OFFICIAL COPY.

Mr. Spear's Report to the Local Government Board upon a Prevalence of Typhoid Fever locally ascribed to certain Slaughter-house Premises at New Brighton, near Birkenhead.

GEORGE BUCHANAN,
Medical Department,
March 5th, 1889.

IN October 1887 complaints were forwarded to the Board respecting the carrying on of the business of slaughtering in a populous locality of New Brighton, in the Wallasey Urban Sanitary District; and it was alleged that typhoid fever had broken out in consequence of the emanations from a certain slaughter-house there situated. Asked to report upon the subject, the Medical Officer of Health affirmed that the business was carried on without nuisance, and was unconnected with the appearance of typhoid fever. Complaints, numerous and urgent, continued, however, to be received from residents of the locality, and in July 1888 it was reported that typhoid fever had again broken out, and was, in the opinion of the complainants, clearly traceable to effluvia arising from the slaughter-house premises. Again, in a letter dated September 14th, 1888, it was alleged, "the neighbourhood was free from fever previous to slaughtering; "since then it has not been clear, except from October 1887 to June 1888, "when slaughtering was not allowed." In view of these representations I was instructed to visit the locality and make inquiries on the spot.

On the 13th November I attended at the Wallasey Local Board Offices. The Chairman and several of the members of the Local Board, with their legal adviser, Medical Officer of Health, and Surveyor, were present, as well as the occupier of the slaughter-house, and certain of the complainants with their solicitor. The circumstances of the case, together with the opinions that had been formed on either side, were, as far as possible, elucidated,—a task in which I received every assistance from the legal gentlemen present,—and I then proceeded with my own personal investigation. I will deal first with the slaughter-house, the special subject-matter of complaint, and then with the fever prevalence.

For many years slaughtering has been carried on on the premises in question, but between 1876, or thereabouts, and 1883 there was an interval, and hence at the later date the business could only be re-established with the concurrence of the Sanitary Authority; indeed, in 1878 a conviction was obtained before the Justices against the then occupier for slaughtering without licence.

In November 1883 the present tenant commenced slaughtering. Complaints were soon made to the Sanitary Authority, and the Medical Officer of Health and Surveyor were required to report upon the subject. Both expressed themselves (May 1884) not unfavourably, on the whole, in regard to the construction and condition of the premises, but both took exception to the situation; . . . "but the situation is objectionable," the Medical Officer of Health reported, "because so closely surrounded by dwelling-houses, to the occupants of which the slaughter-house may prove a nuisance." . . . .

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"I think if much slaughtering were carried on there, especially of pigs, it would cause a nuisance." As a result, the Sanitary Authority refused the licence which had been applied for, but a private communication was conveyed to Mr. Scott, the occupier, from the Health Committee, to the effect that so long as he continued to slaughter without nuisance his business would not be interfered with. This arrangement, if so it may be called, continued until the autumn of 1887, some 30 sheep and two oxen being slaughtered on the premises weekly, when in October, in consequence of the renewed complaints, some of which, as already stated, reached the Board, proceedings were taken against Mr. Scott for slaughtering without licence, and a conviction obtained.

Meanwhile the Sanitary Authority had decided against the erection of a public abattoir, and now, no doubt, Mr. Scott, although allowed the use of his brother's licensed premises at Seacombe, some two miles distant, was put to considerable inconvenience. An agitation to secure for him the licence that had been denied was commenced, and the subject was again before the Sanitary Authority in June 1888. Mr. Salmon, the Surveyor, then advised the Authority unequivocally against the granting of a licence. In answer to questions put to him he stated that he had never said that Mr. Scott's premises were in every way suitable for a licence. "He said they were in an "overcrowded neighbourhood, and if for no other reason, they were totally "unsuitable." The Medical Officer of Health, on the other hand, stated that he had never found the slaughter-house in question to cause any nuisance, and, asked whether he considered the situation suitable, declined, with the permission of the Chairman, to answer. It will be remembered, however, that he had already reported the situation to be objectionable, so that it cannot be said that the Authority were left with imperfect information. At any rate, it was decided by a majority of eight to five to grant the licence. This was on June 7th, and on July 7th (after the next meeting of the Authority) the licence duly signed was forwarded to Mr. Scott.

