THE ESTABLISHMENT OF PUBLIC ABAT- TOIRS IN THE METROPOLIS IN RELATION TO THE PREVENTION OF TUBERCULOSIS.

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(MEMBER.)

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The CHAIRMAN (Dr. E. B. Forman), in calling upon Dr. Bond to read his paper, said that since it was discovered that tuberculosis is not a hereditary disease but a communicable one—that it is to be acquired by food and in other ways—the subject had been one of very great importance to sanitarians. It had formed for them a fresh field. Among sanitarians there were no “Little Englanders”; they were all “Jingoists.” Every sanitarian was desirous of acquiring fresh territory, of piercing darkest Africa, and so far as tuberculosis is concerned they had done their best to let light into the subject. There had been two Royal Commissions, and they had had the learned and valuable Harben lectures by Sir Richard Thorne Thorne, dealing with this question, and they even had now a society for the prevention of the spread of tuberculosis. The subject, therefore, he thought, fitly formed the title of the paper to be read to them that evening. Though they had had much information upon it they still required more. For it was very important that the public—the lay public—should know the real facts of the case before they jumped, as they frequently did, to a conclusion, which possibly was a wrong one. In his capacity as a member of another body the matter had come before him, and he did his best to promulgate the views he entertained; to explain all that in detail, however, would be somewhat anticipating the paper. But in the phrase of a distinguished man, who was happily recovering from a serious illness, he could say “that is another story,” on which perhaps in a later part of the evening he would have an opportunity of saying something. At any rate, The Sanitary Institute had chosen for the paper that night a gentleman particularly well qualified to speak to them on that subject, for he was the medical officer of health to a district adjoining one of the largest meat markets in London. He would be able to tell them from his own observation and experience the harm or the good of meat passing into London in its killed condition. He would now ask Dr. Bond to read his paper.

Dr. Bond said:

I ONLY consented to read a paper on this subject, at short notice, on the understanding that an elaborate paper was not

required, and that a *Discussion* on the matter was what was principally desired.

I wish I could have had more time to do justice to the importance of the subject. This importance is shown by the recommendation relating to London of the last Royal Commission on Tuberculosis, which is the following :

It appears desirable that in London the provision of public in substitution for private slaughter-houses should be considered in respect to the needs of London as a whole, and in determining their positions regard must be had for the convenient conveyance of animals by railway from the markets beyond the limits of London, as well as from the Islington market, to the public slaughter-houses which should be provided. At the present time no administrative authority has statutory power authorising it to provide public slaughter-houses other than for the slaughter of foreign cattle at the port of debarkation.

Also by the general recommendations for Great Britain and Ireland, which may be thus briefly summarized.

When any local authority has provided a public slaughter-house power should be conferred on it to prohibit slaughter in any other place, except that a period of *three* years be allowed to the owners of existing registered private slaughter-houses to apply their premises to other purposes; also to require *all* meat brought into the district to be inspected, and reasonable charges made for this inspection. Also that the joints of all carcasses passed as sound shall be *stamped*; and that it shall not be lawful to offer for sale the meat of any animal which has not been killed in a duly licensed slaughter-house.

No person is to be permitted to act as a meat inspector until he has passed a qualifying examination; and that the Local Government Board should issue instructions for the guidance of meat inspectors as to the seizure of a carcass or a part thereof.

As this paper is to deal especially with Public Abattoirs in relation to the prevention of Tuberculosis, and the remarks of some members of the various London Butchers' Associations indicate that the conclusions of the former Royal Commission on Tuberculosis which, reported in 1895, are still imperfectly known by butchers, it seems desirable to definitely state them, viz. :—

RECAPITULATION.

77. To recapitulate the information we have obtained from the witnesses who favoured us with their experience,

and from the researches of our three enquirers, together with our own conclusions :—

We have obtained ample evidence that food derived from tuberculous animals can produce tuberculosis in healthy animals. The proportion of animals contracting tuberculosis after experimental use of such food, is different in one and another class of animals ; both carnivora and herbivora are susceptible, and the proportion is high in pigs. In the absence of direct experiments on human subjects, we infer that man also can acquire tuberculosis by feeding upon materials derived from tuberculous food-animals.

78. The actual amount of tuberculous disease among certain classes of food-animals is so large as to afford to man frequent occasions for contracting tuberculous disease through his food. As to the proportion of tuberculosis acquired by man through his food or through other means, we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food.

79. The circumstances and conditions with regard to the tuberculosis in the food-animal which lead to the production of tuberculosis in man are, ultimately, the presence of active tuberculous matter in the food taken from the animal and consumed by the man in a raw or insufficiently cooked state.

80. Tuberculous disease is observed most frequently in cattle and in swine. It is found far more frequently in cattle (full grown) than in calves, and with much greater frequency in cows kept in town cow-houses than in cattle bred for the express purpose of slaughter. Tuberculous matter is but seldom found in the meat substance of the carcase, it is principally found in the organs, membranes, and glands. There is reason to believe that tuberculous matter, when present in meat sold to the public, is more commonly due to the contamination of the surface of the meat with material derived from other diseased parts, than to disease of the meat itself. The same matter is found in the milk of cows when the udder has become invaded by tuberculous disease, and seldom or never when the udder is not diseased. Tuberculous matter in milk is exceptionally active in its operation upon animals fed either with the milk or with dairy produce derived from it. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter.

81. The recognition of tuberculous disease during the life of an animal is not wholly unattended with difficulty. Happily, however, it can in most cases be detected with certainty in the udders of milch cows.

82. Provided every part that is the seat of tuberculous matter be avoided and destroyed, and provided care be taken to save from contamination by such matter the actual meat substance of a tuberculous animal, a great deal of meat from animals affected by tuberculosis may be eaten without risk to the consumer.

83. Ordinary processes of cooking applied to meat which has got contaminated on its surface are probably sufficient to destroy the harmful quality. They would not avail to render wholesome any piece of meat that contained tuberculous matter in its deeper parts. In regard to milk we are aware of the preference by English people for drinking cows' milk raw, a practice attended by danger, on account of possible contamination by pathogenic organisms. The boiling of milk, even for a moment, would probably be sufficient to remove the very dangerous quality of tuberculous milk.

Also 39 there is always a difficulty in making sure of the absence of tuberculous matter from any part of a carcass that shows evidence of tubercle elsewhere.

Dr. Sims Woodhead stated that a man might eat a sufficiently large quantity of tubercular meat containing tubercle bacilli at one meal to induce tuberculosis.

Dr. Klein has made experiments which show that *bovine* tubercular matter is much more virulent to animals generally than *human* tubercular matter.

