

Dr. W. Ogle's report to the Local Government Board on the prevalence of diphtheria in the Llandausaint and the Holyhead registration sub-districts of the Holyhead union ; and on a recent outbreak of small-pox in the town of Holyhead.

Contributors

Ogle, W.
London School of Hygiene and Tropical Medicine

Publication/Creation

London : Printed by Eyre and Spottiswoode for H.M.S.O., 1879.

Persistent URL

<https://wellcomecollection.org/works/mcsezhd>

Provider

London School of Hygiene and Tropical Medicine

License and attribution

This material has been provided by This material has been provided by London School of Hygiene & Tropical Medicine Library & Archives Service. The original may be consulted at London School of Hygiene & Tropical Medicine Library & Archives Service. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

Dr. W. Ogle's Report to the Local Government Board on the Prevalence of Diphtheria in the Llanddausaint and the Holyhead Registration Sub-Districts of the Holyhead Union; and on a recent outbreak of Small-pox in the town of Holyhead.

EDWARD C. SEATON, M.D.,
Medical Department,
 September 20, 1879.

THE island (and registration district) of Anglesea is divided into two poor law unions and six registration sub-districts; three of these sub-districts constitute the union of Anglesea, and three the union of Holyhead. It was to two of the sub-districts in the latter union (Llanddausaint, with a population at the last census of 5,007 persons, and Holyhead, including the town of that name, with a population in 1871 of 8,595,) that the present inquiry was limited. The town of Holyhead (population 7,191) is under the control of a Local Board, and constitutes an urban sanitary district. The rest of the area under consideration is under the jurisdiction of the Holyhead Rural Sanitary Authority.

In the first quarter of this year seven deaths were registered as due to diphtheria in the former, and three in the latter of these sub-districts; and in consequence I was instructed by the Local Government Board to visit the locality and make inquiry into the circumstances under which this mortality had occurred, I was also directed to inquire as to the reported existence of small-pox in the town of Holyhead. It will be convenient to deal with the latter question first.

SMALL-POX AT HOLYHEAD, AND THE ARRANGEMENTS FOR ISOLATING CASES OF INFECTIOUS DISEASE THERE.

In Wells Street, Holyhead, is an unregistered lodging-house, kept by a man named Roberts. There are three bed-rooms in the house. In one slept Roberts, with his wife and seven children, of whom four were un-vaccinated. In a second slept a man named Parry and a girl 12 years of age; while the third was occupied by a man named Dunn, with wife and child. Towards the end of May, Parry, who was employed in going backwards and forwards between Holyhead and Dublin, fell ill, seriously enough to keep his bed, and to have medical attendance. His malady was not recognised as small-pox. It appears, however, that there were some few spots out on his face during his illness; and in all probability his ailment was in reality a mild attack of small-pox, which he may very possibly have contracted at Dublin. This man recovered. But shortly after his attack the man Dunn fell ill with what proved to be confluent small-pox, and died. The infection then spread to the Roberts family, three of whom were down with the disease at the time of my visit.

I found that the Local Board had given orders that the occupants of this overcrowded house should remain strictly confined within doors; that apparently these orders were being more or less fully obeyed; that the unvaccinated persons in the house had been vaccinated; and that a crier had been sent round the town advising all unvaccinated persons to get themselves vaccinated forthwith.

On Salt Island, in an admirable position, is a small but very good hospital, built I believe by public subscription, with a nurse in constant residence. Beside this, and close to it, is a smaller building, consisting of one large room with two beds, for cases of infectious disease. This was built at the cost of Lady Willoughby De Broke. There is an agreement between the managers of this hospital and the Local Board that the latter shall have the power of sending in infectious cases on paying the charges for the same, and providing a nurse; the nurse from the adjoining larger hospital not being available for infectious cases.

I naturally inquired why this hospital, constructed for the very purpose, had not been used on the present occasion. The man Roberts assured me that he had been most anxious that his lodger, Dunn, should be moved there; and that Dunn himself had been willing to go; but that his applications to sundry members of the board and to the inspector of nuisances, there being no medical officer of health, had been fruitless.

