

PLAN OF BAILY - GLÂS, PENDRE, &c.

SCALE: 10 Chains.



NOTE—The uncovered parts of the Madrell are coloured Blue.
The covered parts are coloured Yellowish Green.

A to A. The place where the Filth raised out of the Madrell was deposited when Cholera broke out in Money Court.

B. Baily Glâs Well.

COMPILED BY
ISAAC DAVIES, Surveyor, &c.
BRECON. 1855.

9
A REPORT

ON

THE OUTBREAK

OF

EPIDEMIC CHOLERA IN BRECON,

IN 1854.

BY

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GUARDIANS OF THE POOR FOR THE BRECON DISTRICT.

"By fever and sickness bred of gross neglect, this country alone has probably lost more lives than have been sacrificed in all the battles ever fought in the whole of Europe since its history began. And the neglect continues. Observe! the neglect continues:—the guilty, unchristian, frightful neglect continues." HOUSEHOLD WORDS, Nov. 1854.

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REPORT, ETC.

NATURAL SANITARY ADVANTAGES OF BRECON.

BRECON, with its great natural advantages of position, ought to be one of the healthiest towns in the kingdom. The physical arrangements of the beautiful country around it are all most favourable to health. Scarcely four miles from the town, in a direct line, are the summits of its noble beacons or vans, rising to an altitude of 2862 feet above the sea, the greatest elevation of the old red sandstone formation in this kingdom. From these, streams of pure and braeing air are pouring down with never-ceasing flow into the valleys beneath. That of the Usk at Brecon spreads out to a width considerable enough to afford the most perfect freedom for the play of all healthful and refreshing atmospheric influences. The town itself stands for the most part on two eminences that in one direction slope down on both sides of the Honddu, and in another to the Usk. Both these rivers, whose confluence gives its Welsh name, Aberhonddu, to the town, flow with a more or less rapid fall over pebbly or rocky beds. The soil of the upper parts of the town is a red dry loam, whilst a stratum of gravel of varying thickness underlies the surface of the ground in the lower districts near the Usk.

What then is wanting as regards healthiness to such a locality? Why in certain parts of a town so favoured in its natural conditions, are fevers so frequent at certain seasons? And why is it that the cholera has recently visited us with such concentrated virulence? To get at a true

answer to these enquiries, we need to know something of the conditions which favour the production of fevers, cholera, and other zymotic diseases. An accurate knowledge of these may lead us towards such an answer; the whole truth of this very interesting but complex problem has yet to be discovered.

PRODUCING CAUSE OF CHOLERA.

The term zymotic, which is now applied to an important class of diseases, of which cholera is one of the most formidable, is derived from a Greek word signifying leaven, the fermenting principle. All those diseases are connected by this family resemblance, that when their own specific poison or principle, whatever it be, is introduced into the body, such for example as a minute portion of the matter of a small pox pustule, it is capable of being generated out of the constituents of the blood, and of reproducing the same disease to an indefinite extent. Small pox when variolous matter has been used—cow-pox when the vaccine fluid has been employed.

The mode of action of such a poison so much resembles that of yeast or leaven in substances containing sugar or gluten, such as wort or flour, that the two processes have long been compared together. The most celebrated of living cultivators of organic chemistry declares that their influence really depends upon the same principle. If so, the term zymosis or fermentation as describing a process of the blood in certain diseases, would be not merely useful in helping us to conceive somewhat of the nature of that process, but the actual expression of a fact. Thus, according to Liebig,* when a portion, however small, of contagious matter is introduced into the blood of a healthy individual, it will be again generated in the blood, just as yeast is reproduced from wort: the state of change or decomposition which affects one particle of blood is imparted to a second, then to a third, and at last to all the particles of blood in the whole body.

* Organic Chemistry of Physiology and Pathology.

With regard to the two diseases which I have named as illustrations, viz. small-pox and cow-pox, the poison, which when introduced into the blood reproduces itself, is something which we can see and touch. This is not the case with the poison of such diseases as cholera, typhus, scarlatina, &c. But it is generally admitted by modern physiologists* that the phenomena of such diseases are due to the introduction of a *specific poison* into the blood, where its action bears a very close analogy, if we do not allow with Liebig its complete identity, to the effect of a ferment on a fermentible substance.

Each specific poison has its own distinctive mode of manifestation according to the anatomical systems in the human body to which it seems peculiarly to attach itself. In the small-pox, the gastro-intestinal mucous membrane and the skin are especially affected. In scarlatina, the skin and mucous membrane and glandular system of the mouth and throat; and perhaps we might also add the kidneys. In measles, the respiratory mucous membrane; and in cholera the great and important system of the nerves of organic life.

What is the origin, or what the essential nature of these specific poisons that thus give rise to the various forms of epidemics; and why in one year typhus, in another malignant scarlatina, and in another cholera, should prevail in the same locality, and in apparently precisely the same physical conditions, science has not yet discovered. The matter or poison of small-pox, a thing that we can see and touch, shows when introduced into the system, how such poisons act. With regard to those of scarlatina or of cholera, which are not perceptible by our senses, we only know them as we know gravitation or electricity, by their effects. It is only in these that we can yet study this mysterious cholera-producing influence, which we have seen traversing the globe from its eastern to its western hemisphere.

* Dr. Carpenter.

PREDISPOSING CAUSES.