These experiments were confirmed by those of Dr. Sydney Martin, who also obtained some very valuable and interesting results. It will be best perhaps for me to quote from an original contribution by him which I recently had the pleasure of hearing, and which is just published in the "Journal of State Medicine," the official organ of the Royal Institute of Public Health.

The parts of the body which are affected by the disease after infection are very varied in individual cases, and this variability, which in former times led to great misconception as to the nature of the disease (which was described as arising in the body, for example), led undoubtedly to a delay in the acceptance of tuberculosis as an infective disease. There are cases, for example, which are readily

explained, such as primary pulmonary tuberculosis and primary intestinal tuberculosis, in the former of which the infective material is evidently inhaled, in the latter of which the material is swallowed, and produces ulceration of the small intestine, affecting secondarily the mesenteric glands. There are other cases of tuberculosis which are, however, not so readily explained. These are the cases of scrofulous glands in the neck, of tubercular peritonitis without intestinal ulceration, and cases of so-called remote tuberculosis, "primary" tubercular meningitis, or tubercular disease of the joints and bones. The experimental study of the disease explains in great part the anomalies in the distribution of the lesions in the human subject. A single dose of tuberculous material given with the food of a healthy pig will, if large enough, produce intestinal ulceration, subsequent infection of the mesenteric glands and of other glands in the abdominal cavity, followed by a general infection of the body. A smaller dose will produce no ulceration or sign of infection of the mucous membrane of the intestine, but will produce enlargement of the mesenteric glands, and perhaps affect no other part of the body. This important fact—namely, that a small dose of tubercular virus may infect the internal organs of the body without producing a lesion in the mucous membrane by which it is absorbed—was well illustrated in many experiments of the Royal Commission. From a practical point of view the reproduction of scrofulous glands in the neck was as important as any of the results. Thus with a large dose of tubercular virus given to the pig ulceration of the tonsil might result, with infection of the glands below the jaw, and then a general infection of the body. With a smaller dose there was no ulceration of the tonsil, but the glands below the jaw were infected, and subsequently the glands of the neck, and then the lungs. With a still smaller dose in one case, and also in a calf, the glands below the jaw were alone affected, there being no affection of the tonsil or of the body generally. The second and third classes of experiment reproduced cases which are continually occurring in human beings, namely, scrofulous glands of the neck, occurring either by themselves or associated with tuberculosis of the lungs. After the administration of a large dose of the tubercular poison the disease progressed gradually, but with certainty. It is not unfrequently seen with smaller doses that the disease, after infecting one or the other part, appears to remain stationary for a long time; but even when remaining stationary

for months the lesions produced are still infective, as is frequently seen in the human subject. These lesions may lead to a generalization of the disease. Too much stress cannot be laid on this point as an explanation of the cases of so-called remote tuberculosis. In some of these cases in man—such as cases of tubercular meningitis, bone and joint disease—there is found an old lesion, maybe not larger than a pea, at the apex of one lung, in a mesenteric gland—the glands below the jaw or in the bronchial glands—and there may be no lesion, old or recent, in the mucous membrane of the alimentary tract to show the point of absorption. There are cases in which the primary local lesion has retrograded, but still remained infective, the infective material being absorbed into the circulation, and conveyed to the meninges or to the joints and bones. In the other cases careful search has not revealed any local lesion in the body, and these must be cases in which the tubercle bacillus is absorbed accidentally directly into the circulation.

Tuberculosis is exceedingly prevalent among *cows*, the reports of various continental and English public abattoirs showing that it is generally 40 to 50 per cent. of the animals slaughtered.

At Copenhagen during the four years 1890–3 inclusive, 15·3 per cent. of the *swine* slaughtered showed evidence of tuberculosis. The disease is, however, but little prevalent among sheep and calves.

These facts, particularly those relating to cows and swine, render efficient inspection a necessity, and inspection to be efficient must take place at the time of slaughter, as it is only then that *the organs* belonging to the animal can also be adequately inspected.

Public abattoirs were considered most desirable by numerous witnesses who were called before the recent Royal Commission on Tuberculosis.

In addition to many medical officers of health, veterinary surgeons, and meat inspectors, were the following witnesses representing the interests of stockowners and butchers.

Mr. B. St. John Ackers, Chairman of the Cattle Diseases Committee, Central and Associated Chambers of Agriculture.

Mr. J. Bell, President of the Carlisle and District Butchers' and Insurance Association.

Mr. James Scarlett, Secretary and late President, and Mr. J. Lang, President of the Paisley United Fashers' Society.

Mr. J. Dobbie, Representative of the Scottish Chamber of Agriculture.

Mr. J. J. Ward, Wholesale and Retail Butcher, Middleton, Lancashire.

Others admitted that the existence of public abattoirs would increase the efficiency of inspection of meat.

In addition to the inspection of meat slaughtered in the public abattoirs, there will still remain the need for inspection of carcasses brought from other districts. I will quote from the Report of the last Royal Commission on Tuberculosis, p. 11 :

31. In every district in which a public slaughter-house has been provided, it will be possible for the local authority to ensure the inspection of the carcasses of all animals killed within it. There will still remain the need for inspection of carcasses brought from other districts where the animals have been killed. We think that every local authority should be prepared to receive into its district, without further inspection, meat which, having been killed in the public slaughter-house of another authority, has already been subjected to inspection and approved, and which bears sufficient evidence of such approval. But every local authority should be empowered to provide in its district one or more stations, and to require meat to be brought there for inspection which has not been previously inspected elsewhere. Foreign meat should, we think, also be required to bear mark of inspection and approval at the time of killing, and steps should be taken through consular and other agencies to ascertain from time to time that there was efficient inspection at foreign slaughter-houses of meat intended for transmission to this country.

32. We desire to add that, in some public slaughter-houses in the United Kingdom, serious physical difficulties exist in the way of efficient inspection. The prevalent practice in the best continental abattoirs is to slaughter the animals in a common large, well-lighted, well-equipped hall. The inspector passes up and down, the offal is drawn out, close to the animal it belongs to, and exposed in full view. But in this country each butcher usually slaughters in a separate chamber, often extremely ill-lighted, and in some instances the offal of several animals may be seen thrown in a heap, so that it is impossible to distinguish the parts of one animal from those of others.

I am of the opinion that, with efficient inspection of all meat as now mentioned, properly constructed public abattoirs would

be advantageous to the stockowner, the butcher, and the consumer, for the following reasons :—

1. To the *stockowner*, because—

(a) Increased inspection would make him try to eliminate tuberculosis and other diseases from his stock, and thus diminish his losses.

