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THE ADMINISTRATIVE CONTROL OF FOOD.*

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"Wherefore it appears to me necessary to every physician to be skilled in nature, and to strive to know, if he would wish to perform his duties, what man is in relation to the articles of food and drink."—*Hippocrates*, 460 B.C.

THE reasons for the administrative control and inspection of food are three. First, it is necessary to maintain a standard of food of the proper nature and quality. The Sale of Food and Drugs Act, 1875, lays down in Section 6 that "no person shall sell to the prejudice of the purchaser any article of food or any drug which is not of the nature, substance, and quality of the article demanded by such purchaser." This broad standard is obviously reasonable in its application to all food. It has been held that in order to show that an article was sold to the prejudice of the purchaser, it is not necessary to prove that he has sustained actual prejudice and damage. The "prejudice" is that which the customer suffers who pays for one thing and gets another of inferior quality. The legal injury is that he has been sold a food of quality or substance which he did not demand, and of which notice was not given to him.

Secondly, it is necessary to protect the consumer from eating food which has in it the potentiality to produce disease. This is the popular reason usually furnished for food inspection, and there is, it must be admitted, a large body of evidence in its support. Since the occurrence of the "Welbeck Disease," in June, 1880, there have been not less than 50 somewhat similar epidemics of "ptomaine-poisoning"

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shown to be due to infection through such food as pork pies, boiled hams, tinned meats, etc. The outbreak at Mansfield, in 1896, affected 265 persons; and that at Derby, in 1902, 220 persons. Nor is it alone in epidemic form that "food-poisoning" makes its appearance. Every year the bills of mortality tell a story of deaths from such causes. Milk-borne infection has also impressed the public mind, and more than justified stringent control of the milk supply. Since 1857 not less than 350 epidemics of typhoid, diphtheria, scarlet fever, and sore throat have been recorded as due to milk-borne infection, and this does not include any reference to milk-borne tuberculosis, epidemic diarrhoea, or sporadic disease of one form or another. Typhoid fever has been shown to be communicable by consumption of infected oysters, and other shell-fish have from time to time caused epidemics or individual cases of gastro-intestinal irritation or typhoid fever. Without entering into the question of the transmission of tuberculosis to man by the consumption of tuberculous meat, it is clear that meat so diseased is unwholesome; and as a considerable percentage (10-20) of bovine animals suffer from this disease, it is imperative that as a result of inspection and control such diseased meat should be excluded from the market. And to tuberculosis must be added other diseases, such as anthrax, glanders, swine fever, and the meat of "croakers" and other animals not in health at the time of slaughter. Further, there is unsoundness and unfitness of meat in various forms and preparations, not specifically diseased, but which, owing to unfavourable external conditions, has become more or less tainted or decomposed. To eliminate all such unwholesome foods from the market is one of the main objects of food inspection.

Thirdly, it is essential to a healthy physical life that the food consumed should be both nutritious and palatable. The be-all and end-all of administrative control and inspection is to secure for the community a *pure food supply* and one of high nutritive value, and its contribution in this direction has, without doubt, been very considerable, not only in its influence upon the food industry, but educationally upon the public taste and standard of suitability of food. It cannot, I think, be doubted that a system of vigilant inspection and control raises and maintains the nutritive value of many kinds of food, for example, milk, which without control might be watered down even more than at present; or prepared foods, which without inspection might be composed of even less nourishing constituents than is now the case. Indeed there is evidence to show that even in some kinds of butchers' meat there is still room for a

higher standard of quality than now obtains. In view of the increase in the sale of artificial foods and the enormous growth of the towns, this issue of a pure food supply possesses added interest. It is indeed a question of national importance.

These being the reasons which make administrative control necessary, we may now turn to consider the form that such control should take, and for convenience the foods requiring inspection may be grouped under the three headings of Meat, Tinned and Prepared Foods, and Miscellaneous Foods. It should be added that the question of administrative action under the Sale of Food and Drugs Acts is not considered in the present paper.

I.—MEAT.

1. First and foremost comes vigilant and skilled inspection. This has for its object the maintenance of a high standard of market meat and the exclusion of diseased and unsound meat. It should be of two kinds. First, an inspection at the time of slaughter for the purpose of detecting disease, and, secondly, an inspection of meat deposited or exposed for sale, for the purpose of detecting unsoundness or decomposition. The former method is practicable only in public slaughter-houses, and its chief advantage is that it furnishes an occasion for inspection of the animal while alive, and an examination after slaughter of the whole carcase and all the organs. Any inspection short of this cannot be considered as complete. The latter method is concerned only with the dressed carcase, and therefore the examiner for disease is heavily handicapped, though he may, by careful administration, exclude some unsound or decomposed meat. It is this second or "detective" method which is the one generally in vogue in England.

In relation to the question of inspection, there are two matters which seem to require consideration, namely, (i) the qualification of meat inspectors and (ii) uniformity in method of procedure. In reference to the qualification, I agree with the following requirements suggested by Dr. Collingridge :—

- (a) Practical training as a butcher.
- (b) A fair standard of general education.
- (c) Sanitary Inspector's certificate of the Sanitary Inspectors' Board or the Royal Sanitary Institute.
- (d) The meat certificate of the Royal Sanitary Institute.

Dr. Collingridge recommends the selection of "young men of good education and a sound knowledge of the trade" as assistants on probation, who during their probationary training should be required

to obtain the above-mentioned certificates, after which they might be appointed as meat inspectors on full pay. I think that inspectors appointed for the special purposes of meat work should have had a training as practical butchers. More debatable seems to me to be the qualification as regards food inspection of the ordinary inspector. The present arrangements are not satisfactory. Either there should be instituted a special class of "food inspectors," who should be qualified, properly and specially, and who should undertake all the food work of a district; or, every sanitary inspector working under Article 19 of the Sanitary Officers' (London) Order, 1891 (Section vi.), or who, working outside London, is required to include any form or degree of food inspection within his duties, should be specially qualified in food inspection. On the whole, I think that from an administrative point of view the latter is preferable. If the former proposal, that of "food inspectors," is adopted, it might be possible either to exempt such candidates from some part of the ordinary inspector's training, or furnish an honours standard for food.