I believe that the real explanation of the matter is that the Board have provided no ambulance for the conveyance of infectious cases, and that in consequence of this deficiency the building for their reception is practically useless. Unless a patient is well enough to walk there, he cannot avail himself of it. To make this building of practical use there are wanting first an ambulance, secondly some definite pre-arrangements by which a nurse can be procured without delay when wanted, and thirdly an oven for the disinfection of clothes and bedding.

The attempt to stamp out an outbreak of small-pox by imprisoning all occupiers of the house where it occurs strictly within the premises, is clearly futile. Independently of the cruelty of such a measure, were it practicable, there is no legal power of enforcing it. Moreover, even if it could be carried out completely, it would merely be a putting off of the evil day. How long, I asked, was it proposed in the present instance to keep the occupants of this overcrowded tenement in their stifling rooms, and what was it proposed should be done as to their bedding, furniture, and clothes, when the last of them had sickened, and recovered, or died, as the case might be? To these questions I could get no answer.

Before leaving this subject of small-pox, I feel bound to call attention to the overcrowded condition of this house, and to the fact that, out of a family of seven children, no less than four were for some reason or other unvaccinated.

THE OUTBREAK OF DIPHTHERIA IN HOLYHEAD.

Owing chiefly to there being at the time of my inspection, and having been for some considerable period before it, no Medical Officer of Health acting for either urban or rural district, I found it impossible to collect adequate, or indeed any very accurate, information as to this outbreak. The gentleman who had previously filled the place of Medical Officer of Health gave me such information as he could; but most of the outbreak had occurred since his term of office had expired. Nor indeed had he still been in office would he have been able to give very full particulars; for, as I learnt, he had not been furnished by the sanitary authorities with lists of the sick attended by the district medical officers; so that his knowledge of what was going on in the way of illness in the neighbourhood was limited to his own private practice, or to what might be brought to his ear by chance rumour.

In the absence of adequate personal information as to the distribution of the disease, I had recourse to the death registers, where at any rate the fatal cases would all be recorded. An examination of this, supplemented by further inquiries, led to the conclusion that diphtheria had been more or less prevalent in the town of Holyhead for more than a year. No death it is true was registered under the name diphtheria from the beginning of 1878 to March 1879, but there were eleven fatal cases either of croup or of sloughing sore-throat, and the inquiries I made as to these, left no doubt on my mind, that the sloughing sore-throat and the croup were, at any rate in most of the cases, other names for diphtheria. The first death actually registered as diphtheria in the Holyhead sub-district was on March 3rd 1879, and from that time to June 16th, six more deaths were registered under that name, as well as two from croup.

The cases that occurred during 1878 seem to have been scattered irregularly through the town, but at the beginning of the present year the outbreak developed itself with special frequency in the outlying suburb known as Kingsland and its neighbourhood. This stage of the outbreak, owing to its limitation within a comparatively narrow area, admitted of more precise investigation by means of house-to-house inquiry, which I proceeded to institute. The result was that I traced the outbreak in this suburb to the influence of a certain school. The children in this part of the town go to four schools. The largest number attend the National School; some few attend the British and the Board Schools; while a considerable number, especially of the younger ones, are sent to a small dame's school close at hand.

The numbers attending each were as follows:—*

School.	Average Number in Attendance from all parts of Town.	Number in Attendance from Kingsland Neighbourhood.
National - -	353	83
British - -	449	13
Board - -	330	9
Dame's - -	30	30

Now I had ascertained that there had been diphtheria in the family of the master of the National School; and I thought it very probable that in connexion with this it might be found that children from that school had been especially affected. But

* Mr. Ellis, of the National School, was good enough to obtain for me these statistics of attendance at his own and the British and Board Schools. The mistress of the dame's school was my authority for the number given as attending there.

