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Contributors

Power, W. H.
London School of Hygiene and Tropical Medicine

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Mr. W. H. Power's Report to the Local Government Board on the Sanitary State of the Carmarthen Rural Sanitary District.

GEORGE BUCHANAN,

Assistant Medical Officer.

January 16, 1879.

THE Carmarthen Rural Sanitary District has during several successive years suffered repeatedly from undue and fatal prevalence of infectious disease, notably from fatal "fever." In regard of the above mortality, the circumstances under which it has occurred, and the action taken with reference to it, communication has again and again taken place between the Local Government Board and the Sanitary Authority, but hitherto without useful result. But incidentally it had become evident that a variety of unwholesome conditions existed in the district, and that the means (if any) adopted by the Sanitary Authority and its officers for the removal or prevention of such conditions had proved wholly inadequate. Hence inspection of this Rural Sanitary District was ordered, and I was directed to inspect.

Upon arriving in Carmarthen I soon satisfied myself that mere inspection of places recently invaded by fever or other infectious illness could afford me but imperfect knowledge of unwholesome conditions and sanitary shortcomings common in the district. Recent fever had, it is true, been associated with grossly insanitary conditions, but the amount of fever in this and in former years seemed no measure of the abundance of the unwholesome conditions inviting it everywhere in the district. Many places that I visited, reputedly healthy localities, seemed to need but the importation of infection to ensure serious disaster. Thus it has happened that for my own and for the Board's information I have systematically inspected most of the populous places in the district, besides outlying rural hamlets and isolated dwellings, and in so doing have obtained a knowledge of the district as a whole not yet possessed (certainly not recorded) by the Sanitary Authority itself. Altogether I have been thus occupied 11 days. I should add that in my systematic inspection of the district I was accompanied and assisted day by day by the Inspector of Nuisances, and on several occasions I had also the assistance of the particular Medical Officer of Health whose district was under inspection.

Carmarthen Rural Sanitary District, population (1871) 25,117, (constituting with the Carmarthen Urban Sanitary District, population (1871) 10,488, the Carmarthen Registration District) comprises 28 parishes or townships, with a total area of 151,304 acres. It is situated toward the southern limit of the county of Carmarthen, and is partly on the extreme north-west border of the South Wales coalfield. Including the combined estuary of the Towy and other rivers; the district has at its southern boundary a coast line of some 15 to 20 miles. From east to west it measures 20, and from north to south 16 miles. Speaking generally, the district is extremely undulating, and in parts rugged and even mountainous; nevertheless it comprises several alluvial valleys watered by the rivers Towy, Gwili, Cywyn, Dewi-fawr, and Afon-Gynin. Geologically it is—successively from north to south—on various beds of Lower Silurian, on the Old Red Sandstone, and to a small extent on the Carboniferous Series. The population, a decreasing one at the last census, is much scattered. Except Laugharne, (township), Llanstephan, St. Clears, Abergwili, Conwil (and a few others), there are not many villages of more than a couple of dozen dwellings. Agriculture in its various branches occupies a very large proportion of the population. But on the coast and on the estuary of the Towy and other rivers a considerable number of people collect and deal in shell fish, notably in cockles. In addition stone quarries in several localities employ a few hundred hands. Except in the south-east of the district, and there only to a small extent, the coalfield is not worked, and other mining is practically at a standstill. Whatever may be the average intelligence, as shown in their several avocations, of these labouring classes—and there is no reason to doubt their possession in regard of such matters of at least ordinary intelligence—it seems certain that they are commonly

well nigh destitute of even rudimentary knowledge of the sanitary requirements, and frequently of the decencies also, of life. Ignorance of the above sort cannot but be regarded as an important element in the unwholesome conditions under which masses of the people long have lived and (as will be seen from this Report) are still content to live in this district.