The evidence is conflicting as to whether slaughtering was commenced on the earlier or the later of these two dates, and the point is considered by the complainants as of importance, since two of the cases of typhoid fever, alleged to be due to emanations from the slaughter-house, made their appearance previous to July 7th. Mr. Scott, it appears, on June 8th wrote to the Clerk to the Sanitary Authority asking if he were then at liberty to use his slaughter-house, and receiving what he considered an undecided reply, resolved, so he affirms, to wait for the licence. In this statement he is supported by his slaughterman, an apprentice, the person who received garbage from his slaughter-house, and a monthly nurse employed at the time in his house. On the other hand, his next door neighbour, Mr. Dolan, whose wife sickened of typhoid fever on July 3rd, is positive that slaughtering commenced on June 12th, and produces notes which purport to be a daily record of slaughtering from June 12th to July 2nd, which are said to have been taken at the time by a shopwoman in his employment, and are vouched for by her. The amount of stock bought by Mr. Scott at this time appears to have been from 30 to 50 sheep per week, and some three oxen.

The shop and dwelling-house, the former large and commodious, stand as part of a row of shops and dwellings in Victoria Road, the main street of New Brighton. The height of the houses here is about 32 feet from the ground level, and the premises at the back have become by successive additions much confined. The space from the rear main walls to the back lane measures on an average some 40 feet, but the greater part of this is now covered by various outbuildings; some being extensions from the houses in their original construction, and others stables, sheds, &c., put up for trade purposes. Taking eight houses of this row, of which Mr. Scott's is the fifth, from Mason Street corner downwards, the following figures show approximately the amount of yard space that would have been available had the area from the main walls remained vacant, and the open space that actually exists.

No. 1. Area at rear from main walls to back lane, 1,400 square feet. Uncovered yard spaces at rear, 330 square feet.

No. 2. Area at rear from main walls to back lane, 528 square feet. Uncovered yard spaces at rear, 85 square feet.

No. 3. Area at rear from main walls to back lane, 1,000 square feet. Uncovered yard spaces at rear, 315 square feet.

No. 4. Area at rear from main walls to back lane, 1,000 square feet. Uncovered yard spaces at rear, 371 square feet.

No. 5. Area at rear from main walls to back lane, 1,440 square feet. Uncovered yard spaces at rear, 465 square feet.

No. 6. Area at rear from main walls to back lane, 2,365 square feet. Uncovered yard spaces at rear, 190 square feet.

No. 7. Area at rear from main walls to back lane, 900 square feet. Uncovered yard spaces at area, 480 square feet.

No. 8. Area at rear from main walls to back lane, 450 square feet. Uncovered yard spaces at rear, 72 square feet.

It will be seen that nearly three fourths of the area behind these buildings, between the rear main wall and the back lane, is covered over—partly by high extensions from the main buildings, such as are unfortunately more or less general in most towns, but largely also by less legitimate erections, viz., sheds; stables (5); manure pits; slaughter-houses (2, including the one newly licensed); lairs for cattle and sheep-pens. Besides the cattle and sheep kept for the purpose of slaughter at the two slaughter-houses, eight and sometimes nine horses and ponies are stabled in the confined back premises of these eight dwellings, and manure is allowed to accumulate sometimes for a month before removal. The back lane itself is only 12 feet wide, and abutting upon it on the opposite side are the yards, some 15 feet deep, of Richmond Terrace, small tenement property.

Briefly, the area in which this slaughter-house has been established may be said to be small and crowded, surrounded at almost every point by high buildings and containing already a quite unusual number of sources of aërial contamination.

The slaughter-house in question is situated in No. 5 of the yards above described. The building, which was originally it is said a cart-shed, is of brick and open to the slated roof. It is in dimensions 14 feet by 10 feet 3 inches, and possesses a well constructed floor of cement concrete sloping to a trapped gully in the centre, which gully communicates, however, directly with the house-drain passing beneath the floor of the dwelling.