It is evident that very many persons may be exposed to the influence of such a poison, without being apparently in any way affected by it; and of those who are, whilst in some its effects are overwhelming and deadly, in others only a slight deviation from health may be produced. Whence arise these different degrees of liability to receive infection?

In all animal bodies there is a constant series of changes going on. As soon as any particle has fulfilled its purpose, it is decomposed and taken up into the blood, and from thence, in different forms, it is discharged out of the system by one of the great outlets, the lungs, skin, kidneys, or bowels, to be replaced by new particles furnished by our daily food. When this process of waste and repair goes on harmoniously, the body is in health. But if through any obstruction, the getting rid of the used-up animal matter from the blood is prevented, the health becomes impaired in proportion to the amount of its accumulation in the system.

According to Dr. Carpenter,* a high authority on physiological subjects, such accumulation may also “proceed from the direct introduction of such matter from without, as in food in which putrescence has already commenced, or which readily undergoes decomposition in the alimentary canal; or in water contaminated by the overflow of privies, or the infiltration of sewers, or in air charged with miasmatic emanations, or tainted by the exhalations of filthy or overcrowded collections of human beings.”—“The abuse of alcoholic liquors is another most powerful cause of such an accumulation; exercising precisely the same influence as a deficient atmospheric supply of oxygen; since when present in the blood, by greedily appropriating to itself the oxygen which the respiratory process supplies, it prevents the oxidation of the decomposing azotised matter, the getting rid of which is one of the special purposes of the process of respiration. When thus detained in the blood, it assumes a peculiar fetid

* British and Foreign Medical Review, January, 1850.

character, which manifests itself in the breath and in the exhalation from the skin."

The condition of the blood thus described is that which a great body of evidence justifies us in believing prepares the subject of it for receiving infection. The presence of this used-up animal matter in undue accumulation in the blood, is also absolutely necessary, in the great majority of cases, if not in all, to the production of the specific action of the poison. Accordingly, the liability of any given number of persons exposed to the influence of the poison to be affected by it, will chiefly depend upon the degree in which their blood may be charged with the matters in question.

In ordinary seasons, such a state of blood would manifest itself in various forms of deranged health; in head-ache, lassitude, loss of appetite, bowel-complaints, gastric fevers, &c. But when an epidemic influence is present, then all these complaints become merged more or less completely in the prevailing disease, whatever that may be, whether typhus, scarlatina, or as we have recently experienced, cholera.

I have quoted Dr. Carpenter as an authority for regarding unwholesome food, polluted water, and foul air as powerful agents in inducing the diseased condition of the blood which I have been describing. But however we may explain the mode of action of such influences, no reasonable doubt can exist that their general tendency is to lower the tone of, and at length to break down the health of those who are exposed to them, and thus to increase their liability to receive infection. The mass of evidence that could be adduced in support of this position is perfectly overwhelming, and instances corroborative of it must readily occur to every tolerably well-informed mind. A whole terrace of houses inhabited by the wealthy of the land, in apparently the most healthy situation, has been invaded by gastric fever, the origin of which has been traced to the leaking of a sewer into a well which supplied the locality with water. The out-break of cholera in one of the best situations in Wandsworth, was attributed to "abominable sewerage, and possibly to contaminated water, with an especial accumulation of filth in the house first attacked." The outbreak of typhoid fever at Cowbridge amongst those who were in the

ball-room that fatal night, under or near whose windows was a newly opened and very filthy sewer, is too recent and too near our own home to be forgotten by us. And there is one case, arising from the pollution of the atmosphere of a neighbourhood, that seems to have a peculiar application to our own circumstances.

At Witham, a suburb of Hull, there was an accumulation of night-soil and other offensive rubbish in a triangular space of about three acres, which had been represented to the local authorities as almost certain to induce a severe outbreak of cholera. The disregarded prediction was most fearfully verified by the occurrence of no fewer than 91 deaths in the immediate neighbourhood; a greater number than was observed in any other open area within so limited a circuit.

In short, turn where we may for information on this vital subject, whether to the investigations that have been conducted with all the aids of modern chemical and physiological science, or to discussions intended for the readers of the daily newspaper, the same account is rendered; crowded, ill-ventilated and filthy habitations, unprovided with the appliances for decency or cleanliness, polluted water, damp air laden with foul smells, bad diet, intemperate habits, so often the direct consequence of the sad antecedent circumstances, such are the conditions in which disease abounds, and in which above all other diseases cholera seems to dwell and to manifest itself in its deepest malignity.

I have thought it right to commence this report with these preliminary observations, in which I have endeavoured to show, as briefly and with as little of technical language as possible, something of the conditions which favour the production of cholera. By applying general and admitted principles to the local circumstances of our infected district, we shall be able to judge more fairly and with more precision whether those circumstances have had much or little or any thing at all to do with the recent outbreak of epidemic cholera in Brecon.

THE INFECTED DISTRICT.