House Accommodation.—Throughout the district cottages, or more properly cots, abound, which judged by any recognised standard (however low a one), of requirement of health or decency, would not be regarded as fit for habitation. Cots of the above sort are invariably small. Many have a single room only, others have two or more. Rooms when on the ground floor are separated by a partition, often open at the top, that is little better than a screen. The upper room (when it exists) is reached from the living room by a stair, or rather ladder; it is commonly merely a loft with pent roof, the rafters of which spring almost immediately from the floor. These cots are constructed of clay and wattle in a timber frame, or of stone; usually they have thatched roofs. Many are extremely old, with their walls and roofs ruinous. Their floors are commonly of mud or earth, and cannot therefore be properly cleansed. Often they are of so-called concrete, which, except in newer dwellings, has long since become worn into holes which accumulate and retain moisture and other foulness; occasionally only are the floors flagged. The windows are almost invariably very small, and often they are not made to open. Back windows to dwellings of this sort are rare. Notwithstanding that these cots are, as is the custom of the country, liberally whitewashed externally, their interior is frequently indescribably foul. Even in cots of more than one room, the family, which may consist of four, six, or even eight persons, with beds (large ones), furniture, tools, etc., huddles not unfrequently together in the living room, while the second room is reserved as a sort of storehouse or shed for lumber of all sorts. In extreme cases fowls and even donkeys share with the family the common room of the dwelling. In addition to faults of construction, circumstances of dilapidation, and foul conditions of tenancy, many dwellings of the above (and even of a better) class are very damp owing to their having been built against, or more truly into, a bank of earth; and this, notwithstanding that the space available for building had not been apparently in the first instance restricted, for most cots are provided with considerable garden ground. In some villages, however, cots were found either without back premises, or provided with very limited back yards, which could only be entered through the dwelling. Laugharne affords many such instances, and in this place yards of the above sort commonly yielded on inspection a variety and accumulation of nuisances well nigh incredible.

Other dwellings of a more pretentious sort than the above, and even farm houses, display many of the defects already noted; and commonly they have been allowed to fall into a condition of decay which renders no small number of them barely, if at all, fit for human habitation. New buildings, however, evince an advanced appreciation of the requirements of health and decency. Usually they are far more commodious than the old dwellings, are built of stone, and are provided with good-sized sash windows that are made to open. But even in new buildings past mistakes respecting insufficient means of through ventilation have been repeated; several were observed unprovided with back windows. Slate roofs for old as well as for new buildings are becoming common.

Water Supply.—Wells in the ordinary sense of the term are rare, but "springs" are very numerous. Probably springs often depend for their water upon soakage above the rock of superficial moisture of land not agriculturally drained, for many of them are said to run dry in hot seasons. But true springs are plentiful, issuing at various levels from the rock itself; these vary little in their yield of water throughout the year. Springs in use for domestic purposes are provided with spouts or are received into dip-wells; but rarely are they protected against cattle and pigs, or secured against fouling by surface washings. In addition to springs the numerous streams of the district and the rivers are largely used by people nominally for washing and cleansing purposes only, though there can be no doubt that in many instances they are also resorted to for drinking water, especially by children. As to the quality of water, there is grave reason for suspicion that much of that in use for drinking is unsafe water. The wells, though few in number, are, so far as I could ascertain, principally surface wells, and it is certain that many of them are so placed as to run considerable risk of foul soakage. Of the springs, many undoubtedly afford excellent water; but such are not as a rule the springs in use. Too often the dip-wells in villages are so situated in regard of dwellings, yards, and the like, that dangerous fouling of them can scarcely

fail to occur; sometimes a dip-well may be observed immediately under a dwelling that has been built into the rising bank above it. In regard of villages on high ridges of land or on hill tops the springs in use necessarily issue at a lower level than the dwellings, and thus become liable to receive the natural drainage of the place. Additional risk to dip-wells is incurred from vessels used in fetching water. Ordinarily special cans are used for this purpose, but there is reason for believing that careless or dirty people use instead (and even wash out in the well) utensils which have been applied previously to a totally different purpose. River and brook water has too many opportunities (to be referred to later on) of serious pollution to be at all safe for drinking purposes.

Notwithstanding the abundance of water in the district many villages are without springs in their immediate neighbourhood. Either they are situated on high ground far above springs; or, as is more common, springs issue at a level above the village, and in their course through it become so obviously fouled as to prevent the water-courses thus formed being resorted to by the inhabitants. Thus it happens that many people go a quarter or even half a mile for water; or, as an alternative make use of the river or brooks. In a few instances spring water has, by private enterprise or by public subscription, been impounded at a high level and led in pipes to supply stand-pipes, or even separate dwellings, in certain villages.—Llanstephan, Abergwili, and Banc-y-felin, are instances—and there can be no reason why the example thus set should not be followed by the Sanitary Authority in regard of many other places in this district favourably situated for supply by similar schemes. By action of this sort systematically adopted, not only would places deficient in water receive proper and ample supply, but others also heretofore obtaining water of doubtful purity from dip-wells or spouts liable to fouling, would be provided similarly with a practically safe water for drinking and other purposes. It may be granted in regard of villages and hamlets on hill tops or in similar elevated sites, that a supply of the above sort by gravitation may be impracticable. But to such places good and safe water might be raised by more than one mechanical process; or wells might be sunk in them in safe situations at levels easily accessible to the inhabitants. Failing either of the above methods the low level springs at present resorted to should at least be fenced in, covered, and in other ways secured against fouling of the soil to which so many are liable.