At present there is still some lack of uniformity in procedure, not only in respect of disease, but in respect also of administrative methods. Most of the divergence as to disease relates to tuberculosis, though why it should do so is not very clear. The recommendations of the Royal Commission on Tuberculosis, 1898, were surely fairly explicit, and have received the official authority of the Local Government Board in their Circular Letters of 1899 and 1901 addressed to all urban and rural sanitary authorities. "The Board are desirous of impressing upon the local authorities concerned that pending the investigations and report of the Royal Commission there should be no relaxation on their part, or on that of their officers, in the taking of proper measures for dealing with milk from tuberculous cows and with tuberculous meat which may be intended for the food of man. *It is, in the opinion of the Board, of much importance that these measures should continue to be taken, and they rely on this being done.*" Until that standard is modified it should be, broadly, the rule of practice. As far as cattle are concerned, comparatively little difficulty has arisen, but in the case of pig tuberculosis it has been otherwise. This has been mainly due to three circumstances: (a) divergence of opinion as to the importance of seizure for localized tuberculosis; (b) the difficulty of diagnosis of glandular affections of the pig; and (c) the practice adopted by some butchers or salesmen of removing the glands in the neck. The Royal Commission of 1898 recommended that "in view of the greater tendency to generalization of tuberculosis in the pig, we

consider that the presence of tubercular deposit *in any degree* should involve seizure of the whole carcase and of the organs." This, it is clear, was the only safe course, in view of the rapidity of local spread of tuberculosis in the pig. But it is not a course always easy of adoption. At the Metropolitan Cattle Market at Islington, for instance, the veterinary inspectors do not strictly adopt this recommendation. Mr. James King, M.R.C.V.S., the Superintendent, in a letter to the City Corporation, dated June 26th, 1906, writes as follows: "With reference to tuberculosis in pigs the inspection at this market is carried out in accordance with the recommendations of the Royal Commission, 1898, although I consider that we are not justified in confiscating all carcasses that show a minimum amount of localized disease. I am also doubtful as to whether certain conditions as are found in the glands of the throat of pigs are caused by the tubercular bacillus, and I think that the time has now arrived for more accurate enquiry into these lesions than has hitherto been made. Notwithstanding these doubts, it is my practice at this market to condemn all pigs with undoubted tubercular lesions."* In slaughterhouses and butchers' shops in Manchester, Glasgow, Birmingham, Halifax, and some other towns, discretion as to condemnation is also used in pig tuberculosis much as in bovine tuberculosis. In the Central Meat Markets of the Corporation and in the extra-Corporation Markets in Finsbury, however, the instructions of the Board are followed. It is unnecessary to add that in following this rule we are guided by common-sense practice, and only seize pork which is undoubtedly tubercular. For the proper protection of the trade it would seem absolutely essential that there should be as little difference as possible as to standard of seizure, however reasonable some compromise may seem to be, especially in view of the comparatively small degree of communicability of tubercle to man by meat affected with "localized" tuberculosis. In this matter we must await the report of the Royal Commission now sitting, and the sooner such report is issued the better.†

The second cause of difficulty is akin to the first, namely, as to the etiology and significance of glandular affections in the pig simulating tuberculosis. This is referred to in Mr. King's letter, and is a matter of considerable pathological interest.

* Report to the Sanitary Committee of Corporation of London, June 28th, 1906, pp. 6, 7.

† Much valuable information on this question of pig tuberculosis and the methods of inspection adopted in respect of it will be found in Dr. G. S. Buchanan's Report to the Local Government Board, No. 225, 1906.

On January 13th, my meat inspector confiscated in Finsbury a carcase of pork in seven pieces, which was a foreign pig diseased with a glandular affection simulating tuberculosis, and appearing indeed from naked-eye examination to be identical with that disease. On examining the right pharyngeal gland, which was much enlarged, however, I found characters to be present in section which did *not* appear to be ordinary tuberculosis, the new inflammatory tissue of the gland being organized and of a markedly fibroid character. No action was taken against the vendor of this meat. On January 29th and February 14th, other specimens were met with in English pigs, and in each of these cases portions of the affected glands and organs were sent to Mr. Foulerton for bacteriological examination at the Middlesex Hospital. In due course he reported that the specimens sent had been carefully examined by microscopic and other methods. Sixteen animals had also been infected experimentally with material from the two cases, and the result had been to demonstrate conclusively that one of the pigs was not suffering from tuberculosis, but from one of those other diseases which have been termed "pseudo-tuberculosis." The other carcase was characterized by mixed infection.

Now, the carcasses from which the glands referred to were removed were those of English pigs, which were slaughtered in London, and confiscated because they appeared to butchers and inspectors to be tuberculous. The age of the animals would be about four months. The carcasses were in fair condition, and not emaciated. The whole of the glands, but more especially the pharyngeal, lumbar, and inguinal, were greatly enlarged and indurated, and, to the naked eye, were in a condition much resembling tuberculosis, indeed, apparently identical with it. There were no nodules on the parietal pleura or peritoneum. The lungs, livers, and spleens were studded with greyish-yellow nodules resembling tubercles. The mesenteric glands were much enlarged and were also in a condition resembling tuberculosis. There has been a considerable number of similarly diseased pigs slaughtered in London within the last year, and sometimes these pigs have been met with in groups, so to speak, in epidemic numbers. Some well-qualified meat inspectors were of opinion that the disease was ordinary tuberculosis. The disease has usually been found in young animals only. This experience is interesting, and not without its importance in the administration of meat inspection. It is one of those matters concerning tuberculosis in pigs upon which we may hope for some light from the forthcoming Report of the Royal Commission on Tuberculosis.