The disease was almost exclusively confined to one portion or suburb of the town. The whole infected district contains 205 houses, with a somewhat varying population of about 800 persons.* It is traversed by a small stream, the Madrel, which is liable to floods when it occasionally overflows its banks in some situations, leaving behind it more or less of a deposit of the sewage which it receives in its course. It runs from the highest part of the town at St. John's turnpike to the Usk below Mill Green. In some parts of this course it is culverted, but in others it is uncovered. It receives the surface drainage and the sewage of the neighbourhood through which it passes. In some places, as behind Bailyglas, its fall is less rapid than in others, and in these there is consequently a greater amount of offensive deposit. This was particularly the case in the situation just referred to during the last autumn, in consequence of the long continuance of dry weather having greatly reduced the quantity of water in the stream. This water is used for scouring the houses in its vicinity—often for washing clothes—and I one day saw a poor woman washing plates in it. Even when it is perfectly clear and bright, it emits when boiled a heavy disagreeable smell, which it imparts to clothes washed in it; hence the more careful avoid using it for that purpose.

Some notion of the sanitary condition of this part of the town will be afforded by the following gleanings from a very instructive report by Mr. Fryer, a member of the town council and of the Local Board of Health.

MR. FRYER'S REPORT. OCTOBER, 1854.

He shews, what indeed had long been well known, that there is a sad want of provision of the means of decency and cleanliness in this neglected district. Of a portion of Bailyglas he remarks, "the authorities ought immediately to put their powers in force to cleanse this neighbourhood,

* Mr. James Williams' Statistical Return.

and cause a great many more privies to be erected." Such as there are open into the Madrel, which is here unculverted, and runs in front of some of the houses and behind others. A passage here leading to the Madrel with a privy at the end, Mr. Fryer truly describes "as in so deplorable a condition, that the people cannot make use of it." The stench that arose out of the Madrel at this place was overpowering during the summer months. The attention of the Board of Health was called to its condition; but proposals made to remedy a state of things so abominable were put aside on the ground of expense. On one occasion, I have been informed that at a meeting of the Town Council, £25 were asked for the purpose of covering in this part of the water course. The requisition was negatived on the usual plea of its being a needless expenditure of the public money. But its need, its urgent need was only too soon to be attested by the groans of the dying, and the cry of widows and orphans, and parents bereaved of their children. May the fatal experience both teach and warn our economists: teach them that there are cases in which parsimony is wastefulness, and prodigality thrift: warn them that the laws of God's universe are not for ever to be thus defied with impunity. Mr. Kirk, our intelligent county road and district surveyor, more enlightened and therefore more thoughtful of consequences, observed, "If the cholera should break out here, gentlemen, it will cost far more than £25." The timely warning, however, fell on ears deaf, as it should seem, to every consideration but that of a very miscalculating economy. As at Witham, the punishment of neglected duty soon followed with dreadful severity. In a very short time, the cholera actually broke out in this very part of the district, and raged there with its greatest virulence. So was it of old; where dogs licked the blood of Naboth, there the judgment fell.

In Well Street, Mr. Fryer found the dwellings, if possible, even more miserably unprovided with conveniences for cleanliness. The nuisances, he writes, "are thrown in a heap outside the houses: tho' filth had been removed when he visited the place," but the stench was very bad, notwithstanding the free use of Sir W. Burnet's fluid. He adds emphatically, "something must be done to remedy this evil." And so on

through the district, Mr. Fryer records the want of means of cleanliness and purity of air. In regard to the houses extending from London Row to the Black Boy, he observes, "particular care should be taken that these premises are well purified." He notes them as "a nest of sickness." Of one part of the district he has recorded that out of the forty one houses of which it consists, there was not one which had an outlet behind; and only one of which the window of the ground floor was made to open.

NEGLECTED WARNINGS.

Public attention was called to the state of this district as well as of other parts of the town in 1844, by the "Report on the Sanitary condition of Brecon," made by Sir Henry De La Beche. The disclosures made by him ought to have roused the local authorities from their apathy. The paralyzing apprehension of expense however seems to have prevailed over any higher sense of public duty.

Again in October, 1848, when the cholera was gathering up its victims as it pursued its course through the nations of Europe towards our own land, I implored our authorities, in the columns of our then local newspaper, the "Silurian," to take into their earnest consideration, the neglected sanitary condition of the town. I pointed out to them the permitted accumulation of filth at the entrances of the town, which they could not help observing. I called their attention to localities, more out of the way of observation, where noisome heaps and unscoured gutters were left undisturbed in the sight of all, reservoirs of deadly emanations, polluting the air by night and by day.

Once more were they warned in 1849: and at this time the municipal body, as the Local Board of Health, had taken upon themselves a more specific responsibility in relation to the sanitary condition of the town. In that year Mr. Clarke, as Superintending Inspector, under the General Board of Health, visited our town, and made a "Report on a preliminary inquiry into the sewerage, drainage, and supply of water, and the sanitary condition of the inhabitants of the municipal borough of Brecon."

In this, as in Sir Henry De La Beeche's report five years before, the neglected condition of certain parts of the town in regard to filth—bad sewerage or none at all—and insufficient supply of pure water, is as sadly prominent as ever.

In reference to the infected district, to which for the purposes of this report I desire chiefly to confine myself, Mr. Clarke quotes from a presentment of the court leet, "a valuable testimony, (he observes,) as to the opinion of twelve local residents, tradesmen in the town, that the public road leading from Kensington, Mill Street and Newton Pool, is in a most filthy state and in very bad repair."

Alluding to Kensington, Mr. Clarke writes from his own observation, "that it is dirty and wet, ill-paved and undrained. The Madrel stream runs down here; its channel is used as a sewer, and its water for domestic purposes. Baily-glas stands on the Madrel. Here is a privy with a cess-pool on the upper side of the public well."