Excrement Disposal.—Nothing deserving the term method in regard of excrement disposal can be said to exist in the district. Privies there are (and even waterclosets in a few better class houses) in many of the larger and more important villages, though even in such places they are by no means the rule. But in regard of rural parts of the district, isolated dwellings, hamlets, and even considerable villages, are frequently wholly destitute of any sort of provision for the disposal of excrement. Indeed it would seem that herein tenants, property owners, and the Sanitary Authority itself, have not as yet apprehended the earliest and simplest lessons that sanitary experience has taught. Under the circumstances excremental nuisances and dangers abound, not only in the neighbourhood of dwellings, where excrement voided in the soil is often cast, with other refuse, on the ground, but in the fields also, under hedges, and even in watercourses which may or may not feed dip-wells and spouts. Waterclosets, when they exist, whether or not provided with cesspools, discharge more or less directly to watercourses or stagnant ditches. Privies are usually pit privies, and of the rudest type, the pit being a mere hole in the ground, unbricked and often uncovered. Sometimes privies are erected over or are made to discharge into running streams; at others, a watercourse is so dealt with as to cause it to pass through the privy on its way to a main stream. In a few, but increasing number of instances, pail, or box closets have, at the instigation of the Inspector of Nuisances, been erected in certain villages or hamlets, in cases where privy accommodation was wholly wanting, or when existing privies had caused gross nuisance. Privy pits are emptied by tenants, and their contents applied nominally to the gardens, though such application is not unfrequently a mere transference of the excrement from a hole in one part of the garden to a hole in another part of it.

Drainage.—There are no public sewers; but road drains, partly underground rubble drains and partly open cobbled paved or unpaved channels, have been utilized in several villages for the carrying off, so far as irregularities of level of the above drains will do, of slop and liquid refuse. All such drains discharge sooner or later into streams. Occasionally watercourses have been diverted into these road drains, with the result of establishing in them a more or less constant flow of water.

House Drainage for the conveyance of slop refuse to road drains is not common. Such as exists is of the roughest sort, and has been provided chiefly in regard of dwellings which, built into or against a steep bank, have in their rear a narrow and confined yard at a level many feet below their garden on the rising bank referred to.

Keeping of Animals.—Few cots are without a pigsty, and towards the close of each year most sties contain at least one pig. The pigs, as kept by cottiers, very generally constitute a nuisance. Commonly the sty is constructed against the wall of the cot, or is otherwise so placed that liquid filth flowing in abundance from it, either soaks under the dwelling, or fouls the roadway, the gutter, or a stream. Other animals, chiefly donkeys and fowls, are commonly kept so near (sometimes even within) dwellings so as to constitute serious nuisance. Slaughter-houses too, notwithstanding frequent attention on part of Inspector of Nuisances, are generally regarded as a nuisance by persons in their vicinity.

Other Nuisances.—Besides pig and excremental or other nuisances already incidentally dealt with, accumulations of ashes, stable manure, and foul refuse of all sorts is commonly heaped up near to dwellings or on the roadside, instead of being removed to a distance in the garden as might in most cases easily be done. In places near the coast, where the inhabitants are engaged in the cockle trade, much nuisance has arisen and is from time to time repeated, from casting trade refuse (cockle shells and cockle brine) into roadway gutters or on to ground near dwellings. Similarly, slop nuisances have been created in places where road drains, gutters, or channels, do not exist; or where such arrangements do not, from irregularities in their level, or from blocking of their outlets, fulfil the purpose to which they have been put. Again, in regard of dwellings provided with ill-contrived slop drainage, the slop drains themselves are very frequently a source of nuisance. They invite the casting away of foul liquid of all sorts in unpaved or irregularly paved back yards, which thus not unfrequently become quagmires of filth; or the drains themselves in their passage through the dwelling become blocked, and cause soakage of filth beneath the living room of the family. Cottages on the western side of the main street of Conwil village illustrate this.

Prevalence of Infectious Disease.—The mortality from diseases of this class in the several sub-districts constituting the Carmarthen Registration District for each of the last six years terminating in June respectively is given in the following table:—

TABLE I.