(b) In London some 5,000 butchers, instead of only some 450 who have private slaughter-houses, would have the opportunity, if they so desired, of slaughtering home-fed animals.

(c) The consumer would know home-fed meat and have a guarantee that it had been passed as sound, so that there would be increased demand for such meat.

2. To the *butcher* who dealt in home-fed meat because—

(a) Of the increased demand for it.

(b) The monopoly of those having private slaughter-houses would be prevented.

(c) His losses, especially in summer and muggy weather, would be much diminished as his meat could be well kept, until required for sale, in the cooling chambers or cold-air stores provided in the public abattoirs.

(d) His heavy expenses for *ice*, especially during the summer, would be diminished, and his savings from this alone would more than pay for the small sums that would be charged for the cooling chamber.

3. To the *consumer*, especially to the poor, because he could ensure a meat supply wholesome and free from disease, especially tuberculosis. The additional cost, if any, would be so infinitesimal that it may be neglected.

On account of the enormous population of London, the efficient inspection of all meat coming into it would make stock-owners careful to eradicate tuberculosis from their herds, and in this way the *milk* supply would also be much improved, and therefore *human* tuberculosis would also be diminished.

This diminution of tuberculosis would be the greater the more universally the recommendations of the Royal Commission were carried out.

There are many other reasons for providing public abattoirs. Dr. A. E. Harris, M.O.H. to the Islington Vestry, has thus stated them :—

1. HYGIENIC REASONS.

(a) That the erection of such buildings would remove nuisances from the neighbourhood of dwelling houses.

(b) That it would exclude putrifiable matter from the sewers.

(c) That it would protect meat from the liability to exposure from foul emanations.

(d) That it would ensure the thorough examination of all meat for disease.

(e) That it would materially tend to limit the traffic in diseased meat.

2. ECONOMIC REASONS.

(a) That the meat would be less liable to spoil, because slaughtered under better conditions.

(b) That much blood and offal now lost would be entirely saved.

(c) That there would be a saving from order, the proper division of labour, avoidance of driving animals through the streets, and the doing of business on a large scale.

(d) That abattoirs properly managed yield a fair profit.

3. HUMANITARIAN REASONS.

(a) That much of the cruelty to animals that now occurs would be put an end to, owing to the use of improved appliances for slaughtering.

(b) That the driving of weary and exhausted cattle through our streets would be avoided, owing to the abattoirs being situated near railway stations.

(c) That the street danger to the public would be greatly lessened, if not altogether eliminated.

To these I would add :—

That diseased meat could be more profitably dealt with, *e.g.*, by sterilization, &c.

For instance, in 1895, in the 307 public slaughter-houses in Prussia, of the 662,164 cattle slaughtered, 12·7 per cent. were found to be affected with tuberculosis; but of these only $4\frac{1}{2}$ per cent. were totally condemned, and a still smaller percentage were partially condemned; so that over 90 per cent. of those affected with tuberculosis were able to be sold after sterilization to poor people at a low price. Moreover, the demand for such meat is generally greater than the supply.

I will now give a short account of my experiences in Holborn, which show the necessity for the efficient inspection of all meat and the provision of public abattoirs.

If time permits I will then deal with the objections that have been raised against public abattoirs, the various requirements of

a good abattoir, and other details as to cost for slaughtering the different animals in various Continental and British abattoirs, &c.

I am glad that the Architect to the London County Council (Mr. Thomas Blashill) has kindly consented to be present, and show on a large scale a sketch for an up-to-date abattoir. He will be able to give you the results of his personal experience, and enter into details of cost of construction, &c., which I could only do from information received.

Personal Experiences in Holborn.—About one-third of the diseased meat "seized" has been for tuberculosis. This meat has come from very many counties of England, and some also from Scotland, Holland, and Belgium. I may mention the counties in the order in which the amount of diseased carcasses have come from different towns and villages in the counties respectively, beginning with the county from which the largest amount has been "seized."

Devonshire, Lincolnshire, Essex, Somerset, Norfolk, Cambridgeshire, Suffolk, Cornwall, Surrey, Derbyshire, Leicestershire, Bedfordshire, Dorsetshire, Hertfordshire, Sussex, Middlesex, Wiltshire, Northamptonshire, Kent, Cheshire, Gloucestershire, Staffordshire, Rutlandshire, Herefordshire, Buckinghamshire, Oxfordshire, Berkshire, Hampshire, and Yorkshire.

Nearly all the tubercular carcasses seized were *cows*; a few were pigs or oxen. The average weight of these cows was under 350 lbs.

In the first quarter of the year 1896, at the beginning of which the meat inspector began his duties, there were more than 4,000 stones of diseased meat seized, or at the rate of more than 16,000 stones per annum. This is *exclusive* of diseased *offal*.

Legal proceedings were taken against many of the offenders, and in a very large majority of the cases fines or imprisonment were inflicted.

For several years prior to the appointment of this special meat inspector there had not been a single conviction obtained for exposing or depositing for sale diseased meat.

These facts prove the necessity for efficient inspection.

The enormous area and population of London made it desirable that there should be at least six public abattoirs.

In Glasgow, the second city of the United Kingdom, there are *three*; in Manchester, another very large city, there is but *one*; and in both the system has been a financial success.

The Royal Commission states—Part II., p. 341—that all the public slaughter-houses in Germany are self-supporting.

The slaughter-house charges vary in different towns.

	Cattle.	Calves.	Sheep.	Lambs.	Pigs.
	s. d.	s. d.	s. d.	s. d.	s. d.
Glasgow	0 9	0 1½	0 1½	0 0¾	1 0
Manchester	1 6	0 4	0 2		0 6
Liverpool	1 6	0 6	0 1½		0 6
Leeds	1 0	0 4	0 3		0 3
Germany	2/- to 5/-	4d. to 1/- (Reckoning a Mark as a Shilling.)	4d. to 1/-		1/- to 2/-

Osthoff also gives the charges made for weighing, inspection and lairage, that for the first day being free. Also details respecting the cost of erection of the public slaughter-houses, with or without cooling chambers, and the charges made for the use of the latter, which are from 14s. to 40s. per annum per ten square feet.

In the best modern slaughter-houses the slaughtering is done in large halls, separate halls being provided for cattle, for sheep and calves, and for swine; also a small one for diseased animals. Associated with the slaughter-house is the cattle market, and both are in direct connection with the main railway lines. On the premises also are buildings for carrying out the various processes incidental to slaughtering, such as fat melting, bone boiling, gut scraping, and the extraction of the albumen from blood, etc. In the newer slaughter-houses there are large cooling rooms, and provision for microscopical and pathological examinations, &c.