The height of the building to the eaves is 13 feet, and to the apex of the roof 16 feet; the ventilation, apart from the doors, one of which opens from the back-yard, another from the back lane, and a third into a stable, is insufficient. The yard which intervenes between this building and the main wall of the house is 31 feet 9 inches in depth, and although receiving some of the splashings from the slaughter-house, and the oozing of animal matter from hides, &c., often deposited on the yard, the surface is only paved roughly with porous bricks. Water is supplied to the slaughter-house by tap from the public mains, and a hose pipe is used for the purpose of washing the interior. A tank likewise, for the collection of rain water from the roof, is situated just beneath the surface of the yard spoken of, and possesses an overflow to the slaughter-house drain. The water pumped from this tank has been complained of by the neighbours as so foul that the atmosphere at the back of the houses is polluted by it, but at the time of my visit this objection was not apparent.

At one side of the slaughter-house, and opening from it, is a stable where one horse, and sometimes a horse and pony are kept. This place is ill-ventilated, and immediately adjoining, and with open communication, is a large manure pit, said to be emptied once a week. Abutting upon this again is a large ash-pit, the contents of which are only emptied monthly, and an ill-flushed water-closet with corroded pan. Between the building formed by the stable, &c., and the house-wall on that side, only a narrow passage of yard space, 3 feet by 14 feet, is left. This limited space is roughly paved, has opening on to it the ash-pit and water-closet above referred to, and here sheep are penned previous to slaughter.

The premises afford no facility whatever for the lairage of cattle, and accordingly Mr. Scott rents a two-stalled stable in the yard of the York Hotel two doors from the slaughter-house. It is a small, badly-ventilated, ill-paved place, and the space from the door right up to the back-door of the hotel is roofed with glass. At the time of my visit two heifers and six sheep were penned here, and one of the latter received as I looked a severe kick from a heifer about whose heels the sheep are compelled to crowd.

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Speaking of the slaughter-house itself, so far as general tidiness can secure freedom from nuisance in a place so closely situated and slenderly provided there is no doubt Mr. Scott strives for this result. Blood and garbage are removed promptly after slaughter, and the place is as clean as the structural arrangements allow.

Whatever may be thought of the proceedings relating to Mr. Scott's licence, and whatever may have really been the effect of this slaughter-house upon the public health, it is to be regarded as a serious error of judgment to have allowed such a business to be established in such a neighbourhood.

In 1877 the Local Government Board issued to Urban Sanitary Authorities a set of "rules" as to site and structure of slaughter-houses, advising the Authorities that in the exercise of their discretionary powers of licensing such places these rules should influence their decision. The communication in question was referred to at the meeting of the 13th November at the Local Board Offices, and was apparently well known to the Authority. Nevertheless, a perusal of these rules, which are printed in the appendix to this report, will show how seriously they were departed from when the licence in question was granted.

There are other slaughter-houses in the district in an unsatisfactory condition. The one already referred to as in the same row with Mr. Scott's, is not only in a confined situation but is badly paved and dirty; one that I visited at Liscard was approached by a filthy back lane, the surroundings were sloppy and neglected, and offal was deposited in the midden.

Fever Prevalence.

Referring to the urban sanitary district of Wallasey as a whole, it covers an area of 3,408 acres and contains a population of some 32,000. The geological formation is that of the new red sandstone, with superficial alluvial deposits—clay, marl, sand, and gravel. Generally speaking the natural position of the district is exceedingly favourable, well elevated, and swept by sea breezes. The population is grouped into five or six detached villages, New Brighton, Liscard, Egremont, Seacombe, Poulton, and Wallasey, but for statistical purposes the old township divisions are taken. These townships are three in number—(1) Liscard (including New Brighton) with an estimated population of 15,545; (2) Seacombe, including Poulton, estimated population, 14,201; (3) Wallasey, population, 2,044. I have appended to this report certain mortality statistics, and available returns of sickness from fever, relating to the district and to the several townships.

The average annual mortality rate from typhoid fever, for the four years and ten months, January 1884 to October 1888, was, for the whole district, equal to ·22 per 1000 of the population. In the various townships the corresponding average was ·17 in Liscard (including New Brighton); ·32 in Seacombe, and ·10 in Wallasey.

The Medical Officer of Health obtains returns of sickness from dispensary, but rarely from private practice; and as of course the former lies mainly in the poorer localities, the returns are of comparatively little value in showing the relative localization of disease. So far as they go they coincide with the mortality returns in indicating a greater average prevalence of typhoid fever in the Seacombe township. This latter contains, however, the poorer population.