Mr. James Williams, the medical officer of that district, in his able observations in Mr. Clarke's report, refers "most particularly to the entrances to the town through Pendre, Black Boy, and from Watergate to Mill Green, as lined on each side by nuisances. Open gutters and mounds of scrapings from the road were allowed to collect week after week, generating gases highly injurious to the public health."

After describing a sanitary condition which ought not to be allowed in any well regulated community, he truly observes, "It is impossible for persons living in such a state to weather the storm long; sooner or later the constitution must give way. The hardy and the young fight the battle vigorously for a while: but exposure to wet and cold and noxious gases will undermine the stoutest constitution."

Such has been the health and life-destroying condition in which this district has been permitted to remain. Even on the low ground of economy, such neglect has been very unjustifiable and unwise. It is well urged by Mr. North, in his valuable contribution to Mr. Clarke's report, that "in an economical point of view it would answer the purpose of the parish of St. David to make sewers through Llanfaes and Heol Hwyt, and to employ scavengers. A reference to the expenditure of the parish of St. David during the

last two years, for fever cases alone would convince any one of this. From the dirty state of Heol Hwyt property is much deteriorated in value, and people of cleanly habits naturally dislike living in such a neighbourhood. Many of the cottages are consequently occupied by strangers, trampers or people who live in tents during the summer, and are glad to get into any house in the winter. They frequently become burdensome to the parish; generally from attacks of fever."

These judicious remarks have received the most ample corroboration in some of the most populous parishes in the kingdom. The parochial extra-expenses for fever cases alone, for the quarter ending Lady Day, 1838, in the Bethnal Green and Whitechapel Unions, amounted to the sum of £2467. 16s. In St. George's Southwark in the same year out of 1467 persons who received parochial relief, 1276 are reported to have been ill with fever. This is admitted to have been an unusually large proportion, but what a lesson does it convey as to the pauperising influence of fever, one of the most common of the diseases arising from the neglect of sewerage, ventilation, a due supply of water and means of cleanliness.

I wish I could have more completely illustrated the economical argument by a detailed statement of all the expenses under the different heads, incurred by the recent epidemic in Brecon. The clerk of the Board of Guardians informs me that so far as he has been able to collect the amount of claims for relief in the cholera cases in Brecon in October and November, 1854, they form a total of £348. 13s. 11d. In the printed report of the Local Board of Health, I observe entered, "Expenses attendant on the epidemic cholera," £49. 1s. 4d.; making a total of £397. 15s. 3d. Some expensive items do not appear in either of the statements which I have seen. And even when all the direct expenditure shall have been fully stated, there will yet remain a calculation to be made of expenses that may spread over years, on account of widows and orphans left unprovided for by the death of husbands and parents, and whose maintenance will fall upon the Union.

SUPPLY OF WATER.

The supply of water for this district is derived in part as we have recorded from the Madrel for some purposes. It has only one well within its limits, the well referred to by Mr. Clark "as having a privy with a cesspool on the upper side." From this the inhabitants of Bailyglas and of the nearer rows of houses obtain water when it is not rendered impure, as has happened, from the overflowing of the Madrel, which runs in a culvert within two yards of it. It is occasionally polluted by dirty vessels being dipped in it; and sometimes more wantonly by filth being thrown into it. The Board of Health, when it was proposed to them in November last, refused to have this well covered in, and a pump placed over it.

The other sources of water are the spring in the Priory Groves, about a quarter of a mile from Bialyglas;—Burva's well, and the river Usk, each at about the same distance. A certain amount of impurity in the water used even for food, and a deficiency of supply for the purposes of cleanliness, will too often be tolerated when the alternative is to procure it from such a distance.

LAST WARNING BEFORE THE OUTBREAK.

So much for the sanitary state of what was soon to become the infected district. The past summer had been one of unusual fineness—favourable sowing, growing, blossoming, and seed-ripening seasons had brought their respective blessings; and splendid harvest weather crowned all, enabling the husbandman to secure the abundant crops that rewarded his skill and labour. Precious seasons! full of precious influences when man adapts himself and his external conditions in obedience to the everlasting laws.

The long continuance of the dry weather during the summer, which became occasionally humid and sultry in the autumn, had doubtless aggravated the unwholesome condition of the district through which the Madrel runs. As has already been noticed, at one part of its course in Bailyglas the stench from it was intolerable. The impurity of

the air in this neighbourhood was still further increased in August or September by the removal of some yards of the bed of the water-course for the purpose of deepening it. The deposit thus removed, which was horribly offensive, was placed on the bank and there left; forming a heap about 28 yards long by three or four yards wide. It was about 10 or 15 yards from the fronts of the nearest cottages in Bailyglas, and about 60 yards from the collection of houses in Money-court, where the first death from cholera occurred.

At this time the cholera prevailed with much severity in Dowlais, and was spreading in Merthyr. On the 18th of September the Local Board of Health directed a circular to be sent to the members of the medical profession in Brecon to obtain information as to the general health of the Town, and *suggestions for promoting its sanitary condition*. So utterly did the existence of the valuable suggestions embodied in Mr. Clarke's report seem to have been forgotten.

