# TRANSACTIONS OF THE BRITISH CONGRESS ON TUBERCULOSIS FOR THE PREVENTION OF CONSUMPTION. LONDON, JULY 22ND TO 26TH, 1901; VOLUME IV. THE VETERINARY SECTION

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THE HONORARY SECRETARIES OF THE SECTION

# TRANSACTIONS OF THE BRITISH CONGRESS ON TUBERCULOSIS FOR THE PREVENTION OF CONSUMPTION. LONDON, JULY 22ND TO 26TH, 1901; VOLUME IV. THE VETERINARY SECTION

Trieste

# TRANSACTIONS

OF THE

# British Congress on Tuberculosis

FOR THE PREVENTION OF CONSUMPTION. London, 1901.

***LONDON, JULY 22nd to 26th, 1901.***

**Patron:**
HIS MAJESTY THE KING.

**President:**
FIELD-MARSHAL H.R.H. THE DUKE OF CAMBRIDGE, K.G.

VOLUME IV.

## THE VETERINARY SECTION.

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# SECTION IV.

## VETERINARY (TUBERCULOSIS IN ANIMALS).

(Meetings in the Marlborough Hall, adjoining the Polytechnic, Regent Street, from Tuesday to Friday, 9.30 to 1.30.)

**President.**

SIR GEORGE BROWN, C.B.

**Vice-Presidents.**

Professor McFADYEAN, M.B., C.M., B.Sc., M.R.C.V.S.
Professor DEWAR, F.R.C.V.S.
Professor McCALL, F.R.C.V.S.
Professor W. OWEN WILLIAMS, F.R.C.V.S.
Professor METTAM, B.Sc., M.R.C.V.S.
Professor McEACHRAN, F.R.C.V.S.
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JAMES SIMPSON, F.R.C.V.S.

**Secretaries.**

Professor HOBDAY, F.R.C.V.S., 27, Lower Phillimore Place, Kensington, W.
Professor BRADLEY, M.B., Ch.B., M.R.C.V.S., Royal (Dick's) Veterinary College, Edinburgh.
Professor WOODRUFF, M.R.C.V.S., Royal Veterinary College, Camden Town, N.W.

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THE first meeting of the section was held in Marlborough Hall, adjoining the Polytechnic, Regent Street, on Tuesday, July 23rd; the President of the Section, SIR GEORGE BROWN, C.B., occupied the Chair.

The subject for discussion was—

### THE DIAGNOSIS OF TUBERCULOSIS IN ANIMALS DURING LIFE.

The discussion was opened by PROFESSOR DEWAR, F.R.C.V.S., Principal of the Royal Veterinary College, Edinburgh, with the following remarks:—

As time is limited, and as tuberculosis is of greatest importance to the veterinary profession as occurring in the ox, it will be advisable to confine our observations to the diagnosis of the disease in the bovine species.

Having practised at a time when there was nothing to rely on to assist our diagnosis but the older clinical methods, I am able to appreciate these without failing to estimate at their true value the methods introduced subsequent to the discovery of the causal organism of the disease by Dr. Koch. Previous to that date the seriousness of the affection, its contagious nature, and the extent of its spread amongst the herds of our country, were only suspected by a few, although prior to that date I had already dealt with it as an actively contagious disease.

As our subject is not semiology but diagnosis, it will be unnecessary to

dwell on the primary symptoms of the disease. It is not uncommon for its first appearance to be indicated by a rough harsh sound in the throat during respiration, especially in young animals and heard best when the head is lowered in feeding. There may be nothing else. Possibly on manipulation an enlargement may be made out in the upper parotid region. The history will assist. The prevalence of tuberculosis in the herd, or of actinomycosis in the district. When a tumour begins to project externally in the same region it can generally be distinguished from actinomycosis. The tubercular tumour becomes adherent to the skin over a single central area as a rule. As often the actinomycotic tumour forms more than one point of adhesion, and subsequently of softening. If enlarged lymphatic glands can be made out about the root of the neck or elsewhere diagnosis is practically confirmed, while with actinomycosis the jaws, tongue, or lips are more frequently involved.

But as in about 75 per cent. of cases of tuberculosis the thoracic organs are early affected, it becomes a question of diagnosing the disease within the chest.

If in a cow, and it is often in a cow, she may be observed to give an occasional cough without anything very characteristic about it. It can often be induced by turning her out of the warm byre into the colder atmosphere outside, or by any excitement or disturbance, but her health is not affected and the owner thinks nothing of it.

By-and-by, although feeding all right and giving an ordinary amount of milk she begins to lose condition, the hair becomes dry, and if in the byre she may be found sweating over the shoulders in the mornings. Very often a peculiar facial expression, the outward and visible indication of the tubercular diathesis, becomes apparent to the experienced observer. Before emaciation is at all pronounced the skin becomes firmer, it is less soft, supple, and movable, and more adherent to the subcutaneous tissues. Pinching over the back or loins may cause the animal to cringe, and in the intercostal spaces may be manifestly painful. The cough becomes more frequent, more spasmodic, occurring in fits, and is sometimes evidently painful. Still most of these symptoms may be present in other diseases—the emaciation, the cough, etc., although the hide-bound condition is seldom so pronounced, so distinct, at such an early stage as it is in tuberculosis. Amongst these diseases are chronic bronchitis, verminous broncho-pneumonia, and the presence of hydatids in the lungs, contagious pleuro-pneumonia, and foreign bodies passing forwards from the stomach. The two latter should not be difficult to distinguish. Verminous bronchitis usually affects a number of individuals, and the cough, emaciation and other symptoms are quite different, and the presence of hydatids is indicated by complete dulness on percussion in one or more pulmonary areas. From chronic bronchitis if accompanied by emaciation the differential diagnosis is more difficult.