nothing of the kind turned out to be the case. Very careful and laudable precautions had been taken by the managers of this school to prevent the infection being imported. All children from houses known to be affected had been rigidly excluded, and the master himself had been separated from his family, and lodged elsewhere. These precautions had been rewarded by deserved success, for among all the cases of diphtheria of which I could obtain information only two were National School children; and these two clearly did not contract the infection at school, but in each case from a brother, who was ill before it and attended a different school. The school which had been the centre for the dissemination of the infection was the small dame's school. The disease was almost entirely limited to children in attendance at this establishment, as the annexed table shows. On visiting this school, I was not surprised that any catching disease, if once introduced into it, should spread. The single schoolroom, which accommodated before the outbreak an average of 30 children, was 8 feet high, 8 feet wide, 11 feet long, with one small window; thus the total space, even without making any deduction for the bodies of the children and mistress, was no more than 704 cubic feet. The children must therefore have been packed almost as closely together as had they been sleeping in the same bed. The attendance since the outbreak had fallen, as I was told, from 30 to 10. Of the 20 who had ceased to attend I could account for no less than 19 as having had diphtheria, and of those 19 six had died.

Had there been a Medical Officer of Health, inquiring, as would have been his duty, into the outbreak, the palpable influence of this school could not possibly have escaped his notice, steps would have been taken to close the school, and the lives sacrificed might have been saved.

While this severe outbreak of diphtheria was going on in the Kingsland suburb, the rest of the town of Holyhead and its immediate neighbourhood was still being visited, as during the past year, by the disease in a sporadic form. There were, I have no doubt, very many more cases than came to my knowledge, and possibly, had all been known to me with their dates and circumstances, it might have been practicable to trace some connecting link between the several houses attacked, but, as it was, with the very imperfect information at my command, I entirely failed to do so. All I can say is negative. The houses known by me to have been attacked were not near each other but scattered about in all parts, and in some cases were outside the town at a considerable distance from any other dwelling, nor was there any community between them as regards milk, water supply, sewerage, school and chapel attendance, occupation, or social intercourse.

So far as to the dissemination of the infection. It remains to consider its origin, which can but be a matter of surmise.

It is of course possible that the diphtheritic poison may have been imported from without, and such a place as this, with its busy ports and its constant streams of passenger traffic, is doubtless specially liable to such importation. Indeed, during this very outbreak I had evidence of this; for the house occupied by the master of the national school previously mentioned was infected, not by the infection already existing in the town, but by infection brought from a distance, the disease having been imported by one of the sons, who came home ill from the ship in which he was cabin-boy.

There is, however, also another possibility. The infection may have been generated on the spot, and if the belief entertained by many that under certain conditions diphtheria can be generated *de novo* out of filth be correct, then most assuredly Holyhead is the very place for its birth.

The town has a sewer, ill ventilated and ill flushed, discharging to the sea. With this sewer, which does not extend throughout the entire town, the closets of the better class of houses are connected. But such is not the case with the smaller and by far the more numerous houses. Some of these are without closets of any sort. The rest have common privies which are placed in small back yards close to the houses, and are of an abominable kind. The space under the seat which serves as pit has an opening behind, which allows the contents to run out over the surface of the yard, where they are supposed to be covered with ashes. But there are no ashes, or next to none, in these small tenements, and the result is, that close to almost every cottage is a horribly fetid quagmire of excrement. There is no system of public scavenging. The filth is allowed to accumulate until there is enough to repay some farmer for its removal, and in some cases such removal can only be effected through the dwelling-house. Add to these privies innumerable pigstyes, and endless collections of all kinds of refuse and

garbage, and some feeble idea may be formed of the sickening condition of the backs of many of the streets visited by me. I am bound to say that I was unable to detect signs of any serious attempt to deal with nuisances, however gross and palpable.

Side by side with this state of things, there is a code of byelaws, full and precise, regulating the structure of privies, cesspools, and drains, the removal of rubbish, the keeping of animals, and the like, and these byelaws, approved by Her Majesty's Secretary of State in 1860, were actually reprinted by the Local Board in 1876.