I will now deal with the *objections that have been raised against public abattoirs.*

Of the witnesses who gave evidence before the late Royal Commission on Tuberculosis, even the very few who thought that public abattoirs were not desirable, confessed that their existence would *increase the efficiency of inspection of meat.*

I may name—

Mr. W. Field, M.P., President of the National Federation of Butchers and Meat Traders' Associations.

Mr. W. Haydon, L.C.C., President of the London Butchers' Trade Association.

Mr. W. Cooper, Chairman of the Meat and Cattle Section, London Chamber of Commerce.

Private slaughter-houses are said to be more convenient to the butcher. As I have previously mentioned, there are about 5,000 butchers in London, and of these less than 450 have private slaughter-houses, so that the abolition of these latter could not certainly cause any *inconvenience* to the great ma-

jority—*more than 10 to 1*—who do not possess them. The greater number of these have to go several miles to get their meat at the Central Meat Market, or Deptford. And of those that have private slaughter-houses many have to go several miles to the Cattle Market, Islington, or other markets, and have the animals driven through the streets. Moreover, those who have private slaughter-houses generally sell other meat in addition to that of their own killing.

In Belfast, where the number of private slaughter-houses has been reduced from 30 to 5, many of the butchers who do not slaughter in the public abattoir have had private slaughter-houses built *outside* the city, *where the inspection is not so rigorous*, and on that account willingly put up with the inconvenience of sending their men a long distance to do their slaughtering.

In Glasgow, where private slaughter-houses have been abolished, the butchers now express a strong preference for the public slaughter-houses over the old system.

Another objection is that *meat killed in a private slaughter-house keeps better and retains its freshness better than meat killed in a public slaughter-house*. A similar objection was raised by Mr. Hart, of the Central Meat & Poultry Markets Association, who urged that the establishment of public slaughter-houses, requiring greater handling and carriage of recently-killed meat, would “destroy the unique characteristics of home-killed meat.”

These and many other objections have been so admirably answered by the Medical Officer of Health for London, Mr. Shirley Murphy, that I cannot do better than quote from a printed report;* and at the same time I desire to express my gratitude to him for lending me books on subjects connected with this paper, and for much valuable assistance.

An extract from one of Sir Richard Thorne’s Harben Lectures, which I had the pleasure of hearing, will make a suitable ending to this paper:—

How is the very proper demand of the butchers for uniformity in the conditions regulating the seizure of carcasses on account of tuberculosis to be met? How is such skilful handling of slightly tuberculous carcasses to be attained as will secure the removal of the diseased portions in such a way that no risk shall attach to the remainder? I only know one answer, namely, by the abolition, as far as practicable, of private slaughter-houses, by the provision in all large centres of population, whether technically styled urban or rural, of public slaughter-houses under the direct

* Report by the M.O.H., L.C.C., on proposed abolition of private slaughter-houses in London. P. S. King & Co. London, Nov. 1898. Price 2d.

control of the sanitary authorities and their officers, and by the adoption of measures which will, as soon as practicable, provide a class of skilled meat inspectors.

The properly administered public slaughter-house is demanded as an act of justice to those trading in meat; it is demanded in the interests of public health and decency; it is demanded for the prevention of cruelty to the lower animals; and it is demanded in order to bring England, if not the United Kingdom, somewhat nearer to the level of other civilised nations in this matter.

Public slaughter-houses, officered by skilled inspectors, and supervised by medical officers of health, are urgently required, amongst other reasons, for the prevention of tuberculosis in man.

Mr. T. BLASHILL (London) said that at the request of Dr. Bond he had great pleasure in showing a sketch plan of an abattoir, which he thought would be suitable for a small town, or for a district in the suburbs of London. It contained the whole of the elements usually found in German abattoirs, where the market is not attached to the slaughter-house. He had not made any provision in the plan for the sale or traffic in cattle, and he offered no opinion as to the necessity, or otherwise, for public slaughter-houses. He was an architect, and observing how these things were done on the Continent, had applied his knowledge to the subject. In response to a request of a Committee of the London County Council, he had, as their architect, visited a good many abattoirs on the Continent, and had to thank Mr. Shirley Murphy, their Medical Officer of Health, for a good many ideas on the subject which had facilitated his work. Turning to the exhibited plan, Mr. Blashill pointed out that the site was model in shape—a square piece of ground open on one side to the public road, by which animals might be brought in, and open on the other side to the siding of a railway—the greater part of the animals coming by the railway probably. The chief entrance on the street would be for persons coming upon business. Assuming the cattle arrived by rail, there were a number of pens into which they were received in the first instance; there the veterinary inspectors could see if there was anything the matter with them. If so they were at once taken to a place to be dealt with as diseased animals. Pigs generally had a bath, there being a pond through which they were made to walk, so they arrived clean at the lairs in which they were to be kept. There were separate lairs for sheep, swine, horned cattle, and calves, there being a little space between the lairs and the abattoirs. These institutions were to be found in nearly every German town; those which have not yet provided themselves with

one being in the way of doing so. From his enquiries he quite understood that within ten years there will not be a German town, however small, without one of these public abattoirs, in fact, they could be seen growing up near every railway station. All the larger towns have already got them. The new abattoirs in Paris were being constructed on a similar plan, and, so far as possible, the system has been adopted in the new slaughter-houses at Birmingham, as well as at the Foreign Cattle Market at Deptford. The animals were kept in the lairs for a few days until wanted, they were all properly marked, so each butcher knew his own cattle. In the abattoirs every part was as clean as could possibly be managed, and so was everything in the vicinity; the buildings were quite as ornamental as our best hospitals, with a good deal of red brick and stone; they were no disfigurement to a locality in appearance, and nobody seemed to think there was anything objectionable in them. The approach to an abattoir was generally called "Slaughter-house Street," a convenient name, which enabled anyone to find the place that was wanted. The cattle were taken into the slaughter hall with a mask over their faces—blindfolded in fact—and a spike was fixed in the mask ready to be driven with a mallet into their skulls.* The slaughter hall was a spacious building, open from end to end, a passage running down the centre; on one side all the animals were slaughtered, and the carcasses were hung up on the other side. When slaughtering was in progress the inspectors were walking up and down the central passage; there were special hooks upon which the slaughterman had to put the various parts of the viscera directly the animal was killed; there could be no mistakes or tricks. If the inspector was not satisfied, specimens of the meat were taken and examined; if satisfied, however, the meat was stamped in every part. If the butcher did not want the meat at once, it was run across to the cooling chambers, which were generally kept from three to five degrees above freezing point. The sides of beef were hung by an overhead rail on which the chains ran. There was every convenience for dealing with the meat without handling it; every butcher rented small cells of galvanized netting in the cooling chamber, so that no pilfering could go on. Various methods of blowing in cold air, or cooling pipes were adopted, so that meat could be kept for three weeks without the least difficulty. Ice was also made and supplied at reasonable prices. The meat was taken away to the shops in the butcher's covered vans and put in his ice chamber. The administration of the abattoir would be under a veterinary surgeon or a medical man, whose office and other buildings for the men were near to the entrance. In some large places like Leipsic or Frankfurt, a bourse or meat exchange would be added, a large business room, with ample provision for refreshments. In fact, in most of these places there was as good a refreshment room for business men as would be found