New Brighton consists chiefly of several streets and rows of smaller dwellings situated on the sea-front, on sandy soil gradually sloping from high-tide level. On the hillside above there are a number of villa and terrace houses, but the lower locality contains some two-thirds of the population of New Brighton, and the inhabitants are engaged for the most part in occupations incidental to a seaside resort of the poorer class and of excursionists.

It is the opinion of medical men practising in the neighbourhood that the health of this lower locality is decidedly inferior to that of other parts. Typhoid fever makes its appearance more frequently; it is said that scarlatina is more fatal and persistent; that sore throats are more common; and that women after childbirth are apt to do less favourably. As to typhoid fever, so far as I have been able to ascertain, there have been, during the last two years, 20 cases in 17 different families living in New Brighton. With one exception, these cases have all occurred in the lower locality, and in the

exceptional one the sufferer (a policeman) frequented that part in pursuit of his occupation; and this was the case also as regards an isolated attack that occurred in another township. It may be said then, that during these two years, 21 attacks, in 18 families, are to be considered in connexion with the subject of fever prevalence in this lower locality. The time of their occurrence was as follows:

——	Jany.	Feby.	March.	April.	May.	June.	July.	Aug.	Sept.	Octr.	Novr.	Decr.
1886	—	—	—	—	—	—	—	—	—	—	—	1
1887	2	1	1	—	2	—	—	2	—	—	—	—
1888	—	—	—	—	—	1	4	4	2	—	1	—

Persons of all ages and of both sexes suffered. Nine cases were amongst children under 16, and 12 above that age; 8 males and 13 females were attacked.

As to locality, the following streets were implicated:—Balmoral Road, 5 cases; Egerton Street, 3 cases; Richmond Terrace, 4 cases; Victoria Road, 1 case; Windsor Street, 4 cases; Richmond Street, 1 case; Marine Hotel, 1 case. A policeman, living elsewhere but having his beat in this locality, was attacked, as well as a boy also living elsewhere, but employed in a shop in Victoria Road. The case in Richmond Street was that of a boy employed likewise at the same shop.

The closely-covered area about the slaughter-house suffered severely, and there was a small grouping of cases on the south side of Balmoral Road, and another in Victoria Terrace, Egerton Street, but the cases are too few to speak of any marked localization. If the slaughter-house be taken as a central point, in successive areas, each of 50 yards, there is found the following proportion of infected dwellings:—

Within a circle of 50 yards radius, 35 houses: 4 family invasions, two attacks in lads employed at a shop within the area, but living elsewhere (including these two, 7 cases).

Within a zone of 50–100 yards, 95 houses: 3 family invasions (4 cases), one sufferer was one of the two employed at the shop spoken of above.

Within a second zone of 100–150 yards, 158 houses: 6 family invasions (7 cases).

Beyond that area (but within the lower locality of New Brighton), 244 houses; 3 family invasions (3 cases).

(The case of the policeman beyond the area designated, is not classified).

The history of the cases immediately about the slaughter-house, so far as I have been able to recover it, is briefly as follows: In January 1887, a woman living at 5, Richmond Terrace, some 13 yards distant from the slaughter-house, and a little nearer the lairage, was fatally attacked by the fever. It was a single case in the house, and the family have now removed. A woman who washed the clothing of the deceased contracted the disease, as well as a second woman residing with the one last named. These two sufferers lived in the Balmoral Road, 100 yards from the slaughter-house, or just within the second radius; and in considering all possible causes of their infection, it has to be noted that in December 1886 a case of typhoid had occurred in another house in Balmoral Road. In August 1887, two persons living at No. 6, Richmond Terrace, next door to No. 5, and a little nearer still to the slaughter-house, were infected. Both recovered, but this family also had removed at the time of my visit. The immediate locality (and indeed the whole within 100 yards of the slaughter-house) was free from fever until July 2nd, 1888, when Mrs. Dolan, living next door to Mr. Scott's, within half-a-dozen yards of the slaughter-house, was fatally attacked; and, on the same day, a lad working in Mr. Snow's shop, next door to Mr. Dolan's on the other side, sickened; this case likewise terminating fatally. A little later a second boy employed on the same premises (Mr. Snow's), but living at some distance, passed through an attack of what was called at the time pneumonia, but which there seems reason to believe

was really one of fever. Then, on July 28th, a boy who lived a little further off in Richmond Terrace, but who had since July 4th slept at No. 5, where the first of these cases occurred (in January 1887), sickened of the disease. There were thus, during the two years, in this immediate locality five cases of fever in four families, and, without including the washerwoman in Balmoral Road, two attacks in individuals employed there during the day. The butcher's family, comprising eight persons living on the premises, were unaffected.