One good thing, and one only, was noticeable. The cottages very generally have water laid on from the works; so that however foul may be the air they breathe, the water which the inhabitants drink at any rate is free from excremental pollution.

Whether the filthy conditions here described could actually of themselves generate diphtheria may be open to question; but there can be no question that they are in the highest degree prejudicial to health. It is, therefore, not surprising that the death-rate of the Holyhead sub-district has been 23·6 on an average for the last seven years.*

CASES OF DIPHThERIA IN KINGSLAND SUBURB.

Number of Houses.	Place or Street,	Sex.	Age.	School.	Approximate Date.	Result.	Remarks.
1	31, Tynypwll Road -	Boy	3	None	October 1878	Died.	
		Girl	16	None	Ditto	Recovered.	
2	4, Old Station Place	Boy	5	Dame school	February 1879	Died Feb. 15	The boy aged 5 was attacked a few days before his brother. The two deaths were registered as croup.
		Boy	8	National	Ditto	Died Feb. 17.	
		Woman	?	—	Ditto	Recovered.	
3	Penllechnest -	Girl	5	Dame school	February	Died March 3	This was the first death registered as diphtheria.
		Girl	6½	Dame school	March	Recovered.	
4	2, Old Station Place	Girl	15	None	March	Recovered.	The mother "believed" that the boy was ill before his sister; and the order is therefore so given, but there was great uncertainty. The fatal case was registered as croup.
		Boy	2½	None	March	Recovered	
		Girl	4½	Dame school	March	Died March 16.	
		Woman	?	—	March	Recovered.	
5	19, Kingsland -	Girl	7	Dame school	"4 months ago"	Recovered.	
6	29, Kingsland -	Girl	5	Dame school	March	Died March 28	Death registered as diphtheria.
7	23, Kingsland -	Girl	7	Dame school	March	Recovered.	
		Girl	5	Dame school	June 2	Recovered.	
8	17, Tynypwll Road -	Boy	5	Dame school	April	Died April 17	The boy aged 5 was ill a week before his brother. His death was registered as diphtheria.
		Boy	7	National	April	Recovered.	
9	15, Tynypwll Road -	Boy	4	Dame school	April	Recovered.	
10	Old Station Terrace	Man	21	—	"2 months ago"	Recovered	Doubtful case.
11	15, Kingsland -	Boy	7	Dame school	"2 months ago"	Recovered.	
12	10, Old Station Place	Girl	4	Dame school	"2 months ago"	Recovered	The man was attacked after his daughter.
		Man	7	—	—	Recovered.	
13	National School-master's house.	Lad	15	None	May 3	Recovered	The lad came home ill from a ship where he was cabin-boy.
		Girl	13	National	June 2	Recovered.	
14	Cae Warren -	Girl	8	Dame school	May	Recovered	Just beyond border of Holyhead Local Board district.
15	Chapel Lulo -	Girl	6	Dame school	May	Died May 28	Death registered as diphtheria.
16	36, Kingsland -	Girl	5	Dame school	May	Recovered.	
		Girl	2½	Dame school	May	Recovered.	
		Girl	4	Dame school	May	Recovered.	
17	24, Kingsland -	Girl	?	Dame school	June 1	Recovered.	
18	14, Kingsland -	Boy	3	Dame school	June 2	Recovered.	

RECENT CASES IN OTHER PARTS OF HOLYHEAD TOWN OR ISLAND.

19	6, British Terrace -	Boy	8	None	March	Died March 19	Registered as croup.
		Girl	1½	None	March	Recovered.	
20	4, Vulcan Street -	Girl	1½	None	March	Recovered	Registered as diphtheria.
		Girl	3	None	March	Died March 21.	
21	Porthsach Street -	Girl	8	None	"2 months ago"	Recovered	
		Mother	?	—	Ditto	Recovered.	These people frequented a house in Kingsland where there was diphtheria.
22	15, William Street -	Boy	6	British	May 11	Died May 16	Registered as diphtheria. This boy was at school after he was ill, but before the nature of his disease was recognised.