* A plan of a somewhat similar slaughter-house at Munich is given in Vol. XIX., page 56.

in any provincial town. Then there was a place for the unsound animals, the very bad ones being rendered incapable of being used as food, but that meat which was only slightly diseased was sterilized. That portion which could be made safe to eat was sold very cheap, but it could only be bought in limited quantities of about ten lbs. There was great competition for this meat, which was generally bought by the poorer classes. Then there was a department for dealing with the offal, as well as the heads and skins. This would give them a general idea of the arrangements of a modern place of this kind; they seemed to be not only efficient but clean and not unsightly. The slaughter of animals under any conditions could not be called pleasant, but this method removed all the most objectionable features of the trade and annoyance to the public. He was not prepared to go into questions of cost that evening, but in Germany these institutions were self-supporting, and his estimates showed that, with moderate charges, they might be self-supporting here.

Mr. REDMAN (London) contended that though the Royal Commission had greatly strengthened the position taken up by the medical faculty, they had to a very large extent failed to prove how any great injury was to be done, or how any grave risk was run, by eating meat taken from a slightly or more or less tuberculous animal. If he were to ask Dr. Forman or any other scientist to give a single instance, or prove to demonstration that a man had acquired the disease from a tuberculous animal he was afraid they would come to a full stop. Their case was largely based on inference, and their deductions drawn from experiments made upon animals—animals of a very delicate nature; all of them most susceptible to this particular disease. When such animals were inoculated with a specially prepared emulsion, with the virulent bacilli carefully included, he admitted such food generally was fatal, but there was not yet any proof that when tuberculous meat was taken in the ordinary way through the alimentary canal the risk was as grave as they had been led to believe. In fact, some medical authorities had shown that under ordinary conditions the bacilli had passed through innocently enough. If, moreover, the infective matter were subjected to the temperature up to which man cooked his meat, the speaker challenged anyone to prove that under those circumstances the disease would be acquired. The Commission itself admitted that the risk the human being ran was greatly exaggerated. People did not eat meat raw, and he thought it rather unfair to suggest that there was any such great danger in this particular direction. Now, the consumption of meat had increased enormously in England, but, strange to say, the death-rate from tuberculous disease had fallen, and hence he thought they could fairly conclude the risk was small, and not so enormous as had been represented in the paper. Dr. Bond had admitted, in reply to a pertinent question, that the disease might be conveyed through the lungs as well as by meat and milk. The Commission itself had stated that the disease, notwithstanding its prevalence during the meat-eating age, was acquired, not through the intestines,

but through the respiratory organs. Then, too, this disease was most rife in the very young, by whom meat was not eaten; but as they reached the age of from 5 to 15, when meat could be assimilated, so the period when they were most immune from the disease appeared to be reached; and it was only at a subsequent age-period, from 15 to 45, that the nature of the disease changed entirely, and it was found not to be intestinal, but attacked the respiratory organs. Therefore, so far as the speaker could see, the consumption of meat had very little relation to the phthisis death-rate. They could not prove cause and effect as regarded them, and he thought they should look farther for the sources of tuberculous disease. How far did sanitation affect it? Let them take the case of Salisbury. That town was considered a dreadful place for consumption. The authorities proceeded to properly drain it, and in a little while the rate of consumption dropped 50 per cent. Take another case—that of a town in Sussex. There they overcame the dampness of the surface of the earth, and down went the rate of consumption. In these cases, he contended, they could see cause and effect at work. Then there was the question of overcrowding. Sir Richard Thorne had demonstrated that as the people lived in larger houses and had more air and sunlight, the lower was the rate of consumption. He contended that if they took 100 tuberculous cases, and studied the causes assigned by medical men, they would find that to every one out of that number assigned to meat—which one would not be capable of proof—there would be 99 cases the origin of which could be demonstrated. With regard to abattoirs, in Germany, with 35,000 inspectors, and such institutions established everywhere, they would naturally expect the inspection to be very complete. Well, notwithstanding that, if an examination were made into their death-rate, they would find that with one exception London surpassed them all in immunity from tuberculous mortality, and that exception was the case of a modern town. But if they were to rebuild London in the same way as the city in question had been largely rebuilt since 1870, then London would be equally immune. As it was, London showed in this particular respect a better result than all the towns which had spent large sums on abattoirs. These institutions could, of course, be made to show a satisfactory financial return as long as they were allowed to fix their own charges, and the butcher had to pay. Under such conditions as that, anything could be made to pay. As a trade, butchers welcomed all kinds of inspection, particularly in London, where they had a very high standard for meat—perhaps the highest standard that was to be found anywhere in the world. They did not mind more inspection, and if the public manifested any alarm, it might be well to have a few more inspectors. But they did not make any such manifestation; they did not feel they were being poisoned by the meat they ate, as they were taught to be by such alarmist lectures as the speaker's audience had listened to that evening. When the butchers of London went before the London County Council, they stated that if more inspection was thought to be necessary, they would be quite prepared to accept anything that

was reasonable, anything that was right; but that they were not prepared to accept a system of abattoirs until such a vast change was proved to be absolutely necessary, until it was shown that the public was being badly served, that the meat supplied them was disseminating disease, and that the public health was suffering. Finally, there was the ratepayers' side of the question which might also be taken up, but he would not go into that, because they were dealing with the subject that evening from a scientific aspect. If they had the most perfect system of public slaughter-houses possible, they would not prevent people doing a dishonest act where there was a desire and intention to be dishonest, any more than they could stop a thief stealing a pocket handkerchief by passing an Act of Parliament. Besides, meat in London was so cheap that it did not pay anyone to run the risk of selling a diseased article for the small extra profit that might be made. He thanked the meeting for the attention paid to his remarks.

DR. HARRIS'S REASONS FOR ABATTOIRS.