In Balmoral Road a small grouping of cases has likewise been spoken of. It is situated on the other side of the main street (Victoria Road), and extends from 100 to 200 yards from the slaughter-house. Of the 20 houses on the south side of the street, four have been infected by typhoid fever during the last two years—one in December 1886, one in January 1887 (the case of the washerwoman above referred to), one in May 1887, and one in November 1888. I am informed by a medical man who practises largely in the locality that this row of dwellings has been a favourite habitat of other infectious diseases.

In Victoria Terrace, Egerton Street, two adjacent houses were infected in 1887, and one of them was again the seat of the disease in 1888. They are situated some 150 yards from the slaughter-house.

No doubt this district of New Brighton is somewhat more than usually subject to the importation of disease, but, so far as inquiries showed, in only one of the list of cases given above was reasonable cause found for concluding that the disease had been imported from without. The tendency to grouping too observed above, and to the recurrence of the disease in the same locality in successive years, implies some local continuing cause.

There is no sufficient evidence therefore for regarding the slaughter-house as the origin of the fever prevalence. It is not an accurate representation of the facts to say that "the neighbourhood was free from fever previous to "slaughtering, since then it has not been clear except from October 1887 to "June 1888, when slaughtering was not allowed." Of any indirect and subsidiary agency it is much more difficult to speak. Undoubtedly the slaughter-house has contributed with several other conditions to vitiate the atmosphere of its immediate vicinity, and we have abundant evidence that the contagia are apt to thrive in media polluted by decomposing animal matters.

The Water Supply of New Brighton is that common to the whole district, and is pumped from wells in the New Red Sandstone. The supply is on the constant system, but during the autumn of 1888, owing to the relaying of the mains, considerable intermission in the service to the streets of New Brighton was necessary. There appears no ground for suspecting that the fever prevalence was related to the water supply.

As to the *Milk Supply* also the facts afforded no evidence of extension of fever by that means.

Sewerage and Drainage.—The greater part of New Brighton drains to a sewer which passes down Victoria Road (the main street) to an outlet into the sea at low-water mark. Several of the branches of this sewer are ventilated by open man-holes, and pipe ventilators to private drains are in other places improperly relied upon as a means of sewer ventilation, but in the sewer itself no opening for this purpose is provided in the last 600 yards at least of its course along the Victoria Road. [The Surveyor tells me that originally there was an objection to the provision of openings here, owing to the amount of loose sand of which the surface of the ground is composed, but that, now that the land is mostly built upon, this difficulty is removed.] The defect is probably the more serious as twice every day the sewer for a short distance at least is tide-locked. Certain of the branch sewers are likewise unventilated. This is the case with the one draining the south side of Balmoral Road, where, as I have said, fever has made its appearance at intervals during the last two years; the private drains here are ventilated only by rain-water spouts, they are connected directly with the public sewers, and I heard several complaints of the escape of foul air from yard gullies and other drain openings.

Although the Authority have done much of late years to remedy defects of private drainage, the conditions are still in a large number of instances exceedingly unsatisfactory. Drains are commonly carried beneath the floors

of dwellings, and without the special precautions necessary in such cases; the disconnecting trap in the course of the external private drain is only exceptionally provided, and, though kitchen slop-stone pipes have been "disconnected," gullies, having unbroken communication with the drain, and so with the sewer, often exist in cellars. I was led to visit certain "lock-up" shops, consisting chiefly of refreshment rooms and the like on the Parade, by finding that in two cases the families of the occupiers, living elsewhere, had suffered from fever; and here, in places much frequented by excursionists and other chance visitors, the condition of the private drainage was such as to cause a serious nuisance, well calculated to spread such a disease as typhoid fever. In one an excessively foul water-closet and lavatory were situated in a dark and wholly unventilated recess between two eating rooms, and I was told that in several other cases the structural arrangement was the same.