* The population of this sub-district fell considerably between the two last censuses, having been 9,235 in 1861, and 8,593 in 1871. The death rate, however, as given above, is calculated on the assumption that the population has remained stationary since last census.

Number of Houses.	Place or Street.	Sex.	Age.	School.	Approximate Date.	Result.	Remarks.
23	Porthypost - -	Boy	4	None	May - -	Recovered -	A house outside town, in fields, far from any other dwelling, but with frequent communication with Kingsland, to which suburb it is nearest.
		Boy	2	None	May - -	Recovered.	
		Boy	5	None	May - -	Recovered.	
24	Trevenga - -	Boy	8	Briffish	June 8 -	Died June 16 -	An isolated house outside town, in fields, on side away from Kingsland. The boy attended school up to May 30. Death registered as diphtheria.
		Girl	10	British	June 16 -	Convalescent.	
		Mother	?	—	June 17 -	Still ill.	

DIPHThERIA IN LLANDDAUSAINt SUB-DISTRICT.

Llanddausaint sub-district is that part of West Anglesea that lies immediately opposite to Holyhead island. It consists of a number of small scattered villages and numerous interspersed and isolated farmhouses. The district is a low-lying tract of slightly undulating ground, with much bog in the depressions. It is much exposed to wind; the rainfall is heavy; and at the time of the late outbreak there was a prevalence of bitter cold weather.

The difficulty of obtaining information was even greater in this sub-district than at Holyhead; for to the obstacles which lay in the way in that case were added the facts that the houses in which diphtheria was known to have occurred were scattered over a very wide area, and that the persons from and concerning whom information was to be obtained could not, as a rule, speak English.

I heard altogether of 23 houses that had been attacked by the disease; and these, with one or two exceptions, were visited by me. They may be conveniently divided into two groups, there having been apparently two different centres for the outbreak.

In the one group are the houses at and about Valley, which is the village nearest to Holyhead, and in most direct communication with it, being the next station on the railway. In the other group are the houses in the northern part of the sub-district, of which Llanddausaint may be roughly said to be the centre.

In neither part of the sub-district could I hear of any case previous to the month of December 1878; that is to say, until long after the outbreak had begun in the town of Holyhead. So that if, as one would naturally conjecture, the two outbreaks, that in the town and that in the rural district, were connected with each other, it would seem that the infection had spread from town to country, rather than in the contrary direction. And this view is supported by the fact that as regards the Valley part of the sub-district, the earliest cases of which I could get information were at the nearest point to Holyhead, namely, at the bridge which connects that island with Anglesea; the next cases being also in the interval between Holyhead and Valley, but somewhat nearer the latter; and the disease having appeared only after this at Valley itself.

In all, so far as my information reached, 11 houses were affected in the Valley part of the sub-district. These houses were all, with one exception, where two were contiguous dwellings, separated from each other by considerable intervals. They had neither milk, water, nor sewerage in common, nor other traceable direct connexion with each other. They did not frequent the same place of worship, the 11 houses going between them to six different chapels or churches. As regards school attendance the facts appeared to be as follows:—In three of the 11 families the first person attacked was an adult; in the remaining eight the first case was a child of school age. In one of these the child was not at any school, but was probably infected by a child living close by, and ill a few days before it. In six, the first case was a child at the Caerpwll school; and in one, a child at one of the two other smaller schools in the district.

The Caerpwll school is the one to which by far the largest number of children go in this district; so that the fact that in six families the first case was a child from this school is not any very strong ground for supposing this school to have been concerned in the dissemination of the infection. Still the fact remains that in a large proportion of the cases there was this possible and not unlikely channel by which infection may have been transferred from one person to another.