There is yet a third cause of difficulty, and this arises in connection with the "stripping" of carcasses and removal of glands. As the Royal Commission pointed out, it is impossible to diagnose the condition of a stripped carcass, and all such treatment should be looked upon with suspicion, and should disqualify meat for receiving any inspection mark of good quality.

There remains, unfortunately, a great lack of uniformity in administration—a condition of things which is described by the Royal Commission as "chaos."* In one district there is a meat inspector, in another there is not; in one district one method of practice obtains, in another quite a different method, or no method at all. Surely this is very unfair and inequitable to an important industry. As far as possible we should aim at uniformity of practice. All considerable meat markets should have properly qualified meat inspectors, and all food inspectors, and general inspectors including food inspection in their duties, should not only be similarly and adequately qualified, but should adopt similar methods. Briefly, I suggest our practice should be as follows: Section 47 (8) of the Public Health (London) Act, 1891, should govern the general practice of accepting "surrendered" meat found to be unsound, unwholesome, or unfit for food of man, and Section 47 (i) should govern "seizure." As soon after seizure by the inspector as practicable, diseased meat should be carefully examined by the Medical Officer of Health, and full notes as to its pathological condition taken by him at the time of his examination.† After this it should always be made convenient for the vendor to see the meat, or have an expert to see it on his behalf, if he so desires; and this should be done *before* the meat is submitted to the magistrate for condemnation. It is undesirable that any diseased meat should be seized without medical examination, and it is unfair to the trade that such meat should be condemned or destroyed before the vendor has had ample and reasonable opportunity of having the meat examined on his behalf.

2. To make thorough inspection practicable, the establishment of public slaughterhouses is necessary, and the gradual extinction of private slaughterhouses in the terms of Recommendation A of the Report of the Royal Commission of 1898. In the same year this

* The Select Committee of the House of Commons, dealing with the Tuberculosis (Animals) Compensation Bill in 1904, found these chaotic conditions one of the difficulties in the way of general adoption of mutual insurance.

† This examination should include (a) the carcass; (b) the organs, if available; (c) the mode of dressing; and (d) external circumstances, such as price, exposure for sale, home or foreign meat, etc.

requirement was urged in a special Report by Sir Shirley Murphy to the London County Council.* He also recommended more thorough inspection, accompanied by marking, and the provision in London of a small number of meat inspection stations for the examination, by properly qualified officers, of meat sent up from the country or imported, so that some control would be obtained over the character of foreign meat and some check on foreign inspection. In this way it was proposed to secure that all meat reaching the London public should have passed inspection. It seems to me a matter for regret that this proposal again failed to receive the consideration of the London County Council in July last. I think it is possible that in the country generally in the progress of reform towards public slaughterhouses, and so long as private slaughterhouses exist, meat inspection stations are also necessary. Such places may always be necessary as clearing houses for imported meat,† though they were first proposed as a provisional measure in the Metropolis. In the country, too, it would be well to possess powers for closing private slaughterhouses, if within a given area provision was made for equivalent accommodation at a public slaughterhouse (as in Scotland) and for the licensing of slaughtermen.

3. Thirdly, a rigid system of marking and stamping all inspected meat, home or foreign, which is fit for consumption, is necessary. This will not absolve Sanitary Authorities from supervision in retail shops or of imported meat. It would be an excellent thing if the City Corporation Authorities could see their way to lead in this matter by marking all carcasses which have passed inspection at their new public slaughterhouse at Islington.

4. Lastly, we come to the urgent question of imported meat. Dr. Collingridge has shown that during the last ten years (1896–1905) the home supply of meat has suffered severely by foreign and colonial competition. The sources of origin of meat delivered at the Corporation Markets during this decennium may be stated as follows :—

Home Killed (Country) ..	Decrease from 30·8 to 18·2 % of total
Home Killed (Town) ..	„ 20·4 to 3·6 % „
Foreign Killed (including General Foreign Meat and Produce)	Increase from 11·2 to 12·7 % of total.
American	„ 20·1 to 42·2 % „
Australian & New Zealand ..	„ 17·5 to 23·3 % „

* Appendix to *Annual Report* for 1898.

† See German Meat Inspection Act, 1900, Section 5.

In 1905 the total amount of meat delivered at the Central Markets was 415,296 tons, of which 324,860 tons, or 78·3 per cent, was of colonial and foreign origin. Owing to this increase in the extent of the gathering ground, there has been an increase of damage due to transit, and hence out of the total amount 2,128 tons, or ·512 per cent, has been seized as unsound and unfit for food of man. This is more than double the percentage of meat seized in 1891-1900. But it is not only decomposed meat which is involved. Much imported meat is actually diseased, and especially does this apply to offal and veal, even when it is received from countries such as Holland, where more or less inspection takes place. For instance, from 1901-05 in Finsbury, in addition to a large quantity of damaged and decomposed veal and offal, we confiscated 213 carcasses of veal, 150 carcasses of pork, and 40,486 sheep's and pigs' plucks, all of which were diseased, and none of which bore evidence of inspection.*

Further, the wide area from which our meat supply is now derived has led to an enormous increase in frozen meat on the English market. The import trade of frozen carcasses of sheep and lambs commenced in 1880 with a small consignment (400) from Australia, followed in 1882 by carcasses from New Zealand and in 1883 from Argentine. New Zealand at once assumed the lead in the frozen meat export trade, and has maintained its position. It now sends to this country four million carcasses a year, the River Plate region sending three millions.

The increased importation of meat, including animals for food, may be stated also by showing the quantity imported per head of the population since 1870,† as follows :—

	Imported Meat per head of population in lbs.
1870-82	14·6
1880-82	30·2
1890-92	41·4
1900-02	56·6

This marked increase is due in part to a decline in the home production, but also in part to an increase of meat consumption. The English working-man is, relatively speaking, a large meat eater, and, as a rule, the more wages he gets the greater quantity of meat he

* In one crate of calves, containing 30 carcasses, 29 were labelled and were good, one was unlabelled and diseased.