Sub-districts.	1872-73.							1873-74.						
	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea & Cholera.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea & Cholera.
Llangendeirne - Acres, 48,501; pop. (1871) 8,642.	5	—	—	—	1	6	3	—	—	14	—	—	9	3
St. Clears - Acres, 42,238; pop. (1871) 6,652.	—	—	—	—	7	4	—	—	—	—	—	4	2	1
*Carmarthen - Acres, 18,404; pop. (1871) 12,915.	—	—	12	—	2	9	4	1	1	35	—	2	7	8
Conwil - Acres, 63,244; pop. (1871) 7,718.	—	—	2	—	3	2	—	—	—	28	—	6	2	—
<i>continued.</i>														
Sub-districts.	1874-75.							1875-76.						
	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea & Cholera.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea & Cholera.
Llangendeirne - Acres, 48,501; pop. (1871) 8,642.	1	—	8	—	6	5	7	—	1	3	—	—	5	4
St. Clears - Acres, 42,238; pop. (1871) 6,652.	—	—	1	—	2	1	—	—	—	1	—	—	1	1
*Carmarthen - Acres, 18,404; pop. (1871) 12,915.	—	1	1	—	3	4	2	—	—	3	—	3	8	10
Conwil - Acres, 63,244; pop. (1871) 7,718.	—	2	—	—	2	1	—	—	—	1	—	—	3	1

continued.

* Carmarthen sub-district includes Carmarthen Urban Sanitary District; acres, 4,996, population (1871) 10,488.

Sub-districts.	1876-77.							1877-78.						
	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea and Cholera.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea and Cholera.
Llangendeirne Acres, 48,501; pop. (1871) 8,642.	—	—	4	5	—	5	7	—	1	—	1	1	11	2
St. Clears Acres, 42,238; pop. (1871) 6,652.	—	1	6	—	—	3	1	—	—	11	—	2	9	1
*Carmarthen Acres, 18,404; pop. (1871) 12,915.	—	—	—	—	—	12	4	—	3	8	—	4	8	5
Conwil Acres, 63,244; pop. (1871) 7,718.	—	—	7	—	—	6	1	—	—	1	—	—	11	1

* Carmarthen sub-district includes Carmarthen, Urban Sanitary District; acres, 4,996; pop. (1871) 10,488.

It thus appears that in the six years under consideration, besides other fatal infectious diseases, each sub-district has suffered at least once from undue and fatal prevalence of scarlatina; and that all the sub-districts have persistently suffered from fatal "fever." Further, it will be observed that since 1874-75, a year of comparatively small fatality, the mortality from fever has steadily increased in each sub-district, until in the year ended June 30, 1878, the total mortality for the whole registration district has attained a figure of $3\frac{1}{2}$ times in excess of that for the year 1874-75, and nearly twice as large as that of either of the preceding years. Upon the above data (excluding altogether the Carmarthen sub-district, which contains Carmarthen borough), there have occurred in the last three years in the rural district alone no less than 74 fatal cases of fever; which upon an estimate of 10 cases of fever for each death, gives a total of 740 persons attacked by the disease during the period referred to. Whether or not the above be an accurate estimate of the amount of fever sickness, there are not, in the absence of systematic records in the district of occurrences of this and other diseases, any certain means of judging; but from what I can learn, I am disposed to think that the estimate may be excessive, and that fever in the Carmarthen rural sanitary district has really been unduly fatal in proportion to the persons attacked. That this should have been so is not surprising in view of the unfavourable circumstances of house accommodation (already referred to) and of nursing, under which most of the persons attacked have been (in the absence of proper hospital provision) compelled to undergo their illness. Probably many persons have died who, under the very different circumstances of treatment in hospital, might easily have recovered.

