the carcase without the emaciation or wasting, then condemnation must be practised not on the ground of tuberculosis but on account of the wasting. Even if the latter is the consequence of the former it is still an independent ground for condemnation.

2. A "bad appearance" of the flesh must also be mentioned. This term, the significance of which varies with the individual using it, must also be kept separate in judging the flesh of tuberculous animals. The question whether a bad appearance of food materials is by itself injurious to health is possibly very interesting, but in any case it is quite distinct from the question whether tuberculous flesh ought to be condemned.

3. Lastly, I entirely agree with Ostertag in thinking that all doubtful cases ought to be condemned.

What, it may next be asked, ought to be done further with the flesh of tuberculous animals? With respect to this point two general rules may be laid down.

1. The uncondemned carcasses and the uncondemned parts of tuberculous animals should be passed without any restriction.

2. Condemned carcasses and the condemned parts of tuberculous animals must be sterilised.

I must here devote some words to the questions of "Declaration" and the "Freibank." I consider it absolutely unnecessary, and from the owners point of view very unfair, that flesh which is not injurious should have to be sold with a declaration, or in the Freibank in countries in which that institution is recognised.

In this respect I should like to dissent from the motion which I put forward at the Berne Congress, moved thereto by a desire to secure unanimity; the recommendation there made goes decidedly too far. At the same time, a declaration is in many cases necessary. It frequently happens that parts of tuberculous animals which are not in themselves dangerous become soiled with infective material, by the various manipulations carried out during slaughter or in the removal of infected parts, and are thereby made injurious. Such flesh may harbour many tubercle bacilli on its exterior, but these, on account of their superficial position, will be destroyed by simple boiling or roasting; such flesh I would have sold with a declaration or in the Freibank, with an intimation that it must be well boiled or roasted. Even in these cases sterilisation would be preferable, were it not that it detracts too much from the value of the meat.

On the other hand, condemned flesh must always be sterilised provided the cost of sterilisation does not reach or exceed the value of the flesh itself. Simple boiling and roasting are not adequate substitutes for sterilisation. The sterilised flesh must be sold with compulsory declaration or in the Freibank, since the purchaser has the right to be informed regarding its source.

With regard to the question of compensation an International Congress is not the proper place for determining regulations.

Moreover, at the present time, when the owner possesses a practi-

cable method of diagnosis in tuberculin, I hold that compensation is not absolutely necessary; the public require at the least flesh from healthy animals, and the seller is morally bound to supply the same. If he intentionally or carelessly fails to do his duty in this respect he ceases to have any claim to compensation. If, for example, compensation had to be paid out of a local rate, it might easily happen that such a place would become the market and place for slaughtering tuberculous cows from the whole of the surrounding country. On the other hand, it might be expected that compensation would act in favour of regulations intended to combat tuberculosis in general, or facilitate the carrying out of general meat inspection in a kingdom or province; in this way it might be useful to grant reasonable compensation to owners who have complied with the legal requirements.

It must also be observed that the owners are very well able to protect themselves in this matter by means of a system of insurance. In many cases it may therefore be in the interests of authorities to give administrative or even financial support to these insurance agencies.

What has been already said defines accurately enough the position which I take up with regard to the conclusions of the Berne Congress, and I therefore refrain, in view of the limited space at my disposal, from entering into a more detailed consideration of these.

The following are the resolutions which I desire to submit to the Congress:—

1. In view of the danger to human health which is involved in the use of the flesh of tuberculous animals, the inspection of animals intended for food both before and after slaughter is necessary.

2. The flesh of tuberculous animals is to be condemned, (*a*) in cases of acute military tuberculosis, and (*b*) in cases in which tuberculous lesions are present in the muscular tissue or its lymphatic glands.

3. In all other cases the flesh is to be passed, but only after the diseased parts or organs have been condemned.

4. In those cases in which the flesh, although itself not injurious, is outwardly soiled with infective material, it ought to be passed for sale with a declaration or in the Freibank.

5. Cases which appear of a doubtful character must be condemned as dangerous.

6. Condemned flesh and condemned organs must be sterilised, provided the commercial value of the flesh after sterilisation is not less than the cost of the process.

7. The sterilised flesh and the sterilised organs must be sold with a declaration or in the Freibank.

8. The terms emaciation, bad appearance, unsightly character, and such like, have no importance in estimating the dangerous nature of tuberculous flesh, but they may furnish independent reasons for condemnation.