As has often been observed elsewhere previous to the outbreak of a pestilence, the health of Brecon was at this period reported as in a "highly satisfactory state." The number of town patients on the books of the infirmary during the months of July, August, and September, was nearly 20 per cent less than in the corresponding months in 1853. Mr. North stated, that "so far as his experience went he had never known the town so free from feverish disease. There had been very few cases of diarrhœa during the autumn, and those in a very mild form."

In the meeting of the Local Board of Health, at which this and other communications were read, I find it reported in the "Hereford Times," that Mr. Powell of Watton Mount called attention to certain open sewers to which I had referred in my letter. He had, he said, brought the subject before the meeting some time ago, and he thought it was for the Board now to take into consideration how far it was practicable to remedy the nuisance, and so to prevent injury to the public health. He was unwilling to saddle the town with any great expense, and at the same time he was also unwilling that any temporary measure should be adopted which would not be effectual. The sewer

complained of was the Madrel, which he thought would form a part of the arterial drainage of the town, and could therefore now be covered over permanently. The cost of doing so would be about £140, and he earnestly called the attention of the Board to the matter; for although that dire disease cholera had not yet made a footing in our town, if the expense be avoided another year, it would be perhaps too late; for disease never lurked nearer than it did at present, and any means which could be devised to prevent its approach should be adopted. He did not wish, he repeated, to saddle the town now with the whole expense; but thought the sum required might be divided into three parts; one third to be paid out of the present rate, and two thirds borrowed upon security, repayable in two or three years. He felt confident that this plan would be cheerfully concurred in by all the inhabitants. He would himself, with pleasure, advance a portion of the money required, if other gentlemen would do the same.

These wise and humane suggestions were on this 25th day of September postponed for future consideration. It was "remarked that £8 or £10 had already been expended on the same sewer."

On that day week the first cases of cholera appeared in the immediate neighbourhood of that same sewer.

THE OUTBREAK.

On the morning of the 3rd of October, I was requested by Mr. Davies to go with him to see a patient of his, in the Watton, a child in the collapse stage of cholera. On arriving at the house, we found the child moribund. He had spent the preceding day with his grandmother in Bailyglas—had been brought home at nine o'clock in the evening, apparently well; was seized with vomiting and purging at eleven p.m. and after nine hours' illness died.

The same day the Mayor called upon me to show me a report of two other cases of cholera which he had that morning received from Mr. James Williams: one of which had occurred in Bailyglas, and the other in Money-court. Another fatal case also occurred this day: the patient was

taken ill about five or six miles from Brecon, near Merthyr-Cynog, where he was at work ; but his home was in Bailyglas, where he had slept the two preceding nights.

From this time the disease spread rapidly over the district included between Money Court and Prospect Row, Pendre and Millgreen, and Kensington. It quickly reached its climax and began to decline. The greatest daily number of deaths was 5 on the 8th, and 6 on the 9th of the month. From that time the type of the disease became more mild, and new cases less frequent. From the 23rd of October to the 2nd of November, none were reported, although 2 fresh cases were found to have occurred on the 31st of October. At that time, the weather being somewhat close and damp, fresh cases appeared, and became numerous and fatal especially in the districts of Bailyglas and Blaek Boy, of which Mr. Williams and Mr. Davies had medical charge. After the 12th of November it again began to decline, and soon quite disappeared from the infected district. Some cases lingered in the Union Workhouse—where one of choleraic diarrhœa occurred as late as December 4th.

The question whether the disease originated in the district, or was imported from a distance, was too important to be overlooked. I made careful inquiries on the subject, but was not able to obtain a particle of evidence of its having been imported. I could not learn that any person had recently arrived in that quarter of the town from Merthyr or any other infected neighbourhood ; nor that those who were most early attacked had been exposed to such sources of infection. The disease appears to have originated in the locality in which it broke out, and to which it continued to be in so great a measure confined.

MEASURES ADOPTED TO MEET IT.

The brunt of the commencement of the epidemic had been borne by Mr. Williams, who resides in the immediate neighbourhood of the district ; but the toil soon became too overwhelming for his unaided exertions, and on his representation assistance was afforded him, Mr. North, Mr. Armstrong, and Mr. Davies, each taking charge of a subdivision of the infected district.

On the 9th of October, at a special meeting of the Board of Guardians a medical staff was formally appointed. Energetic measures had already been taken under the direction of Mr. Williams for cleansing, drying and purifying the district. His attention was naturally attracted to the heap of putrescent deposit lying on the bank of the Madrel, which he had caused to be covered with lime, and that again with earth. It was now further drenched with Burnett's solution of chloride of zinc. Burning sulphur was carried through the place for the diffusion of sulphurous acid gas through the atmosphere. Lime was abundantly distributed in the gutters to absorb all moisture. Burnett's solution was poured into different parts of the Madrel, which was then repeatedly flushed.

Coal, blankets, food, and other comforts were liberally supplied to all destitute persons in the district, and the public soup kitchen was called into operation. A house to house visitation was made, and valuable reports of the sanitary condition of the different quarters of the town were subsequently presented to the Board of Guardians by Messrs. Fryer (a member of the Town Council, of whose report I have so much availed myself,) Bright, Duncan, Hall, Jones, Morris, and Shum.

With the exception of the infected district, very little illness was found to exist in the town, although some of the parts visited were in almost as wretched a condition of filth as Bailyglas itself, the district especially at the head of the Struet.

HOUSE OF REFUGE.