† British and Foreign Trade and Industry; Board of Trade Report, Cd. 1761. (1903), p. 109.

eats, expending from 15-18 per cent of his total expenditure on meat, the largest item in his weekly budget.* He consumes more meat than French, German, or Belgian working-men (who respectively devote 9·8, 9·5, and 9·2 per cent of their expenditure to meat foods). The urban English workman eats more beef and mutton, and less pork and bacon, than the agricultural labourer.

These facts enable us to see the general trend respecting meat consumption in this country, and we must next consider the exact sources of the supply. The following statement shows the value and sources of the meat imported into the United Kingdom in 1902.†

From the table on page 75, we are able to see the proportion and extent of our import trade in meat, amounting in the aggregate to £39,880,000 per annum.‡

Much of this foreign meat is labelled to the effect that it has been subjected to proper inspection before export. This applies usually to meat coming from Holland, Denmark, New Zealand, Belgium, and the United States of America. With the exception of the two last-named countries, the label may be accepted generally as a fair indication of competent inspection. Possibly the new regulations, which it is said are to be introduced immediately in the United States, will rectify the matter as regards that country. The Belgian divergence from English standards is, I understand, owing to difference of view as to the importance of "localized" tuberculosis. Much of the imported meat has, however, undergone no official inspection whatever, either for disease or for fitness for export, and it must be remembered that much excellent meat is quite unfit for long-distance transit.

In view of this enormous and rapidly increasing foreign trade, the time has surely come for the exercise of some control on importation, in addition to ordinary sanitary inspection here and there. Broadly, I think that foreign meat imported into this country should be required to comply absolutely with English standards, as, for example, in respect of tuberculosis. There should also be some guarantee that the meat has passed a proper inspection; and to obtain this we need much more information than we now possess as to the system and standard of inspection adopted in other countries. Is it not possible for the Government to institute an investigation into this

* British and Foreign Trade and Industry; Board of Trade Report, Cd. 1761. (1903), p. 235.

† Ibid., pp. 114-115.

‡ This sum does not include £8,269,000 for live animals (for food) from Canada, the United States, and the Channel Islands, nor £4,106,000 for fish from across the Atlantic, from the coast of the North Sea, from Portugal, etc.

	Bacon and Ham.	Mutton.	Beef (fresh and salted).	Pork (fresh and salted).	Unenumerated Meat.	Preserved Meat.	Rabbits	Poultry and Game.	Total.
	£	£	£	£	£	£	£	£	£
Australia ...	—	544,000	116,000	—	5,000	374,000	247,000	9,000	1,295,000
New Zealand ...	—	3,219,000	417,000	1,000	24,000	82,000	173,000	3,000	3,919,000
Canada ...	1,623,000	—	93,000	22,000	8,000	60,000	—	12,000	1,788,000
Total from British Possessions)	1,623,000	3,763,000	596,000	23,000	37,000	516,000	420,000	24,000	7,002,000
Russia ...	91,000	—	—	—	—	5,000	—	218,000	314,000
Sweden ...	58,000	—	—	—	—	—	—	—	58,000
Denmark ...	3,754,000	19,000	271,000	103,000	89,000	—	—	2,000	4,238,900
Germany ...	9,000	2,000	—	10,000	3,000	35,000	—	24,000	83,000
Holland ...	54,000	781,000	94,000	753,000	624,000	9,000	53,000	35,000	2,403,000
Belgium ...	—	9,000	13,000	84,000	16,000	344,000	226,000	281,000	973,000
France ...	—	7,000	—	5,000	49,000	38,000	35,000	225,000	359,000
U.S.A. ...	11,661,000	60,000	5,431,000	759,000	260,000	1,464,000	—	212,000	19,847,000
Argentina ...	—	2,273,000	1,724,000	—	120,000	248,000	—	—	4,365,000
Total from Foreign Countries)	15,627,000	3,151,000	7,533,000	1,714,000	1,161,000	2,143,000	314,000	997,000	32,640,000
Grand Total Imported ...	17,286,000	6,915,000	8,149,000	1,752,000	1,199,000	2,786,000	734,000	1,059,000	39,880,000

Sums less than £1,000 not tabulated.

matter? Further, as Dr. Collingridge has suggested, no boxed, boned, or pieces of meat should be admitted if packed or prepared in such a way as to prevent inspection or the possibility of the detection of disease, or which contravene the recommendations of the Royal Commission on Tuberculosis (as no doubt a certain amount of American boxed pork does at present). Indeed, it would be better to draw a hard-and-fast line and exclude all imported dead meat (other than offal) except in carcase, and then only when properly labelled as having been adequately inspected.*

II.—TINNED OR PREPARED FOODS.

From an administrative point of view there is reason to believe that more adequate inspection of tinned meats and similar foods is urgently needed. In the first place, there is evidence of the existence of unclean and unwholesome preparation of food by no means confined to America. Even in London I have come across tuberculous pus being put into widely advertised sausages, diseased horse flesh into potted meat, and decomposing animal matter into potted salmon and shrimp. Such discoveries have recently drawn attention to the slackness and carelessness of some food manufacturers and the need for much more vigorous inspection and control. In the second place, there has been a marked increase in recent years in the quantity of this kind of prepared food which has been placed on the market. It is a noteworthy characteristic of the present customs of the people that their diet is now largely composed of prepared or semi-prepared tinned foods (including milk, meat, vegetables, fruits, soups, starch foods, tripe, etc.)

There is only one method of effective administrative control of such industries, and that is by *a system of inspection at the time of manufacture*, an inspection which should be concerned with (a) the quality and condition of the original constituents of the prepared food, (b) the manner of its preparation, and (c) the premises where it is prepared. All of these foods, whether imported or home-produced, should bear finally a distinctive mark or stamp as having been produced under conditions which have been inspected and are under supervision. This surely is the only scientific mode of control, working from the centre and the source, though it may well be supplemented, as in examination of fresh meat, by inspection at the circumference, that is, in wholesale and retail shops, on the "detective" principle. But to rely, as we are now doing, only on the latter method is hopelessly inadequate.