Mr. Frederick Redman, whose remarks on Dr. Bond's paper are given on page 228, asks us to reproduce the attached letter (which appeared in the *Islington Gazette* of December 8th, 1898). The fear of occupying too fully the time of the meeting prevented Mr. Redman discussing in detail Dr. Harris's "Reasons," but the letter here given is a reply to his contentions:—

DR. HARRIS AND PUBLIC ABATTOIRS.—SIR, The publication of Dr. Harris's report on the question of the suppression of private slaughter-houses and the establishment of public abattoirs, in your column—bristling as that report is, not only with inaccuracies, but erroneous deductions, founded on unsubstantial bases—is so likely to prejudice the slaughtering butcher in the eyes of the public (as it has prejudiced his case in the eyes of the Islington Vestry), that I should be glad of a small space in which to comment upon it.

With regard to Dr. Harris's "Hygienic Reasons." He says "the erection of abattoirs would remove nuisances from the neighbourhood of dwelling-houses." I should first like Dr. Harris to show that slaughter-houses in Islington are a nuisance. When he has done so, I shall take leave to inform him that he has neglected his duty in not reporting the nuisances to the County Council, and getting the licenses suppressed if he has a good case. If he has not, he should hold his peace. I presume that Dr. Harris has read Dr. Shirley Murphy's report to the London County Council on this subject of abattoirs. I say I assume this much, because his report fails to show that he has dipped very deeply into the whole question. If he has read that report he must have noted that Dr. Murphy pays the very highest compliment possible to slaughtering butchers, not only as regards the way in which their slaughter-houses are kept, but also as regards the readiness they have always shown to conform to any regulations, even when they involve a great expense, which the London County Council has drawn up. Abattoirs, Dr. Harris further states, would protect meat from the liability of exposure to foul emanations. The requirements as to light, air, ventilation, &c., in our slaughter-houses are laid down by the London County Council, and an army of parochial and London County Council officials see that they are carried out. It should be apparent that if the business did temporarily cause "emanations," they would be intensified where wholesale slaughtering is carried on. Moreover, Dr. Harris can take it from the writer, who claims to be an expert on the subject, that universal experience shows meat keeps longer in a private slaughter-house than at Deptford or any other abattoir yet erected.

The doctor also says that abattoirs would ensure the inspection of all

meat for symptoms of disease. He is apparently not aware that 90 per cent. of the meat of London is already rigorously inspected in the markets, while these is the aforesaid army of inspectors in every parish to examine that killed in private slaughter-houses. The latter fact also answers his contention that abattoirs would limit the trade in diseased meat, if such trade exists. I do not know of it; do not believe that with meat so cheap it would pay any trade to habitually run the risk; and can assure Dr. Harris that the cattle which private slaughter-house owners kill is the pick of the English produce, is not the kind which provides the unsound meat occasionally seized or surrendered in the markets and their neighbourhood, and the establishment of abattoirs would therefore be unlikely to amplify such discoveries.

Dr. Harris's "Economic Reasons" for abattoirs are as faulty as his "Hygienic Reasons." His contention that the meat killed in abattoirs would be less liable to spoil, because killed under better conditions, is already partly answered in my statement (founded on many years' experience of hundreds of men) that such meat will not keep as well as that killed in the private slaughter-houses. As for the "better conditions"—the conditions under which an animal is killed affect the quality of the meat supplied. And the owner, who is on the spot, has a pecuniary interest in seeing that they are of the best. He will not be on the spot in an abattoir, and must leave the "conditions" to a large extent to men with no interest in the product of their work. Dr. Harris says "much blood and offal now lost would be entirely saved." The very reverse is the fact, for anyone acquainted with the subject is aware that offal sold direct from private slaughter-houses is a valuable food for the poor, is distributed in better condition, and is far more valuable than if it had to be conveyed from an abattoir to the vendor's establishment, and is therefore by no means lost. The doctor's contention that "abattoirs would effect a saving, from order, the proper division of labour, avoidance of driving animals through the streets, and the doing of business on a large scale," is most illogical. Slaughtering butchers now do their business on their own premises, and with a staff under their own eye. They are not to be compensated, according to Dr. Shirley Murphy, and they will not be able, in one case in fifty, to make a profitable use of their disestablished slaughter-houses. They lose all that, and what occurs? The public has to find at least a million of money to put up abattoirs, the butcher has to pay fees at the slaughter-house and keep a staff of men with horses and vehicles running to and from the abattoirs (which will be ordinarily three to six miles away), lairing cattle, killing beasts, storing the meat to "set," fetching it away when wanted, and doing other work. The places in which the work is done now are to be annihilated, and butchers and public alike are to pay heavily for the proposed new method.

Where is the economy? As to the statement that abattoirs yield a fair profit, I challenge Dr. Harris to produce the returns of all the public abattoirs in the kingdom, where the payment of interest and the repayment of principal is allowed for in the balance-sheet, and substantiate his statement. I am afraid the task would be beyond him.

Finally, the "Humanitarian Reasons." He says, the "cruelty to animals that now occurs would be put an end to, owing to the use of improved appliances for slaughtering." I merely again say that "cruelty" means depreciation of the quality of the meat, and self-interest and personal supervision now prevent it. Dr. Harris intimates that the cattle would not be driven through the streets, because the abattoirs would be near railway stations, and thus another form of cruelty avoided. As a matter of fact, cattle suffer vastly more when carried about in railway trucks than in travelling over roads, and the doctor's reasons are again the reverse of correct. Finally, he says, "the street dangers, through cattle being driven through the streets, would be greatly lessened." I should like him to give us all the recorded instances of accident through such cattle driving, and if he holds them to be an argument for the abolition of the slaughter-houses they are driven to, then I will find him arguments a hundred times as powerful, why railways, trams, buses, bicycles, and other things should be abolished.