During the epidemic we were without the resource of a House of Refuge, and the deficiency was made painfully apparent when Wm. Morgan was brought from the country to Llanvaes labouring under cholera. There being no other alternative, as the publican in whose house he had been left was afraid to keep him, he was taken to the workhouse, and after much hesitation was admitted.

Unquestionably, as a general rule, cases of epidemic disease ought not to be taken to a workhouse. From various

causes the poor inmates of such establishments may often be regarded as having a predisposition to such maladies. In the present instance, ten cases of choleraic disease succeeded the introduction of Wm. Morgan into the house, where none had previously been known. Six cases, including that of Morgan himself, ended fatally.

The subject was represented to the Board of Guardians, who at once empowered the medical staff to provide a House of Refuge. Some eligible houses were successively fixed upon, but in each instance the respective neighbourhoods were thrown into such an excitement of terror that the owners felt constrained to refuse, or where it had been granted to withdraw their consent to the intended appropriation. In vain was it represented that the houses were detached, and one was even in the already infected district. No house of refuge could be obtained, and it now remains for the Board of Guardians to provide, in a more quiet state of the public feeling, a resource which at some future period may be most urgently required.

CONNECTION OF THE CHOLERA WITH THE INFECTED DISTRICT.

Although the reports above mentioned have painfully shown what grievous neglect of sanitary provisions exists in other parts of the town, of which I may especially notice Mr. Bright's report of the upper end of the Struet, and Mr. Morris's report of certain parts of Llanvaes, yet the epidemic was remarkably localised in the Bailyglas district. Of the cases which occurred beyond its limits almost all have been traceable to some connection with it. I advance no opinion as to the amount of importance to be attached to such a connection, but simply record the facts as they occurred.

Case 1. John Howard, æt. 3, died in the Watton after 9 hours illness. Spent the preceding day in Baileyglas.

Case 2. Rees Bowen, æt. 45, a labourer; taken ill near Merthyr-Cynog, having left his home in Bailyglas (where he had spent the two previous nights,) that morning. Was seized with diarrhœa which passed into cholera, collapse, and death in 16 hours. No other case in the neighbourhood of Merthyr-Cynog.

- Case 3. ——— Lloyd, home in Black Boy. Worked near the Vunglas, five miles from Brecon. Left his home that morning, was seized with cholera, and died in 8 hours. No other case in the neighbourhood of the Vunglas.
- Case 4. William Morgan, æt. 40, a farm servant. Had slept three nights in Mill Street, when he went to service in the Parish of Cantref, about three miles from Brecon. On the following day was seized with vomiting and purging, and was immediately brought into the town, and taken to the Union workhouse, where he died in two days. No other case in the neighbourhood of Cantref.
- Case 5. William Williams, a cattle dealer, came to Brecon by coach from Abergavenny, was drenched with rain on the journey. Passed that evening and night at the house of a friend in Castle Street, who supplied him with dry clothing. This friend had, throughout the epidemic, been very much amongst the cholera patients reading to and praying with them. The clothes he lent Williams he had worn on these occasions.
- Williams spent another day in Brecon, and the next day, Oct. 20th, set off with a companion on his journey to Llanwrtyd, 25 miles from Brecon. At Cwm-Irton, two miles from Llanwrtyd, whilst at dinner he was seized with vomiting, purging, and violent cramp. With some difficulty he was got on to Llanwrtyd, where he died on the following morning, Oct. 21st. No previous case had occurred in that neighbourhood.
- Case 6. Richard Heynes, carpenter and cabinet maker, æt. 38, taken ill at his house in Castle Street, soon fell into profound collapse and died in 10 hours. His workshop was in Kensington, made several coffins for persons dead of cholera, measuring their corpses for the purpose.

PROPAGATION OF CHOLERA.

Whether cholera is or is not contagious in the strict sense of the word, is a subject yet to be decided, notwithstanding all the discussion to which the question has given rise. The following facts serve to show that it is capable of being conveyed or communicated by human intercourse: whether the mode of communication was through the persons or through their clothes. Dr. Baly,* after weighing a great amount of evidence on the subject, concludes, "that the propagation of the disease by human intercourse does not prove its contagious nature. If the poison of cholera increases in or under the influence of damp and impure air, and is likewise capable of attaching itself to the surface of bodies, to

* Reports on Epidemic Cholera to the College of Physicians.

the walls of rooms, and to furniture, it will also be collected by the clothes of persons living in infected dwellings, will be carried by them from place to place, and wherever it meets with the conditions favorable to its increase and action, will produce fresh outbreaks of the epidemic."

Case 5, William Williams mentioned above, may have imbibed the poison of cholera from his friend, or from wearing his friend's clothes. However that may be, we are now to find him become the means of communicating the disease to others.

Case 7. William Jones, a neighbour of case 5, slept in the same bed with him the night before they left Brecon to go to Llanwrtyd. Oct. 22nd, went to measure his friend's corpse in order to make his coffin, did not feel very well at the time. On Monday, Oct. 23rd, (Williams having died on the 21st,) was seized with vomiting, purging, and cramps. He died on the 26th.

Case 8. A woman, who nursed William Jones, had a severe attack of similar symptoms. She recovered.

Case 9. A woman, who dressed his corpse, had a severe similar attack. She recovered.

Case 10. The sister of case 9, who lived near her and attended her in her illness, had a severe similar attack. She recovered.