We have now to consider the outbreak in the northern part of this sub-district, of which Llanddausaint village, as already said, may be taken as the centre. The first case that I could hear of as having occurred in this part was in December 1878, at a good farmhouse near the village of Llanddausaint; but a fatal case of croup had just previously been registered in the immediate neighbourhood, and I found some reason to believe that there had been communication between the cottage where the fatal croup occurred and the farmhouse. I could get no further clue as to the mode in which the disease had originated or been introduced into the place, but it must be remembered that at this date the disease was and had for some time been prevalent in the town of Holyhead, and that Holyhead is the market town of the district.

From this time till the end of April, 13 houses in all, so far as I could learn, were attacked. The outbreak seems then to have subsided, at least I could hear of no further attack up to the time of my visit in June.

The 13 houses were widely scattered over the country, and in several parishes, and curiously enough almost all of them were isolated farmhouses, two only being houses in a village. These farmhouses subsist almost entirely on their own produce, scarcely any article of consumption excepting tea and sugar coming from without, so that all notion of community as regards milk, water, food may at once be discarded. The fact of so many farmhouses being attacked suggested two hypotheses, (1) disease among farm stock, and (2) direct and separate importation of infection from the market town. Neither hypothesis stood investigation. As regards the first I was assured in answer to repeated inquiries that there had been no disease among farm stock, whether horses, cattle, swine, or sheep: many lambs had perished from the cold, but nothing more. As regards the second hypothesis it would only be tenable if the men, who are the connecting links with the market town, had been the first persons to be attacked, which was not the case, unless indeed it be supposed that persons can carry the infection of diphtheria attached to them from a distance, and transfer it to others, without themselves suffering,—an opinion for which there is, so far as I am aware, at present no good warrant. School attendance again could have played no important part in the matter, for, strangely enough, in no less than nine of the 13 houses the first case was a person above school age, a most unusual proportion.

The casual and untraceable intercourse between individuals in ordinary rustic life appears from the experience of many outbreaks to play as a rule a very subordinate part in the dissemination of diphtheria, to be for instance much less effective than in the case of small-pox, measles, or scarlet fever. Though one can never exclude the possibility of such transmission, it is difficult to believe that it can have operated to any great extent in the present instance; for the houses concerned were very far asunder, their occupants were by no means intimate with each other, and the season had been adverse to friendly meetings; the severe cold which prevailed during the greater part of the outbreak having kept, as I was again and again assured, the occupants of the farms as much as possible within their own premises. There had been no general gatherings for festive or other purposes.

There was one exception, and this I cannot but suspect affords a possible and at any rate a partial solution of the problem. The exception was attendance at places of worship. The Welsh, I need hardly say, are most devout and sedulous in this observance. They are also divided into no few sects, Baptist, Independent, Wesleyan, Church of England, and the like. Each sect has its own several churches or chapels. These chapels are as a rule small, and, in such weather as prevailed, closely shut up during use, so that each attendant inhales in a more than ordinary measure the breath of the rest. Moreover there is a custom, as I am informed, of assembling together before or after service in the small room attached to the chapel, which becomes naturally the accustomed place for friendly chat and greeting. The possibility of transference of infection on these occasions is apparent enough, when once pointed out; but it did not occur to me until on inquiry in one of the farmhouses where diphtheria had been, I was assured by the mistress that none of the family had left the house for more than a fortnight before this illness, "excepting to go to chapel." On further inquiry I ascertained that the first person attacked in this house had two days previously to the attack been to chapel, and had actually there conversed with a girl from a remote dwelling, who was still suffering from a sore throat which, from after investigation, I believe to have been of diphtheritic character. I proceeded therefore to inquire into the chapel attendance of the several houses affected. The chapels are so numerous that it was plain that if any considerable proportion of these widely scattered houses were found to frequent the same place of worship, this fact would be a strong corroboration of the hypothetical channel of infection; the result

was that out of the 13 houses affected, no less than eight went to the same chapel, which for convenience I will call chapel A. This chapel A was moreover attended by the family from the farmhouse first attacked, so that it is not by any means impossible that the infection may have spread by this agency from this house to the seven others. Again, one or two of the occupants of these eight houses, instead of going to A went exceptionally to another chapel, which we may call B, and amongst these was the girl before mentioned, who went to chapel while still with sore throat, and there came into contact with a woman from a ninth house, who fell ill a few days after the interview.