Dr. GLOVER LYONS (London) congratulated the author on the perfect arrangement of his paper, and from personal knowledge bore testimony to the trouble he had taken in its preparation. The interest with which it had been received would have repaid Dr. Bond for his labours. So far as he could make out, he did not know that the last speaker had given them any reason why public abattoirs should not be provided. Did that gentleman object to them or not? (Mr. Redman: Certainly). Nothing Mr. Redman had said had disproved anything said by Dr. Bond. However, he agreed that they should be careful not to exaggerate the danger, and on the other hand they should not try to depreciate it. The position they ought to take up was that there is a danger, and if it could be so easily got over in the manner suggested by Dr. Bond, then such precautions ought to be taken. An abattoir was exactly the place to stop the spread of tuberculosis. If the animal was inspected some time before it was killed, it might contract tuberculosis in the interim. If there was anything in the argument in favour of abattoirs, then they would in time be universally adopted without pressure. A dairy company had recently sent round a notice that all their milk was taken from fully inspected cows; there would be financial gain in that, and he could not help thinking butchers might adopt a similar step with profit. There was one point on which he had to criticize Dr. Bond's remarks. The matter was so much before the public that it was essential they should have correct information. Now, in reply to a question as to what is tuberculosis or what produces tuberculosis, Dr. Bond gave them correctly the "direct" cause of the production of tuberculosis, *i.e.*, the entrance into the body of the tubercle bacilli, and its growth there. Yes, but there was very much in the last words—and growth there. Now, that was very much forgotten at the present time, mainly because of the speech of a very eminent medical man, who had laid much stress upon infection in the causation of tuberculosis. He thought this gentleman's utterance had caused great mischief and injustice, and the sooner the public knew it was a great exaggeration the better. He spoke rather feelingly on this point because he happened to know of a case in which arrangements were completed for building a sanatorium, and at the last moment the ground landlord refused to grant a transfer of the land because he had heard that tuberculosis was infectious. At Ventnor many residents refused to walk past a consumptive hospital for the same reason. This was ridiculous to anyone who understood the matter, but although it seemed almost incredible, it was still a fact. There were three factors which produced consumption, which had to be considered if they wanted to get at the bottom of the matter; one was heredity, the second, mode of life habits, and the third, infection. Now, without trying to depreciate the importance of infection, he wished to point out that some people are born much more liable than others to consumption. There was no question at all about that. Such people living an ordinary civilised life, especially in a town, are pretty sure to get it. But the factor of habits was perhaps the most important of all,

at any rate, it was extremely important. Living indoors, in badly ventilated rooms, or insufficient bad food, and so on, reduced the vitality of a human being, so that from being unable to take consumption, they become a prey to it. They might just as well try to grow corn on the Sahara as to expect a healthy strong man, having no special hereditary susceptibility to consumption, in good habit of life, to catch the disease in an ordinary civilised community.

Mr. COGGAN (London) said that, after hearing the paper, he had come to the conclusion that the arguments his association had placed before the London County Council some months ago had been amply borne out by Dr. Bond's remarks. They had then clearly stated that the diseased emaciated animals did not come into the slaughter-houses, and therefore public abattoirs were not required. The author had stated that they had proof that a large quantity of diseased meat now came into London; if so, it did not come into the slaughter-houses; and if the authorities were aware of this they should put the law in force, not wrongly putting the blame on the slaughterer and the butchers of London. Enormous quantities of good sound meat could be purchased at ridiculously low prices and therefore it seemed absurd to argue that diseased meat should be sold at great risk and little profit. He thought the result of the evening's meeting was to prove that abattoirs were not required.

Mr. W. HUNTING (London) said he did not rise to contradict the last speaker, but to supplement what he had said. Unfortunately, he saw something of diseased cattle in London, and the worst case of tuberculosis he ever noted was killed in and distributed from a private slaughter-house in Chelsea. Now, there were a number of milk cows in London. Were they to believe that none of those animals were eaten by the people of London? Twenty per cent. of them were suffering from tuberculosis. What became of them? Private slaughter-houses utilised them mostly. But confining himself to the question of tuberculosis, was there no other way of protecting the consumer, if he ought to be protected, from this disease? Would it not be simpler to stamp out the disease amongst cattle? What is the special grievance the butcher has? That he, the temporary owner of cattle, is the only person punished by law—they were going to punish the milkman directly. At the present moment the butcher was the only man who was fined, and pretty well the only man the law proposed to touch for the protection of human beings against tuberculosis. Now, did they not think it would be fair to protect the human beings by paying compensation for the destruction of these carcasses? Did they not think if they paid compensation with one hand and fined with the other they would have the very strongest method of preventing injury to human beings from tuberculous animals? If a man could get only half what he got from the butcher he would never send one into the market—never send one into a shop—he would never risk it. He was not at all surprised at the agitation of the butcher, but he was surprised at the farmer

paying no attention to this matter. The British public had made up its mind that tuberculosis was a dangerous disease. The farmer was the man who distributed to the butcher and cowkeeper tuberculous cattle, and the Board of Agriculture protects him. Nobody had yet proposed to touch the farmer, the man who cultivated the disease and kept it amongst his stock. He would like to tell the meeting why. The man who blocked the way was the pedigree owner—the rich men of this country, whose herds were saturated with tuberculosis: and until he had managed by the aid of tuberculin to get rid of it, and sell it to the butcher—who, of course, would be fined—nothing would be done. In a year or two the pedigree owner will have got rid of his diseased cattle through the butcher. We are all waiting for the agriculturist to do something; for the Royal Agricultural Society, as their mouthpiece, to ask the Board of Agriculture to make regulations and to give the farmers compensation, and then we shall gradually stamp out the disease.

Mr. J. LEMON (Southampton) said that some years ago he had occasion to design some abattoirs, but his authority did not see its way to carry out the scheme. No authority had statutory powers to force a butcher to go to the public slaughter-house, and therefore he thought something ought to be done to meet the objection of butchers to public slaughter-houses. One of their objections—and it had his sympathy—was as to the barbarous method of killing cattle in a large hall. At Liverpool he had seen cattle standing in a row waiting to be killed, and they were all trembling. He thought there was no reason why they should not have public slaughter-houses on the same principle as that adopted at Manchester, where they had a public slaughter-house which the butcher could enter and use as he could his own private slaughter-house, paying a rent for it. There was this advantage that it was open to inspection, but with the present private slaughter-houses the inspection was necessarily carried on with much difficulty. Of course, if all private slaughter-houses were built as well as are the public slaughter-houses, very little could be said against them, but as a matter of fact they were mostly stables or sheds, or other extemporised buildings to which a license is given. Little progress had been made in the matter during the last twenty years, and considering the incidental difficulties he thought they ought to meet the man who used them (the butcher) half-way, putting up a building which could be voluntarily used. In time the private slaughter-houses would disappear. Having studied the matter from the financial point of view also, he was sure that they could erect a good building and let it to the butcher at a rent which would not be more than he now pays.

Mr. COLAM (Secretary to the Royal Society for the Prevention of Cruelty to Animals) referred to the question solely from the point of view of humanity to animals. He and his society entirely supported the view taken in the able paper which had just been read. He need not mention any horrors he had seen in slaughter-houses

throughout the country; he had been in many hundreds; some butchers were humane, some were careless, some cruel, very; there were good and bad persons in every trade. He agreed entirely as to the immense superiority of the slaughter-houses on the Continent. In answer to the gentleman who said that these places were places of great cruelty, he could say that he had watched the operations at Munich for hours and days in particular, and he had never seen a single act of cruelty, but in London he had seen very much cruelty, and the Society, during his term of office (about 40 years), had had to prosecute a great many persons for it. A private slaughter-house was private ground and they had no right of entry; in the case of a public slaughter-house this disadvantage would be removed.