As to the distribution of scarlatina and fever (which has been apparently mainly enteric fever), I could not learn that these diseases had been restricted to particular localities. It is true that certain places have suffered more than others—notably Tai Tinker, Cwm-glo, and Conwil, from fever; and St. Clears and Mydrim village from scarlatina—but these diseases have by no means been confined to these localities; they have been scattered at different times over the whole district. As to the conditions under which such diseases have occurred, scarlatina infection introduced to cots of the class I have described again and again extended to several members of the family receiving it, and, as might have been anticipated of scarlatina in such dwellings, frequently proved fatal. In more than one instance a public-house seems to have been the first dwelling in a village invaded—a fact suggestive that tramps, who in the absence of common lodging-houses are received at such houses, may have been concerned in spreading the disease to some of the remote villages. Enteric fever has in all cases of extension that I investigated been associated with conditions such as I have described as being almost universal in the district, tending to excremental fouling of air, earth, or water (or indeed of all these elements). Repeatedly I found that a single first case, imported often from a distance, had been followed in a short time by extension of the disease to persons more or less in relation therewith. Indeed, so frequently has extension to relatives or to persons in attendance on the sick happened, that enteric fever (not typhus) is by many here regarded as a highly infectious disease. And it may well be that some of the persons referred to did actually receive infection within the dwelling of the sick person; for with the limited accommodation afforded by cots of the sort so common, and under pauper nursing (which has been resorted to), it is possible that the excrements of sick persons have not always been safely dealt with before they have fouled the bedding, the furniture, or the earthen floor of the sick room. But so far as my own observation extended, difficulty (when any existed) in accounting for the spread of enteric fever in localities to which it had been introduced, had concern rather with the precise method by which infection

had been conveyed, than with the absence of probable channels for its conveyance. Commonly such channels were multiple, and the result observed might have been brought about in one or other of several ways. Disinfectants of various kinds used in the sick room and about the premises, have been chiefly relied on for preventing spread of infectious disease. Fumigation of infected dwellings has been rarely practised. Occasionally clothing and bedding has been burned.

Administrative Staff.—The Sanitary Authority has secured the services of the clerk to the guardians as its clerk, and has appointed an Inspector of Nuisances and six Medical Officers of Health. All these officers are under the order of the Local Government Board. The Inspector of Nuisances acts for the whole Rural District; the Medical Officers of Health, who are the District Medical Officers, act each for his own medical district. For health purposes the Authority is represented by a Sanitary Committee which meets fortnightly at the conclusion of the Guardian's meeting to receive reports of the Inspector of Nuisances, who is always in attendance, and to receive also such statements or reports as may be made personally or in writing by the Medical Officers of Health. Of these latter officers some few habitually attend the meeting, others attend on quarter day only, or not at all. The following table shows the distribution of the several parishes of the Rural Sanitary District among the Medical Officers of Health; the area and population of each Medical Officer of Health's District thus constituted, the Health Officers who have from time to time held each appointment, the date in each instance of appointment, and their salaries past and present:—

Sub-district.	Parish or Township.	Acres.	Popula- tion, 1871.	Name of District.	Medical Officers of Health, past and present.	Salary, past and present, of Medical Officer of Health.	Date of ap- pointment.
Llangendeirne	Llanddarog (parish) -	4,501	863	Upper Llangendeirne (Acres, 2,1290 ; pop., 3,910.)	J. A. T. Timmins, M.D.	£ s. d.	Nov. /72
	Llanarthney -	10,994	1,845			{ 10 0 0	
	Llangunnor -	5,795	1,202	Lower Llangendeirne (Acres, 27,211 ; pop., 4,732.)	Peter Williams -	{ 16 0 0	Nov. /72
	Llangendeirne -	11,810	2,255			{ 10 0 0	
	Llandifellog -	7,320	1,154			{ 16 0 0	
	St. Ishmaels -	8,081	1,323			{ 10 0 0	
St. Clears	Llanstephan -	6,710	1,190	St. Clears - (Acres, 36,910 ; pop., 7,303.)	John Little Thomas Valentine Rees - Valentine Jones -	{ 18 13 1	Nov. /72
	Laugharne -	1,470	445			{ 30 0 0	
	Laugharne (township) }	1,297				{ 30 0 0	Mar. /78
	Llansadarnen (parish)-	1,644	166			{ 30 0 0	
	Llandawke -	613	41				July /78
	Llandowror -	1,783	278				
	Llanginning -	3,270	343				
	St. Clears -	2,534	1,043				
	Llanfihangel Abercowin	5,180	837				
Llandilo Abercowin -	922	66					
Llangunnoek -	4,879	646					
Carmarthen	Llangain -	2,660	355	Abergwili and Llangain. (Acres, 13,408 ; pop., 2,427.)	David Lloyd - William Lloyd - T. H. Lewis - Valentine Rees -	{ 7 0 0	Nov. /72
	Abergwili -	10,748	2,072			{ 10 0 0	
	St. Peters, W Castle Green	4,996	10,488	Carmarthen, U.S.D.	(Not in R. S. D.)	—	—
Conwil	Llanllawddog -	7,013	618	Conwil - (Acres, 49,170 ; pop., 5,879.)	William Davies - Morgan Lloyd -	{ 20 7 0	Nov. /72
	Llanpumpsaint -	4,079	500			{ 24 0 0	
	Newchurch -	4,894	735				
	Merthyr -	2,218	252				
	Abernant -	6,321	742				
	Conwil Elvet -	13,153	1,613				
	Trelecharbettws -	11,492	1,419				
	Mydrim -	6,905	951				
Llanwinio -	7,169	888	Llanwinio - (Acres, 7,169 ; pop., 888.)	C. L. Crosswell - Vaughan Jones -	{ 3 9 7 4 0 0	Nov. /72	
					{ 4 0 0	Mar. /78	