In seven of the nine houses, that have thus been shown to be connected by chapel attendance, the first case of illness was in a person above school age. This unusual proportion is, I fancy, in harmony with the hypothesis, for it would be the young children who would be most likely to be left at home when the bad weather rendered chapel attendance at a distance a difficulty.

It may be objected that persons would hardly be likely to attend chapel while suffering from diphtheria. As a matter of fact it appears, from what has been said, that at least one person actually did so; but it is important also to insist upon the fact that the diphtheritic poison hangs about persons, and can be transmitted by them for a much longer period after apparent recovery than is usually supposed. I am myself in possession of evidence that convinces me that a person who has apparently recovered for more than two months can infect others. In the present outbreak, though exact dates were wanting, there were no gaps nearly so long as this between the several cases; indeed there appears to have been a continuous sequence of cases from beginning to end.

On the whole, I think that the evidence very strongly favours the conclusion that chapel attendance was one of the main agencies by which the infection was transmitted.

It remains to say a few words as to those general conditions which may be supposed either to have favoured the development or to have added to the severity of the infection. I can here but repeat what was said before when dealing with the town of Holyhead. Whatever filth can do in fostering disease, it had ample opportunity of doing here. The district was in the state which was naturally to be expected, seeing that there had been no inspector of nuisances for more than a year. Amongst the houses attacked were doubtless some that seemed clean and well-kept, but these were the exceptions. Some had no privy, and filth was thrown anywhere; in some, day-room was also bedroom, and for all ages and sexes: in some the bare earth was the only floor, which could not be washed, as this process would transform it into mud, and which was therefore steeped with the droppings of generations. That this state of things added to the intensity of the poison I cannot but believe, and one case in especial confirmed me in this opinion. In a farmhouse, perhaps as unsavoury and as dirty within and without as ever was a place dignified by the name of farmhouse, the mistress was attacked by erysipelas in both hands; this spread up her arms and killed her. While she was yet ill, a child fell with diphtheria, and was buried on the same day with its mother; then a second, and then a third child fell ill, and in each case the result was fatal.

The total number of cases in the Llanddausaint sub-district, so far as I could find out, was about 48, and of these 12 were fatal.

July 1879.

W. OGLE.

RECOMMENDATIONS.

1. The hospital for infectious disease on Salt Island should be made available for use, and for this purpose
 - (a.) An ambulance should be provided.
 - (b.) A second ward should be built, so as to allow of male and female patients being admitted at the same time.
 - (c.) Arrangements should be made by which a nurse may be obtained when wanted, without delay.
 - (d.) A proper oven for disinfecting clothes and bedding should be erected, for the use not only of the hospital but of the town generally.
2. The sewer in the town should be extended to those parts which it does not as yet reach; and steps should be taken to ensure its more efficient ventilation and flushing.

3. The present system of common privies should be abolished in the town, and properly constructed water-closets be substituted.

4. A system of public scavengering should be established, and no accumulation of manure or filth of any kind should be permitted.

5. No pigs should be permitted to be kept, unless there be very ample space, which is scarcely ever the case in a town.

6. The present laxity in regard to nuisances should be discontinued, both in urban and rural district, and the byelaws in the former should be put in force.

7. The medical officer of health should be furnished regularly with copies of the lists of pauper sickness so soon as these are sent in by the district medical officers.

8. In view of the importance of excluding from schools all children likely to import infection, some arrangement should be made by which schoolmasters or mistresses shall be supplied with immediate information as to the occurrence of infectious disease in any house whence they receive scholars.

LONDON:

Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODS,
Printers to the Queen's most Excellent Majesty.

For Her Majesty's Stationery Office.

[5817.—100.—9/79.]