The appearance of typhoid fever at New Brighton has been found so constantly associated with specially grave defects of drainage, as to create a strong suspicion that this condition has been the cause of mischief. It has been objected that the disease has recurred after defects have been remedied, but as to this, even if the remedy had always been thorough, which is very far from being the case, it must not be forgotten that the typhoid-fever poison may make its home, there is every reason to believe, in the soil. That poison, once finding its way by leaky drains or otherwise into the soil, is likely under favourable circumstances to reassert itself.

In this relation, the history of the cases in the immediate vicinity of the slaughter-house is as follows: When fever broke out in January 1887, at No. 5, Richmond Terrace, it was found that the sewer in the back street was defective and leaky and partially blocked by deposit. The drains, however, of the two houses, Nos. 5 and 6, were found not to discharge into this sewer, but to be carried beneath the houses, ostensibly to another sewer in the front street, but, in reality, owing to defective connexion, to a sort of cesspool that the discharge had made for itself in the soil. These defects were remedied about February 1887; and, later, the privy middens with which the houses had up to that time been provided were converted into water-closets. The surveyor gives the date of the completion of this latter work, in which of course much polluted soil had to be disturbed, as August 2nd; and it was about August 14th that fever was found to have invaded the house No. 6. Another case of fever, it may be remembered, occurred in the following year (July 28th, 1888), in the person of a boy who had been sleeping at No. 5 of this terrace: other cases had just previously occurred in the neighbourhood, one of these earlier sufferers being a relative of the boy whose infection is now under notice.

The cases referred to, the remaining ones of this group of cases, were three in number. Mrs. Dolan, living next door to the butcher's premises, sickened on July 2nd; a lad employed at Mr. Snow's shop next door (two doors from the butcher's) sickened on the same day, and another lad employed at the same place a little later. Mr. Dolan states that an extremely offensive odour had been noticed just before his wife's seizure owing to the pumping out of the underground cistern, already referred to, in the butcher's yard. This offensiveness was not apparent at the time of my visit, though the situation of the cistern was such as to admit of its contamination from the yard surface. The circumstances of the drainage seemed to me, however, to afford more ground for suspicion. One drain is made to serve the purposes of both the houses in question (those of Mr. Dolan and Mr. Snow). It is carried beneath the basement floor of both houses to its connexion with the unventilated sewer in Victoria Road. The special precautions in construction, proper in such cases, have not been used; and a direct connexion with the drain exists, by means of a gully grating, in the cellar of each house. Twice during recent years this drain has caused obvious trouble by stoppage and leakage on Mr. Snow's premises. The coincident appearance of fever, and the common drainage defect, taken in conjunction with the experience elsewhere in this locality, would seem to possess significance.

General Sanitary Administration.—The district has obviously suffered much in its sanitary circumstances from the slovenly operations of the "speculative builder," and from past neglect of proper supervision by the Sanitary Authority. Of late years, however, there has been a decided change in this

respect, and the Sanitary Authority, aided now by an energetic Medical Officer of Health and Surveyor, have done much to remedy the evils that had arisen. Thus, during the last six years, over 1,200 cases of direct connexion between the interior of houses and the sewers have been dealt with. In a number of instances water-closets have been removed from dark ill-ventilated corners in the interior of houses to the outer wall; in nearly 400 cases soil-pipes have been ventilated; in 846 cases offensive privies have been converted into water-closets; in 400 cases water-closets, previously imperfectly supplied, have been provided with flushing cisterns. In 242 cases the surfaces of yards, passages, &c., have been flagged or otherwise made good. In addition to these private improvements public works of much value have been accomplished. The roads are now, with few exceptions, it is said, and so far as I myself saw, in good condition. With trifling exception the whole district is sewered, and many of the sewers, heretofore of most defective construction, have been relaid. Their means of ventilation, although still in many cases altogether inadequate, have been augmented; hundreds of pits that have been found in the invert of the older sewers, causing much deposit and stagnation, have been removed; and a more satisfactory method of flushing has been partially introduced. For combating outbreaks of infectious disease a small isolation hospital, with necessary adjuncts, has recently been erected, and has already done good service. The disinfection of infected houses, &c., is carried out under the supervision of the Medical Officer of Health.