* See German Meat Inspection Act, 1900, Section 12.

For convenience the requirements may be expressed briefly as follows :—

1. That the name and address of the manufacturer and the date and place of canning or preparation shall be impressed upon the can or vessel containing the substance.
2. That food intended for canning or artificial preparation in any form shall be inspected at the food factory, and shall be obtained from animals which have already passed inspection. The importance of some control of this kind cannot be overestimated. For instance, Finsbury is characterized by the existence of a number of food factories and workshops, and as a result of some sort of inspection of this kind, we have confiscated considerable quantities of inferior, decomposing, or diseased meat about to be made up into sausages, potted meat, and prepared foods. During 1900–05 we also *seized* much of this raw material, and prosecuted in fourteen cases, obtaining £383 8s. 0d. in fines and costs, and three imprisonments.
3. That all food premises, vessels, utensils, and apparatus of any kind used in the canning or preparation process, or for storage, shall be regularly inspected, and a high standard of sanitation and cleanliness insisted upon. Of the importance of some provision of this kind there can be no doubt. Indeed, much may be said in favour of treating such food factories with certainly not less restriction or supervision than is now applied to, say, underground bakehouses under the Factory and Workshop Act, 1901, Section 101, or margarine factories (Sale of Food and Drugs Act, 1899, Section 7), or ice-cream making premises (London County Council (General) Powers Act, 1902, Part viii. Sections 42–45). If a certificate is necessary for a bakehouse as to its suitability for that purpose, “as regards construction, light, ventilation, and in all other respects,” it is surely not less required for premises used in the manufacture of foods much more liable to deterioration than bread, which are not always cooked or sterilized, and which are composed of a greater variety of constituent parts. The general policy adopted in recent years of protecting the sources of bread, water, butter, and other articles, should now be applied to meat, milk, and shell-fish, and, in this, as in other respects, Sanitary Authorities should endeavour to administrate uniformly.

These two provisions respecting the quality of the food and the sanitary condition of the premises, not only go to the root of the

tinned meat and similar industries, but also apply to such foods as pork pies. It will be remembered that in the Derby outbreak Professor Delépine and Dr. Howarth demonstrated that the contaminated meat in the incriminated pies had been exposed to animal pollution, owing to the premises being insanitary and unsuitable for the purpose of food preparation. Experience of such outbreaks leads to the conclusion that poisonous properties are contracted (a) by putrefaction or unsoundness in the meat or gelatine, or (b) by unclean manipulation or storage in insanitary places. In addition to such channels of infection there is, of course, in certain cases of outbreak, failure of sterilization in the cooking process.

4. That imported canned foods shall comply with provision No. 1 in this series, and shall bear a further stamp certifying that they have been produced and prepared under administrative control and inspection. Such a label would not, of course, guarantee that any particular sample had actually passed inspection, but it should serve as a guarantee that the food had been prepared in premises properly controlled. All such imported foods should comply absolutely with English standards. Unequal treatment in these matters is most unjust, and has led to difficulties where no difficulty should arise.
5. That the "detective" system of inspection, as now practised by each Local Authority through its sanitary inspectors, and also by some Port Sanitary Authorities, should be of a much more thorough character, and should be coupled with occasional sampling of such foods, and their subsequent chemical examination (possibly adopting the Board of Trade standard for shipped foods of examining not less than one per brand—which is certainly a minimum). There appears to be evidence of a good deal of laxity in this system of inspection, particularly in rural districts—but not in them alone.

Broadly, I think that these conditions would largely meet the present need, though it may be admitted that they are not sufficiently protective absolutely to guarantee high quality food only. To secure that, some central control of this food industry is necessary, power vested, say, in one Government Department, in order to obtain uniformity of standard and practice in respect of all tinned foods produced in the United Kingdom, and prescribing conditions of importation. But be that as it may, regulations framed by the Local Government Board, under the Public Health Act, 1896, as proposed

in the Public Health (Regulations as to Food) Bill, now before Parliament, are an important and necessary step in the right direction, though much would depend, of course, on the character of the Regulations and their enforcement. It is desirable that reform should proceed by gradations, should seek less to discourage than wisely to control these important industries, and should attempt to increase rather than decrease the responsibility of the trade for the production and sale of wholesome food. Many of these prepared foods are of great value in the diet of the people.

In regard both to carcase meat and to tinned meats, what is required is (i) protection for the consumer; (ii) equal treatment and a fair measure of uniform administration for the whole meat trade throughout the Kingdom, and (iii) control over foreign imported meat. It would appear that these things can be obtained only by new legislation and by administration under a central department of State. The Bill now before Parliament would enable regulations to be made which would largely meet the case and furnish powers already possessed by most, if not all, Continental governments. Not only would it then be practicable to prescribe as to imported meat, including boxed and boned, but also as to imported prepared and tinned foods in which there is necessity both to safeguard the public health and protect the interests of the home trader.

III.—MISCELLANEOUS FOODS.

Meat, in its various forms, is by no means the only food which requires more adequate inspection and control. Fish, oysters, shell-fish, ice-cream, watercress, milk, eggs, and other articles are in like manner sometimes placed on the market in unsatisfactory condition. They are not so readily inspected as meat, but they are not less important. Almost without exception, the scientific and common-sense control should be exercised from the source and in the process of storage and distribution. At present most of the control which is attempted is exercised at the wrong end, and immense labour and expense therefore secure a minimum of benefit. In some cases even the action which is taken does not touch the whole problem, as, for instance, the chemical analysis of milk under the Sale of Food and Drugs Acts, which tells us nothing of the infective properties of the article. There would seem to be ample opportunity for reform, but here we have space to mention only two illustrations—shell-fish and milk.