On percussion there may be little to distinguish them—in bronchitis there may be no perceptible alteration on percussion, and if accompanied by pulmonary emphysema the resonance may even be increased. But there may

be no diminished resonance in pulmonary tuberculosis where miliary tubercles are scattered throughout the lungs, at least in the upper part of the chest the resonance may even be increased, although it is often somewhat diminished, there is some perceptible dulness towards the lower and anterior parts of the chest.

On auscultation the vesicular murmur is heard louder and harsher than normal over the upper half of the chest. Towards the lower borders of the lungs it becomes weaker and may be almost imperceptible towards the middle and anterior regions of the chest, or bronchial sounds may completely disguise it. There may be nothing heard but sibilant râles and sonorous rhonchi which become displaced, or altered on coughing. There can also be observed —what can also be seen while standing watching the animal breathing—a difference in the relative length of the inspiration and expiration. The expiration is prolonged, longer than the inspiration. If there is perfect quietness this can be clearly made out on auscultation. The vesicular murmur is distinctly heard during expiration, and as distinct towards the end of the expiratory act as at the beginning. This never occurs in health, nor am I aware that it occurs in any other disease.

In chronic bronchitis the vesicular murmur is also louder and harsher than normal, but it can be heard over all the chest, except where it may be nearly disguised by loud abnormal bronchial sounds. But the expiratory movement is shorter than the inspiratory, and on auscultation the vesicular murmur is only heard at the start of the expiratory movement.

Although the departure from the normal in the relative length of the inspiratory and expiratory movement can be easily seen as a rule, it requires perfect quietness to allow one to be able to appreciate the difference in the respiratory sounds on auscultation. With a large number of cows in a byre, with chains rattling here and there it is perfectly useless attempting it.

But tuberculosis frequently affects other organs as well as the lungs, and our older clinical methods are often unequal to the formation of a definite diagnosis. The most important of these other organs, from a public health point of view, is undoubtedly the mammary glands. Increased experience leads me to believe that the number of tuberculous cows affected with tubercle of the udder is greater than that usually estimated, *i.e.*, about 3 per cent. Apart from cows that are only recognised as tuberculous through the action of tuberculin, I think the percentage would be from five to seven.

In the udder the progress of the disease is often slow, and there is no doubt but it may exist for weeks in such a condition as to render the milk dangerous before the most expert clinician could detect its presence. The posterior quarters, one or both, are most frequently affected, and although sometimes acute it is seldom distinctly painful. As a rule the swelling is more or less diffuse, not often nodulated, and the physical characters of the milk are at first very little changed, less so than with a non-specific inflammation or "weed." On the other hand one quarter of the udder or more may become rapidly enlarged, hard, brawny, although but little painful, and it should not be mistaken for a simple inflammatory induration.

This brings us to bacteriological diagnosis which is of most general use in the examination of milk, a subject which I cannot enlarge on at this time.

It can also be applied to discharges from the nose, to matter coughed up, or scraped or sponged off the pharynx, while the tongue is secured, after causing the animal to cough, to the pus from the suppurating tumours, from cold abscesses, to any suspected discharge from the vulva, and to particles of tissue abstracted from an enlarged mammary gland, lymphatic gland, or even tumour, by the pathological harpoon. The demonstration of the tubercle bacillus under the microscope is distinct evidence of the presence of the disease.

Dr. Ferran, Director of the Bacteriological Laboratory, Barcelona, has published a statement that the tubercle bacillus possesses the curious property of producing in certain media a substance which emits a peculiar easily recognisable odour not unlike that of "human sperm," that the best medium for this purpose is the serum of a sheep, which has been hyperimmunised by cultures of the bacillus, and that when a little of the medium is shaken up with a drop of the suspected tuberculous matter, and kept at a temperature of 29 to 30° C. for thirty-six hours, if Koch's bacillus is present the characteristic odour is easily recognised. He asserts that this method gives positive and reliable results where the microscope has failed to detect the bacilli. I have not observed any confirmation of this method of diagnosis by other experimenters.

Of more importance it seems to me is the agglutinating power of tuberculous serums, or even tuberculous effusions. As early as 1898 attention was directed to this method by M. Arloing, Director of the Veterinary School of Lyons. He seems to consider the method of great importance in diagnosing tuberculosis in the early stages in the human subject.

Experimenting on cattle he found that the blood serum of healthy adult cattle had an agglutinating power on tubercle bacilli in a "bouillon" culture, but that the power was only feeble, whereas the agglutinating power of the serum of tuberculous cattle was much more powerful; and he states that in this manner the presence or otherwise of tuberculosis in the animal from which the serum is obtained can be determined. He claims that this method of diagnosis is calculated to be of great usefulness in cases where fraudulent means have been used in order to prevent the usual reaction from tuberculin. This failure to react to the tuberculin test may be brought about by repeated injections of tuberculin, and probably by other means, which perhaps had better not be specified here. The agglutination method might therefore prove of great value to port veterinary inspectors and those interested in preventing the importation of diseased animals.

At the same time it is not a method which can be readily applied by every practising veterinary surgeon. It requires a considerable familiarity with bacteriological methods, with laboratory technique. It is necessary to have a culture of the tubercle bacilli in which the organisms are uniformly distributed throughout the culture media so that it has a homogeneous appearance from top to bottom. M. Arloing states that to a little of this culture in a small test tube a few drops of blood serum from the animal to be tested are added, shaken together, and the tube left upright. He adds that agglutination commences