In replying, Dr. BOND said he was much obliged by the attention given to the subject, and especially for the remarks of those who had opposed the scheme. In the paper he had tried to show how a great many of the objections could be obviated. Mr. Redman had complained that only susceptible animals were used for the purpose of experiment, and this was so because it was merely desired to show that tuberculosis could be transmitted by diseased meat; but it was also not to be forgotten that many human beings were also very susceptible animals, as had been shown by Dr. Lyon, who spoke of hereditary tendency, particularly when persons lived under insanitary conditions. But the experiments of Sims Woodhead and Dr. Sidney Martin convinced him more than ever that tuberculosis was produced in the human subject by the consumption of tuberculous meat and milk. Having referred in some detail to these experiments, Dr. Bond said there was no doubt that in susceptible persons small doses of tuberculous food would sometimes produce scrofulous glands or tuberculosis in remote parts of the body or in the lungs. This was particularly the case of young children, and there was ample proof that the disease could be transmitted by tuberculous milk: then why not also by tuberculous meat, which was also tuberculous food? He also reminded Mr. Redman that beef is very often eaten in a half-cooked or semi-raw state. With regard to the death-rate, it was not to be forgotten that the death-rate from tuberculosis in the case of young children under one year of age was actually increasing. In Salisbury and other places mentioned by Mr. Redman, in which improved sanitation had led to a diminished death-rate from consumption, better sanitary conditions would make anyone who might eat tuberculous meat less susceptible to the disease. In fact, a healthy man, living under good sanitary conditions, might eat a fair amount of tuberculous food with impunity. In Germany, it was well-known, they had not attained to such a high state of sanitation as in this country. He had quoted the actual charges for the use of public abattoirs.

Mr. REDMAN: No, that is only the toll.

Dr. BOND: No, it is for the whole animal. He had the actual figures which could be seen by anyone who liked to wait.

Dr. BOND, proceeding, said with regard to the quality of the meat, much that he had seen was far from the highest quality. There was no doubt that even in London the poor people were very badly served. He knew from trustworthy sources that in a great many parts of London there was a traffic in diseased meat.

Mr. REDMAN said he took exception to that until it could be proved.

Dr. BOND replied that he had been able to prove it in Holborn.

Mr. REDMAN: Not recently.

Dr. BOND: Not so much now, because there was more efficient inspection. They had seized meat which had come from London, from the slaughter-houses in Islington and Deptford. He quite agreed with the remarks of Dr. Lyon as to the desirability of properly appreciating the risk. What was wanted was to get at the facts of the case. Several persons who gave evidence before the Royal Commission on Tuberculosis stated that some butchers did advertise the fact that their meat was properly inspected. Mr. Hunting answered practically some of his objections when he said that wasting cows were sent to the London slaughter-houses. Many diseased emaciated cows are sent to the Islington slaughter-houses, as Mr. Shaw could tell them. They had to be killed somewhere. He sympathised with Mr. Hunting's view respecting the butcher, but he did not believe that the establishment of public abattoirs would injure the butcher; on the contrary he contended that the butcher, the stock owner, and the poor people who had to eat this horrible stuff would all gain. If the farmers made use of tuberculin, it had been proved that they could extirpate tuberculosis. If there was the proper meat inspection which he had suggested, he believed it would help in that direction, because they would not be able to dispose of their diseased animals, and further they would eventually be the gainers, because, after ridding their herds of tuberculosis, they would not have the losses. With regard to meeting half-way the owners of private slaughter-houses, of course, he agreed that that should be the case, either by compensation or lower charges, as was done in Glasgow.

Mr. REDMAN, in proposing a hearty vote of thanks to Dr. Forman for presiding, said they were cognizant of the impartiality of the Chairman when they had gone before him at the London County Council, and they believed that he was actuated by motives of public interest in his work.

Mr. COGGAN seconded the motion, which was formally supported also by Mr. A. L. LEON, London County Council, and agreed to with acclamation.

Dr. FORMAN, in acknowledgment, thanked Mr. Redman for the kind way in which he had spoken, and said he had been very pleased to see that the representatives of the trade had attended and taken

part in the discussion. They had very well defended their side. Mr. Redman had made the most of his facts, but they could not get away from the one fact that tuberculosis is spread just at that one age when the individual does not eat meat, and is lessening at the rate of 30 per cent., so that, as Sir Richard Thorne said, in thirty years it ought to be exterminated altogether. Mr. Redman in his clever speech referred to the case of Salisbury, and recognised that there were other factors in regard to the prevention of tuberculosis, but when he went to the continent he seemed to think that because the establishment of public abattoirs had not lessened the death-rate from tuberculosis, that that was a proof that tuberculosis was not caused through eating meat. The argument could not be used both ways. The abolition of private slaughter-houses had lessened the death-rate from tuberculosis, but what was gained was more than lost from other causes. The cities on the continent could not compare with our English cities in the matter of sanitation. He could not help thinking that the solution of the whole problem was to compensate the trade for what was taken away from them. The butcher could not deny that if we had better inspection of meat it would be for the good of the butcher, the stock owner and the consumer, and no harm could come from that. He had to admit that ever since he had been connected with the Council they had been screwing up the poor butcher, putting him to great expense in improving his slaughter-house—in one case he knew a gentleman had spent £2,000 on his establishment—and therefore they could not take away a valuable property. There were cases in which they ought to compensate. Then he thought the Government should take the matter up, but they had said they were not prepared to introduce legislation on the subject at all. If the reform were carried out it should not be permissive but compulsory, and it should be universal with regard to the tuberculin test, which was now said to be successful in 99 per cent., this should not be administered by the farmer, it should be done by the slaughterman. That, he believed, was Professor McFadden's latest conclusion. He knew of a case at one of the Council's asylums in which a cow, passed by Mr. Haydon from general appearance as perfectly good, was killed and found to be entirely affected with tuberculosis. Now a public abattoir would ensure perfect inspection, and although diseased meat might be improperly introduced into London, the butcher could not get the joints stamped. In concluding, Dr. Forman said, more education and information was required on the whole subject, and he was sure the results of lectures and discussions, such as they had had that evening, must be good, leading in time to the appointment of an adequate staff of inspectors. For the present the report of the Committee at the County Council had been withdrawn.