In December 1872, after the passing of the Public Health Act, the Sanitary Authority engaged as Inspector of Nuisances, Mr. W. Palmer, at a payment per week of 5*l.*, avowedly with a view of getting from him a complete account in detail of the sanitary state of the district. In March 1873 the Sanitary Authority determined to appoint an Inspector of Nuisances, who for a yearly salary of 100*l.* should give his whole time to the duties of his office. Hereupon Mr. Palmer retired, and Mr. T. D. Jones was appointed. Mr. Jones held the appointment, without alteration of salary, until June 1875, when he resigned, and Mr. W. I. Evans, the present inspector, was appointed at a salary of 110*l.* In 1876 Mr. Evans' salary was increased to 120*l.*, but in June 1877 it was reduced to the former figure (110*l.*) only to be raised again in August following to 120*l.* At this figure it now remains. Also about December 1872

the Sanitary Authority appointed the six District Medical Officers as Medical Officers of Health; but the question as to scale of payment of their services was deferred. Subsequently it was decided that for health work they should be paid in each instance one fourth their respective salaries as District Medical Officers. The exact sum thus paid yearly to the Health Officer (as such) of each district is given in italics in the above table. In 1875 the Medical Officers of Health came to the conclusion that the above payment was insufficient, and they in effect declined to continue office on such terms. In October of the same year their several salaries as Health Officers were increased by the Sanitary Authority to the sum stated in ordinary type in the above table in regard of each officer.

Sanitary Action.—From the above data it is evident that in the first instance the Inspector of Nuisances was regarded by the Sanitary Authority as the mainspring of sanitary action in the district, and remuneration in accordance with such principle was arranged for this officer. But soon the principle thus adopted was set aside, and it does not seem that any definable principle has been adopted in its place. Throughout the real functions of a Medical Officer of Health seem not to have been apprehended (or to have been disregarded) by the Sanitary Authority. Dealing with the two classes of officers in the above order of precedence, I will state briefly the several operations, and the outcome as regards sanitary action by the Sanitary Authority consequent thereon.

The Inspector of Nuisances.—On the retirement of Mr. Palmer, who in three months of office had inspected some half dozen only of the 28 parishes of the district, the work for which he was appointed was not further proceeded with, Mr. Jones his successor having seemingly applied himself mainly to the abatement of the grosser sorts of nuisance. This officer reported (but not regularly) to his Authority the work done, and the persons who had disregarded his notices respecting nuisances. Mr. W. I. Evans, who in June 1875 succeeded Mr. Jones, commenced his duties without knowledge of sanitary matters, and for a time adopted, though more efficiently and regularly, a course of procedure similar to that of Mr. Jones. Upon growing familiar with his district and with his work Mr. Evans set himself (it does not appear that anyone instructed him) certain definite aims. These had among their objects (in addition to repression of grosser nuisances constantly being perpetrated throughout the district) improvement of ruinous cottage property, prevention of overcrowding, provision of slop drainage, systematic removal of pigsties from proximity to dwellings, and provision of pail closets where accommodation of this sort was wholly wanting, or in place of foul pit privies near to dwellings. In addition, Mr. Evans visited all the places, so far as he could ascertain them, at which infectious sickness had occurred, distributed disinfectants, and availed himself of such opportunities as thus offered themselves for getting sanitary improvement effected. Besides action of the above sort this inspector has in several instances, through owners of property or by setting on foot public subscription, caused water to be brought to places deficient in this respect, or has in particular localities in a similar way brought about the protection against fouling of dip-wells and spouts. Very little work has been performed by the Inspector of Nuisances in concert with the Medical Officers of Health; but he informs these officers of occurrences of infectious disease coming under his notice, and he obtains their assistance respecting cots that he deems to be overcrowded by their inhabitants, and in regard also of other nuisances in his opinion requiring medical intervention.