My informant with regard to these cases, a very intelligent farmer, mentioned in his letter to me, that pains in the stomach and bowels were a very common complaint over the whole country at that time; but no other cases of cholera except those above described had been previously heard of, nor have any been known to have occurred since in that neighbourhood.

Another similar series of cases occurred in the union workhouse of Brecon.

William Morgan, case 4, was mentioned as having been taken to the workhouse, where he died November 7th. After his admission, he had no return of vomiting or purging, had in fact only one bloody stool. Of such cases Dr. Shapter* remarks,—“in some few, but invariably fatal cases, the latter dejections were bloody.” His skin presented the livid and shrivelled choleraic aspect and damp

* Cholera in Exeter in 1832.

coldness. Before his, there had been no case of cholera in the establishment.

- Case 11. Margaret Price, æt. 43, attended Morgan as his nurse. She was seized with cholera, Nov. 8th, the day after he died, and died in 23 hours.
- Case 12. Margaret Price, æt. 70, slept in the next bed to case 11, was seized with cholera, Nov. 10th, and died in 9 hours.
- Case 13. Rees Davies, æt. 75, November 7th, was seized with severe diarrhœa, and died Nov. 11th.
- Case 14. Elias Powell, æt. 82, Nov. 9th, seized with simple diarrhœa which passed on into choleraic diarrhœa, died Nov. 12.
- Case 15. John Jones, æt. 78, was attacked with choleraic diarrhœa, Nov. 10th, died Nov. 15th.
- Case 16. Thomas Jones, æt. 74, attacked with diarrhœa not choleraic, Nov. 10th. He recovered.
The last two cases frequently visited Margaret Price (case 11) in her illness, who had on former occasions been very kind in nursing them when they were ill.
- Case 17. Maria Jenkins, æt. 32, seized with choleraic diarrhœa, Nov. 17. It went on into profound collapse, from which she slowly recovered.
- Case 18. David Jones, æt. 10, Nov. 24, seized with cholera—recovered.
- Case 19. William Davies, æt. 10, Nov. 24, seized with cholera—recovered.
- Case 20. Mary Jones, æt. 32, Dec. 4th, nursed Maria Jenkins (case 17) in her illness—had a severe attack of diarrhœa. Recovered.

This last series of cases closed the course of cholera in Brecon for this year, perhaps only to return next year with renewed virulence, unless in the mean time energetic measures be taken to cleanse and purify and supply with abundance of good water the parts of the town now notoriously destitute of those necessary conditions of a healthy population, cleanliness, pure air, and pure water.

We have been taught by a brief but bitter experience, that we must no longer expect any special immunity for our town from the ravages of this pestilence. It is a completely well established fact, that where cholera has once prevailed it has a strong tendency to return. Why we have escaped so long, and why on this occasion one limited district of the town has been so severely visited, whilst other parts whose

sanitary condition is equally discreditable should have escaped, are questions more easily postponed for future consideration than answered. "Cholera," says Mr. Simon,* is called a capricious disease, not for what it smites, but for what it spares, not because its ravages fall where the laws of nature are observed, but because many neglects escape unscourged, or are punished rather in sample than in totality."

RECAPITULATION.

I have thus, as concisely as I could, attempted to describe the history and course of the out-break of cholera in Brecon. I have endeavoured to show

1. That the natural sanitary advantages which Brecon derives from its position are unusually great.

2. That the producing cause of cholera is a poison, how generated we know not, but cleaving to and exerting its influence with most intensity in situations whose sanitary conditions are most neglected.

3. That its mode of action has a striking analogy to that of a ferment in a fermentible substance; and that unless it meets with a correlative condition in the human body, it is probably entirely harmless.

4. That the essence of such a condition is a peculiar state of the blood, which, as regards external causes, is induced by unwholesome food, impure water, damp air, loaded with putrescent animal or vegetable emanations, and by habits of intoxication.

5. That the sanitary state of our infected district is especially calculated to induce such a condition of the blood, and is such as all experience in different and distant parts of the world has proved to be favourable to the development of infectious diseases, and pre-eminently of epidemic cholera.

6. That in those parts of the infected district in which the sanitary condition was most deplorable, according to the reports of Mr. Fryer and others, the cholera first broke out, and was most deadly: that whereas in all the other parts of the district collectively the proportion of deaths to the

* Report on Chol. Epid 1854.

number of the inhabitants was 3.07 per cent ; in Bailyglas it was 8.30 per cent ; and in Black Boy 7.97 per cent.

7. That although with such a neglect of sanitary provision a district may at a given period be found very free from disease ; yet this must not be regarded as a proof that such neglect is not highly dangerous ; for the pestilence may even then be on the point of breaking out.

8. That as it is an established fact, that other things being the same, cholera has a strong tendency to return to places where it has once prevailed, it now becomes the imperative duty of the Local Board of Health to make use of the powers with which they are invested, to prevent, as far as in them lies, the recurrence of the calamity which has rendered the year of 1854 memorable to us as one of the most disastrous that has ever occurred in the history of Brecon.

Before concluding this Report it might perhaps be expected that I should indicate the measures likely, so far as human instrumentality can avail, to prevent a recurrence of the cholera in our town. But so much has already been urged at different times on this subject, that I feel that it is not information which is needed, but the public spirit and the intelligence on the part of our authorities to make use of that which they already possess.