Many attempts have been made in recent years to obtain statutory

powers for the control of the oyster and shell-fish industry. Ten years ago the Brighton Corporation promoted a Bill giving power to prohibit the supply of oysters from infected sources, but a Parliamentary Committee refused to grant the powers. In 1897 a memorial appealing for legislation was presented to the Local Government Board from twenty-seven of the great towns, and this was supported by an influential deputation. In 1899 the Board introduced the Oysters Bill, which was so modified by a Committee of the House of Lords that the Board subsequently withdrew it.* Since that date no other Bill has been introduced, and the community is protected not so much by statute as by good fortune. What is necessary is legislation which shall require (i) that oyster and shell-fish layings shall be free from gross excretal pollution, and shall be properly supervised and inspected; (ii) that Sanitary Authorities shall have powers of control over oyster layings situated within their district, with powers of closure in the event of pollution; and (iii) that Sanitary Authorities shall be enabled to prevent the sale in their district of oysters and other shell-fish derived from sewage-contaminated sources, or evidently the origin of infection, as was proposed in the Brighton Bill. The casual inspection of shell-fish in retail shops and on stalls does not really touch the problem, though the City Authorities have by this means on more than one occasion made seizures and restricted the sale of shell-fish in their markets. The necessity for effective administrative control has been abundantly proved, and the Local Government Board has evidently accepted the findings as valid. Yet we await powers. If the trade is doing what is necessary it need not fear legislation for future protection of the consumer; if it is not doing so, legislation should be granted.

The milk supply is in much the same position. It needs control from the source, like a water supply; and the gathering ground is to be found in four million milch cows. Here also we are, in practice, attempting control at the wrong end. What is needed is (i) a veterinary and medical service inspection of all cows yielding milk, (ii) thorough sanitation and cleanliness in cowsheds and dairies, and (iii) the annual licensing of all milk-sellers. These and many other reforms could be obtained with comparatively slight amendment of the law,† and indeed the entire problem would assume very different proportions if the present Dairy Order was only properly and uniformly enforced, and Regulations under Section 13 made compulsory instead of remaining permissive.

* *Brit. Med. Jour.*, 1903, ii, 295-297 (Dr. Newsholme).

† *Bacteriology of Milk*, 1903, pp. 471, 472; and also pp. 472-5

It is really astonishing that so little is attempted for the protection of the consumer on the one hand and the trade on the other, and that the dairy industry is allowed to emigrate to the Colonies, or achieve "national" success only in Denmark. As I pointed out in 1904, in the United Kingdom in 1901 there were 4,102,000 milch cows. If we take the generally accepted figure of 2 per cent as having tuberculous udders, it gives us 80,000. The average annual yield of milk per cow may be taken as, at least, 400 gallons, which means that from these 80,000 tuberculous udders 32,000,000 gallons of milk are obtained, the bulk of which, I submit, is open to grave suspicion, if not absolute condemnation.* Such figures have, of course, only relative value but they express in concrete form what is an indisputable fact, that many millions of gallons of milk are put on the market every year in a condition unfit for consumption. Nor is the other issue less surprising, namely, that we allow a magnificent industry, and one which might be of greatest value to the physical and material well-being of the people, to pass out of our hands for the lack of a little co-operation and a common-sense administrative control. We accept instead an importation of 20,000 cwt. of condensed milk per week, and a total dairy import valued at £31,000,000 per annum.

I submit that a consideration of the present position of administrative control of food in the United Kingdom leads to the conclusion that much remains to be done, not alone in the interests of public health but also in the best interests of the great food industries involved, and that the main principle to be adopted is *control at the source*.

DISCUSSION.

DR. COLLINGRIDGE proposed a vote of thanks to Dr. Newman. He said his paper was, without exception, one of the most valuable that had come before the Society. It was practical, and dealt with a question which at all times was of great importance to the community, but which was now especially before the public. For practically the first time, Dr. Newman had brought prominently before the Society the important question of the value of the inspection of the food-supply from the point of view of nutrition. It was constantly brought forward as an objection to the inspection of meat, and its subsequent seizure and condemnation, that that was only dealing with the conveyance of infection, and that there was very little evidence of the actual conveyance of such infection. That was undoubtedly proved, and the public had exaggerated ideas of infection so far as the conveyance of specific disease was concerned. Sufficient attention, however, had not been paid to the enormous importance of food inspection from the point of view of nutrition, and

* *Bacteriology and the Public Health*, p. 204; also *Brit. Med. Jour.* August 27, 1904.

the keeping up of the stamina of the people. That applied not only to meat, but to the milk-supply and every other kind of food. Another point to which he would like to refer was the difficulty of getting trained inspectors. That was largely brought about by the same causes as those affecting Medical Officers of Health, viz., the insufficiency of the inducements held out to men to adopt such a career. The pay of meat inspectors was far lower than it should be for men who had such responsible duties. Dr. Newman had dealt at some length with the lack of uniformity. He (Dr. Collingridge) could not help thinking that lack of uniformity in meat inspection—except so far as it applied to lack of uniformity due to inefficiency—was somewhat of a bugbear. At the present time, indeed, it was an absolute bogey. If there was absence of uniformity in the standard, it was very difficult to understand why it should exist. The recommendations of the original Royal Commission, confirmed by two subsequent Commissions, were still before the public, and were still the recommendations officially adopted by the Local Government Board, and urged upon local authorities as a standard. Whether from questions of trade interest or, as was unhappily the case sometimes, of municipal feeling, no authority had the slightest right to interfere with those recommendations. They were to be accepted as the standard for the time being. One question which was always cropping up was the removal of glands. Only the previous day he saw a report that in something like 40 per cent of cases, pigs carrying in their throat glands extensively diseased, showed no disease in other parts of the body. Assuming that to be true, it was obvious that if the glands were removed no meat inspector could possibly deal with the carcase on the lines of what was called in Dr. Newman's paper the detective system. With regard to the marking of foreign meat, it had been shown clearly in some cases where carcasses of meat were found to be extensively diseased on arrival here, that the animals had been rejected on the other side. It was the practice for a man to get a healthy carcase labelled, and then transfer the label to a diseased carcase. Unless that were borne in mind injustice might be done to Holland. He believed there was a Bill before the Netherlands Parliament now, to make the inspection of all meat compulsory. He had been reading the resolutions passed with reference to tinned meat, and must say that they were exceedingly interesting, while the suggestion that the sale of unsound meat should be made a legal offence was, in his opinion, most important.