The Medical Officers of Health.—In view of the repeated and the recent changes of officers in three of the six health districts no precise information as to the method heretofore adopted in the working of these districts has been obtainable; but in regard of the others the method has in each been as follows:—*Upper Llangendairne District.*—Dr. J. A. J. Timmins, who has held this district since its formation has reported annually, and in considerable detail, to his Authority on various matters appertaining to his district, and in so doing he has in general terms repeatedly brought under their notice sanitary defects of the sort described in this Report. In addition he has, as occasion has arisen, reported to his Authority, either in writing or personally, occurrences of infectious disease in his district, the circumstances (in general terms) of their occurrence, and the steps he has taken in regard of such disease. Further, he has from time to time visited populous places in the district with a view of ascertaining for his own information the improvement (if any) that has been effected through his own or the Inspector of Nuisances intervention. But he has not in the sense of Article 3 of this Board's instructions made such systematic and detailed inspection and report of his district, either by himself or in conjunction with the Inspector of Nuisances, as might form, in regard of particular places, the basis of systematic action on

the part of his Authority. It is necessary to add that this officer has received but scant encouragement in the systematic prosecution of his duties; his annual reports not having always been read when presented to the Sanitary Authority. Indeed, I gathered the impression that he had come to regard his reports as necessary for satisfying the requirements of the Local Government Board, rather than as likely to afford bases for action by the Sanitary Authority. *Conwil District.*—Mr. Morgan Lloyd, who has held this district since the beginning of 1877, has furnished a report for that year. In other respects he has followed, though perhaps less systematically, much the same course as Dr. Timmins, except that he attends each meeting of the Sanitary Committee nominally to report on the working of his district. *Lower Llangendeirne District.*—Mr. Peter Williams, who has held this district since 1872, has reported occasionally in writing to his Authority the occurrence of infectious disease in his district, and has, in concert with the Inspector of Nuisance, occasionally visited places where such disease has occurred. But he has not presented any report of his inspections, nor has he for several years sent in any annual report. For this default, I am informed, his salary has during three years been withheld by the Sanitary Authority.

The Sanitary Authority.—I cannot learn, as has been incidentally shown in this Report, that any comprehensive action has been undertaken by the Authority in regard of the sanitary wants of its district. Beyond exerting pressure, legal or other, on owners and occupiers whose property or premises have been reported in regard of glaring sanitary defects or of gross nuisances, the Sanitary Authority has done little or nothing calculated materially to improve the sanitary state of its district. Certainly it has levied no rate for the provision of sanitary works, nor has it availed itself of other large powers for the sanitary improvements of its district conferred on it by the Sanitary Acts. Probably some explanation as to the circumstances conducing to the results observed is afforded by the fact that detailed inspection of the whole district, such as would have supplied the Authority with data for comprehensive and well-considered action, has never been obtained. But mainly, perhaps, the Authority has lacked an interpreter of, and an adviser respecting, the relations between the abundant unwholesome conditions of the district and the health of the population, not only in regard of particular instances or localities where disease has been fostered, but with reference also to the larger question of disease prevention in places inviting, or threatened by, epidemic illness. Whether or not under existing circumstances of subdivision of the rural district among a number of medical officers, efficient or not efficient, of whom few have, even if so inclined, an opportunity of working in concert, such interpretation and advice in regard of the district as a whole is likely to be attained, is not for me to say; it certainly has not been attained hitherto. But it seems to me that, under a competent Medical Officer of Health, the Sanitary Authority possesses in the present Inspector of Nuisances an officer qualified to carry out for its information the system of detailed inspection or survey of the district, which is so urgently needed, and to perform efficiently the other duties appertaining to his office.

W. H. POWER.

Recommendations.

I. AS TO SANITARY WANTS OF THE DISTRICT.

1. No time should be lost in obtaining a complete and detailed medical record of the sanitary circumstances of the whole district. Probably the Sanitary Authority will find it convenient to obtain data of this sort, first of all in regard of the more populous villages. This being done, each village so soon as inspected and reported on should be dealt with on principles as follows:

2. *House Accommodation.*—Dwellings in a ruinous condition should not be allowed to be tenanted. Proceedings should be taken for the improvement of houses which, from dampness, insufficient ventilation, filthiness, or other cause, are in a state to be a nuisance or injurious to health; and the powers of sections 95, 96, 97, of the Public Health Act, to prevent recurrence of nuisance and to prohibit the occupation of houses unfit for habitation, should be held in view. Tenants should be invited to occupy as sleeping rooms (instead of using as storehouses) any vacant room they may have, and to abstain from crowding together nightly in the living room of the dwelling. Overcrowding should be vigorously dealt with. Fowls and donkeys should not be allowed in dwelling-houses.