The work before them ought not to be done by instalments. It is not by laying out £65 on a portion of the Madrel, which I understand is what they are proposing to do for the present, that the urgent sanitary requirements of the town can be met. This is but miserably trifling with a serious emergency. A comprehensive survey should be at once commenced, with a view to the speedy formation of an effective sewerage, and for the copious supply of pure water to all parts of the town. The scavengers with their brooms and carts should be seen in our lanes and courts, and not be kept so exclusively as they have hitherto been in the streets occupied by the well-housed, well-clothed, and well-fed portion of our community. Our public resources should be taxed to the utmost reasonable extent for such purposes. Until this be done, we shall not be free from the reproach, the shame, and the guilt of all the suffering and death caused amongst our poorer fellow-townsmen by disease which, with God's blessing on our efforts, might have been prevented.

MEDICAL SUPERINTENDENT'S DAILY SUMMARY OF NEW CASES OF CHOLERA
AND DIARRHŒA, FROM OCTOBER 2, TO DECEMBER 4, 1854.

		Diarrhœa.		Cholera.			Total New Cases.	Deaths.
		Simple.	Choleraic.	Without Collapse.	Collapse.	Consecu- tive fever		
October	1	...	...	...	...	...	...	...
"	2	2	...	...	...	...	2	...
"	3	1	1	...	4	...	6	4
"	4	...	...	...	...	...	...	1
"	5	5	3	...	...	...	8	...
"	6	3	...	...	...	...	3	3
"	7	1	1	...	...	...	2	2
"	8	6	7	...	...	...	13	5
"	9	10	4	...	...	...	14	6
"	10	22	12	7	6	6	53	2
"	11	17	2	...	...	...	19	3
"	12	6	1	...	...	...	7	...
"	13	5	...	1	1	...	7	2
"	14	15	...	...	...	...	15	1
"	15	13	1	...	1	...	15	...
"	16	10	...	...	1	...	11	2
"	17	14	...	...	1	...	15	1
"	18	23	1	1	...	...	25	...
"	19	8	1	...	...	...	9	...
"	20	3	...	...	...	...	3	...
"	21	...	...	1	...	...	1	...
"	22	...	...	...	...	...	...	1
"	23	1	...	...	...	...	...	...
"	24	...	...	...	...	...	1	1
"	29	1	...	...	...	...	1	...
November	1	...	...	4	1	...	5	1
"	2	9	...	...	1	...	10	1
"	3	5	...	1	1	...	7	...
"	4	19	1	4	1	...	25	1
"	5	4	...	...	...	...	4	2
"	6	8	2	4	...	...	14	1
"	7	9	...	1	1	...	11	2
"	8	4	...	2	2	...	8	1
"	9	6	2	...	...	...	8	1
"	10	6	3	3	1	...	13	1
"	11	5	...	...	...	...	5	2
"	12	6	...	...	...	...	6	2
"	13	...	...	1	...	...	1	...
"	15	...	...	...	...	...	...	2
"	17	...	...	...	2	...	2	1
"	18	...	...	...	1	...	1	1
"	19	...	...	...	...	...	...	...
"	21	...	...	1	...	...	1	...
"	23	...	2	1	...	...	3	...
"	24	...	...	2	...	...	2	1
"	27	...	1	...	...	...	1	...
December	1	...	...	1	...	...	1	...
"	4	...	1	...	...	...	1	...
Total Cases		247	46	35	25	6	359	54

PARTS OF THE TOWN IN WHICH DIARRHŒA AND CHOLERA PREVAILED.

I have not been able to obtain returns of the number of cases of diarrhœa and cholera that occurred in different parts of the town, or in each part of the infected district. The number of deaths from diarrhœa and cholera in the whole town amounted to 54. Of these 44 were in the infected district—6 in the Union Workhouse, the disease in these cases apparently having, in its origin, been connected with the infected district : and 4 in other parts of the Town : in these last cases I have not been able to trace any connection with the infected district.

Of the infected district the fatal cases were distributed as follows :—

	Fatal Cases.	Population.	Per Cent.
Bailyglas	20	239	8.30
Black Boy	11	138	7.97
Other parts of the District	13	423	3.07
OUT OF THE DISTRICT			
Union Workhouse	6		
Different parts of the Town	4		
Total of Deaths	<u>54</u>		

DEATHS FROM CHOLERA AND DIARRHŒA IN BRECON IN OCTOBER AND NOVEMBER 1854, WITH THE AGES AT WHICH THEY OCCURRED.

Age.		Male.	Female.
Under	1 Year.	...	2
1	and under 5	4	1
5	„ 10	3	1
10	„ 15	2	1
15	„ 25	...	...
25	„ 35	5	3
35	„ 45	5	7
45	„ 55	2	3
55	„ 65	1	4
65	„ 75	3	1
75	and upwards.	4	2
		29	25

DURATION OF ATTACKS THAT PROVED FATAL.

Hours.		No.	Days.		No.		
Under	6	1	1	and under	2	5	
6	and under	12	9	2	„	3	4
12	„	18	13	3	„	4	4
18	„	24	2	4	„	5	3
				5	„	6	2
				6	and upwards.		3
		25				26	
Duration not specified						3	

*Read to the Board of Guardians in the Town Hall
of Brecon, March 3rd, 1855.*

WILLIAM REES, PRINTER, LLANDOVERY.

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