PROFESSOR KENWOOD said he should like to join Dr. Collingridge in his appreciation of Dr. Newman's exceedingly good and practical paper, which was full of good suggestions. He would confine himself to asking Dr. Newman a question with regard to his remark that the milk trade had achieved national success only in Denmark. Three years ago he (Prof. Kenwood) combined business with pleasure, and visited Denmark, where he made himself familiar with the milk-supply. He agreed that on the whole it was a bit better than it was in England, but not very much. He wanted to know whether Dr. Newman, in his statement that the milk-supply in Denmark had reached such a great pitch of perfection, was influenced by the fact that the supply was sterilized or not. There was a danger of their taking the wrong attitude with regard to sterilized milk. The medical profession generally was at war with sterilized milk, and seemed to have got it into their heads that it was likely to cause scurvy in children. They blinded themselves to the fact that if they

had raw milk they ran a great risk and, in fact, were bound to have an enormous amount of suffering and death from diseases carried by milk. The question was whether, in order to save the very few cases of scurvy which ever occurred as the result of drinking sterilized milk, they were going to preach against its use. Where go-ahead and enlightened companies were taking every precaution, the milk was tabooed by the attitude of the general practitioner, and very often by the Medical Officer of Health himself.

DR. CALDWELL SMITH, dealing with Dr. Newman's remarks about oysters and shell-fish generally, said he recently had experience of a small outbreak of enteric, in which it was clearly shown that the shell-fish were at fault. They were traced to a small Scotch loch, where the sewage from a public asylum came right on to the foreshore. Glasgow people would not have these shell-fish, and so, forsooth, they sent them to London. There was not the slightest doubt that in this matter legislation was required.

SIR SHIRLEY MURPHY said he considered the paper especially sound in the argument that they must go to the origin if they wanted to control the food-supply. They must go to the place where the animal was killed, have it inspected at that time, and have the healthiness of the animal vouched by the stamping of the public authority. That was always opposed by butchers—an attitude which one could understand; but it seemed to him that when agriculturists also opposed it, they were adopting a most shortsighted policy. If they had public slaughter-houses it would be open for English cattle-dealers to send their animals there to be killed, and stamped, and vouched for by the sanitary authority, and the carcasses would then come before the public as English-grown and English-killed meat. It was the one system which would preserve the identification of home-grown meat. The question of controlling foreign meat-supplies was exceedingly difficult, and involved a system of inspection instituted by the country where the animals were killed, but he hoped the Government would insist on that some day.

DR. WALFORD said he would like to ask Dr. Newman a question with reference to the qualifications he considered necessary for a meat inspector. He had rather severely left alone the qualification of a veterinary surgeon. He would like to have the advantage of Dr. Newman's opinion as to whether or not it was desirable that a veterinary surgeon should be appointed as meat inspector. In Cardiff—one of the very few places fortunate enough to have all slaughtering done at public slaughter-houses—they had at the head of their staff of inspectors a veterinary surgeon, who was chief meat inspector under the Medical Officer of Health. He (Dr. Walford) had found it a great advantage to have a veterinary surgeon as chief inspector. His appointment was thoroughly appreciated by the butchers, and in fact their Association asked for his appointment. Dr. Newman had justly said that the detective system in many localities should be of a much more thorough character. Speaking in an apologetic manner for the shortcomings of Port Sanitary Authorities, he might point out that they were rather at a disadvantage. Their districts were usually entirely on the water, with no butchers' shops, and when carcasses simply formed the cargo of a ship they could not be seized as exposed for sale and intended for the food of man, under Sections 116 and 117 of the Public Health Act.

DR. NASH said he noticed that Dr. Newman suggested that it was necessary that legislation should be obtained requiring shell-fish layings to be properly supervised and inspected, and free from excretal pollution. That would be a difficult matter round the coast of England. There was hardly any point which did not show some kind of pollution. The point was, how far from a sewer outfall was a safe distance. He had already expressed the opinion that the distance should be at least a mile. They could not lay down a rule that the laying should be absolutely free. That was the ideal, but it was quite impracticable.

DR. BUTLER said the temptation was always to treat the subject under discussion as a mere branch of the Food and Drugs Act, and the fact that Dr. Newman had dealt with food inspection in its entirety was very greatly to his credit. The importance of the subject was one which every Medical Officer of Health constantly felt. Year after year they were presented with a big death roll from zymotic enteritis. That showed the great importance of the inspection of the milk-supply. Every year also most Medical Officers of Health came across cases of enteric fever, more or less distinctly traceable to infected shell-fish. It was certainly a very serious matter that year after year they should get serious outbreaks of enteric fever due to infected shell-fish, which at present underwent no supervision. Then, too, there was also a certain number of deaths ascribed to ptomaine poisoning, which could not occur if the food-supply were properly inspected and controlled. He had tried in his district to arrive at the causes of ptomaine poisoning by making it a notifiable disease. His Council were willing to adopt that course, but the Local Government Board would not consent. The question of inspection largely resolved itself into control over the slaughtering of animals, and they must feel how hopeless it was to pick out diseased meat even. Without a far more extensive system of inspection than at present it was not possible to eliminate the bad food that found its way into the retail market. If they were to control the food-supply they must have public abattoirs. The most rigid detective system would inevitably fail to protect the public.

DR. BOND said public slaughter-houses would be not only an advantage to the consumer, but also to the butcher and home producer. On that point he wished to emphasize the remarks made by Sir Shirley Murphy. He agreed with Professor Kenwood as to the sterilization of milk. They ought to have a proper estimate of proportion. A very small number of deaths was registered from scurvy, but an enormous number occurred from infantile diarrhoea.