In the scavenging of the district an alteration in present methods is needed. Even when water-closets are substituted for the old privy middens, the ash-pit of the latter is retained, and removal of the refuse only takes place at monthly intervals. The improper accumulation of stable manure about dwellings has already been referred to.

JOHN SPEAR.

RECOMMENDATIONS.

The chief points to which the attention of the Authority is still required are the following:—

1. Each sewer should be ventilated efficiently, and independently of private drains.
2. In addition to the improvements in private drainage already set on foot, further attention should be given to drains that are carried beneath the basement floors of dwellings, and to direct drain connexions in the cellars of houses.
3. All large ashpits causing nuisance should be replaced by small bins or movable receptacles; and a weekly, or bi-weekly, or daily removal of refuse (according to the nature of the locality) should be provided for.
4. The removal of manure and trade refuse should be placed under more strict regulations.
5. Nuisances arising from the improper keeping of animals should be dealt with.
6. Nuisances arising from want of the proper surface paving and drainage of house yards should be abated.
7. The slaughter-house byelaws should be strictly enforced.
8. For the protection of the district against epidemic disease the Authority should endeavour to secure that prompt information of all cases of infectious disease be supplied to the Medical Officer of Health.

APPENDIX.

Fever Prevalence in the Wallasey U.S.D.

Deaths.

—	1884.		1885.		1886.		1887.		1888.	
	Typhoid.	"Fever" (other or doubtful sorts).	Typhoid.	"Fever."	Typhoid.	"Fever."	Typhoid.	"Fever."	Typhoid.	"Fever."
Liscard (with New Brighton) -	3	—	—	—	1	—	2	2	6	—
Seacombe cum Poulton - -	3	—	3	—	2	—	8	1	3	—
Wallasey - - - -	—	1	—	—	1	—	—	—	—	—

Available Returns of Sickness.

—	1884.		1885.		1886.		1887.		1888.	
	Typhoid.	"Fever."	Typhoid.	"Fever."	Typhoid.	"Fever."	Typhoid.	"Fever."	Typhoid.	"Fever."
Liscard (with New Brighton) -	7	6	5	1	1	6	8	—	20	—
Seacombe cum Poulton - -	2	15	9	6	13	12	24	—	15	—
Wallasey - - - -	—	1	—	—	4	1	2	—	1	—

Extract from Prefatory Memorandum to Model Byelaws (Series VI.) issued by the Local Government Board for the use of Urban Sanitary Authorities, 25th July 1877.

"But as regards premises for which, under section 126, the licence of the Sanitary Authority will be required, the Board have been advised that, in the exercise of the discretionary power of licensing which has been conferred upon the Sanitary Authority, the following rules as to site and structure should influence their decision upon each application for a licence:

1. The premises to be erected, or to be used and occupied as a slaughter-house, should not be within 100 feet of any dwelling-house; and the site should be such as to admit of free ventilation by direct communication with the external air on two sides at least of the slaughter-house.

2. Lairs for cattle in connexion with the slaughter-house should not be within 100 feet of a dwelling-house.

3. The slaughter-house should not in any part be below the surface of the adjoining ground.

4. The approach to the slaughter-house should not be on an incline of more than one in four, and should not be through any dwelling-house or shop.

5. No room or loft should be constructed over the slaughter-house.

6. The slaughter-house should be provided with an adequate tank or other proper receptacle for water, so placed that the bottom shall not be less than six feet above the level of the floor of the slaughter-house.

7. The slaughter-house should be provided with means of thorough ventilation.

8 The slaughter-house should be well paved with asphalte or concrete, and laid with proper slope and channel towards a gully, which should be properly trapped and covered with a grating, the bars of which should be not more than three-eighths of an inch apart.

Provision for the effectual drainage of the slaughter-house should also be made.

9. The surface of the walls in the interior of the slaughter-house should be covered with hard, smooth, impervious material, to a sufficient height.

10. No watercloset, privy, or cesspool should be constructed within the slaughter-house.

There should be no direct communication between the slaughter-house and any stable, watercloset, privy, or cesspool.

11. Every lair for cattle in connexion with the slaughter-house should be properly paved, drained, and ventilated.

No habitable room should be constructed over any lair."

JOHN LAMBERT,
Secretary.

Local Government Board,
25th July 1877.