3. *Water Supply.*—A supply of water adequate in amount and wholesome in quality should be rendered easily accessible to every house in the place. This might in most places easily be done, as already shown, by impounding springs, or gathering rainfall

in reservoirs situated at a high level, whence it could be distributed by gravitation to numerous stand pipes, or even to separate dwellings, in the village; by raising water to a proper level for distribution in a similar way; or by sinking wells in suitable situations for the supply of the inhabitants. In the rare instances where none of these measures are practicable, existing spouts or dip-wells should be properly secured against direct or indirect pollution.

4. *Excrement Disposal.*—All dwellings should be provided with proper means of excrement disposal. If in any place a watercloset system be adopted (and it is possible that in some of the larger villages such system may find favour), it should be borne in mind that a watercloset system presupposes a system of public sewers and an adequate supply of water laid on to each closet. Probably some modification of the existing privy would prove best adapted to the circumstances of the district, and with reference to this subject the Sanitary Authority would do well to consult the Board's report "On certain means of preventing Excremental Nuisances in Town and Villages." Privies and closets discharging into streams should be abolished.

5. *Sewerage and Drainage.*—Some of the larger villages in which liquid refuse of all sorts has through a long series of years been allowed to flow into ill-contrived and ill-constructed drains can perhaps only safely be dealt with by means of a system in each instance, of public sewers. In regard of such places (Laugharne for example) the Sanitary Authority should seek upon this subject the advice of some competent engineer. As to other villages, hamlets, and groups of dwellings, in regard of which drain nuisances of a serious sort have not yet been accumulated, some system of purely slop drainage might be adopted; or the inhabitants of dwellings might in each instance be required so to deal with slops, and refuse water on their own premises or gardens as not to cause nuisance to themselves or to neighbours. Whatever system or systems be adopted regard must be had to the necessity for discontinuing the pollution of streams.

6. *Nuisances.*—Pigs, horses, mules, donkeys, fowls, and other animals, should in all cases be required to be so kept as not to cause nuisance. Ashes and other solid refuse should not be allowed to be heaped up near to dwellings or by the roadside in villages, but should be required to be safely disposed of in gardens until utilized for land. In regard of places such as Laugharne, where many dwellings have either no back premises, or have small confined back yards accessible only through the house, it will probably be necessary that the Sanitary Authority should adopt a system of daily collection of domestic refuse of all sorts in proper receptacles duly provided for the purpose.

7. For the repression generally of nuisance, and for the furtherance of sanitary improvement, the Sanitary Authority should exercise its powers for enacting byelaws; and in regard of the more populous places of the district it would do well to seek from this Board the power of making certain urban byelaws.

II.—AS TO PREVALENCE OF INFECTIOUS DISEASE.

1. On the outbreak of any infectious disease in the district the Sanitary Authority should require of its Medical Officer of Health a special report (in greater detail than has heretofore been given) of the distribution and spread of the sickness, and of such insanitary conditions as have been associated with it. Further, the Sanitary Authority should in all cases cause action to be taken, and should satisfy itself that such action has been taken, in the sense recommended in the general Memorandum of the Board on proceedings which are advisable in places attacked or threatened by epidemic disease.

2. The Sanitary Authority should provide hospital accommodation to which persons (of whatever class) suffering from infectious illness, and who cannot be properly isolated in their own houses, may be readily removed. In the Carmarthen district hospital accommodation of the above sort is especially necessary, in that it can but rarely happen (owing to the conditions as regards house accommodation under which people commonly live) that persons suffering from infectious illness can with safety to themselves, their families, or their neighbours, be treated at their own homes. With reference to this subject of hospital accommodation the Sanitary Authority should consult the Board's "Memoranda for Local Arrangements relating to Infectious Disease."

3. The Sanitary Authority should provide, and should cause to be systematically used, apparatus for the disinfection by heat of clothing, bedding, &c. that has been in relation with persons suffering from infectious illness.

is considered at a high level, where it could be established by consultation in
advance of any plan for the future, in the light of the existing
to a proper level for distribution as a whole, or by means of a
arrangements for the supply of the population. In the case of the
the Board should be empowered to make such arrangements as may be
direct or indirect.

It is also suggested that the Board should be empowered to provide
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II.—As to the future of the Board.

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