DR. RIDEAL said he took it that Dr. Newman wished all food to be so rigidly inspected and controlled at the source of supply that food should be on the same footing as they had tried to put the water-supply. The water-supply problem was one which had engaged attention for many years, and they had not yet succeeded in getting the water-supply to the pure stage they would like. Yet they had that night a suggestion that they should apply the methods of protection of gathering grounds to the meat-supply. They had found that in the protection of the gathering grounds for water, and in the inspection of cows and dairies, the system broke down, and neither the water-supply nor the milk-supply was pure when it reached the consumer. He did not see that it was necessary to apply the same doctrine to things which were going to be sterilized by the consumer. It was, he thought, carrying the idea of

the protection of gathering grounds much too far. The expense would be enormous, and it would be far cheaper for the community to ignore the chance pollution of gathering grounds of food, when it could be rectified by the consumer if he were taught the necessity of the sterilization of all food before consumption. Thus they would get rid of bacterial infection, which might be introduced however efficient they made the protection of the source of supply. He did not himself believe that there had been so many cases of ptomaine poisoning as was suggested. The quantity of food consumed was so small in proportion to body weight, that it was impossible to credit ptomaine poisoning as accounting for the epidemics reported. On examination one found that the majority of cases were due to bacterial infection instead of ptomaine, and the chances were that the infection took place in the consumer's own house. He quite agreed that it was important to see that there was a good food-supply, but it was essential that the consumer should be warned that the danger was likely to arise in his own house, and was not always the fault of the producer.

DR. FREMANTLE said control of the source of supply was theoretically an excellent thing. There was, however, the constant trouble that while London wished to protect its food-supply, and therefore wanted to see the supply in Hertfordshire, that county, being conservative, did not want to be invaded by London. On the other hand, if the work were left to the people of Hertfordshire, they must have a very large staff to control the source of supply. That meant that they would have to incur a large expense in order to purify London's food. He would like to point out one difficulty which was met in Hertfordshire, and that was with regard to watercress. He had tried to inspect the watercress beds, but found that he had no power to do so, and that he was a trespasser.

The PRESIDENT said he had been much interested in Dr. Newman's paper and the excellent discussion. He did not wish to take sides, but he must say it seemed to him that inspection at the source of supply as advocated by Dr. Newman was what they should all aim at. It would be a great pity if they allowed themselves to go to sleep until the supplies came in, and then by cooking and other means try to destroy the harm which might be caused.

DR. NEWMAN, in replying on the discussion, said he agreed with Prof. Kenwood's remarks about sterilized milk. They could not, under present circumstances, in large towns and cities condemn sterilized milk wholesale. It was not the best thing, but it was very much better than other milk in large areas. With regard to Denmark, he meant to say that the people of that country had taken much more interest in the dairy trade than other people. It was true that even there practice did not come up to precept, but, on the whole, the dairy trade in Denmark was much more of a national concern than in England. As to Dr. Walford's remarks, he thought there could be no doubt that it was a great advantage to have a veterinary surgeon as meat inspector, if he also had practical experience as a butcher. He would sooner have an expert butcher as inspector than a veterinary surgeon who had had no experience of the butcher's trade. The value of a veterinary surgeon was chiefly in cases where live stock had to be examined. Dr. Nash was correct in his remarks about the pollution of shell-fish layings. He ought to have put in his paper gross excretal pollution. He was not sure whether Dr. Rideal's remarks were not sarcastic. He was asked to open the

discussion, not on the duties of individual citizens, but on public administration, though he agreed that it was most important that people should cook their food more than they did. Dr. Fremantle's speech raised a very difficult question, but his own idea was that the responsibility of controlling the source of supply should be on the local authority.

THE VALUE OF CORRECT DEATH CERTIFICATES IN STATISTICS.—Dr. John S. Fulton, Secretary, State Board of Health, Michigan, says it is difficult to bring medical men to realize the unreliability of the data which they themselves supply. All mortality statistics are based on the death certificate, and non-medical statisticians generally regard the death certificate with an appreciation of its utility as a contribution to vital statistics.

THE SOURCES OF GOVERNMENT VACCINE LYMPH.—In reply to a letter from Sir William Collins, asking for information as to the original sources of the vaccine lymph now in use, Mr. Burns wrote, on July 13th :—"In view of the Act of 1898, and of the adoption by the Government of glycerinated calf lymph for all public vaccinations, the Local Government Board made an entirely new departure as regards the source of vaccine lymph. Dr. Blaxall, the newly-appointed Director of the Board's Glycerinated Lymph Establishment, obtained as stock for starting his series of calf-to-calf vaccinations lymph from Cologne. This lymph, which had been long in use there, and had originally been obtained, it was believed, by vaccinating calves from the arms of infants, has continued to be employed in the vaccination of calves at Lamb's Conduit Street to the present day. Side by side, however, with this calf-to-calf lymph of Cologne pedigree, other lymph has from time to time been taken into use at the Board's establishment. This other lymph has been partly retro-vaccinated Cologne lymph, i.e., lymph passed from the English infant back to the calf (after glycerination), to the infant again, and partly it has been lymph newly obtained from Continental stations, and passed through a series of calves before adoption for use in the Board's establishment." Sir William Collins pointed out that this information did not reveal the original sources of the vaccine lymph brought from Cologne, or the nature of the disease from which the strain was originally derived. He added :—"Is it really not possible to say whether the lymph supplied by the National Vaccine Establishment was derived originally from the small-pox of man, the pox of the horse, or from an eruption on the teats of a cow, and if the latter, whether it was the true or spurious cow-pox?" Mr. Burns replied, "As to the remote ancestry of the Cologne lymph, whether it was derived from casual cow-pox or induced cow-pox, we do not know. The Department were satisfied, when it was adopted, that it was producing and had long been producing in calves what the German experts regarded as characteristic vaccinia, and that lymph transmitted from such calves to babies protected them against small-pox." Sir William Collins wrote, on July 28th, expressing regret that the Local Government Board could not give any information as to the original sources of the lymph supplied by the National Vaccine Establishment, and asking for the evidence on which the Department were satisfied as to the character of the Cologne stock. To this letter no reply has been received.