

EXTRACTS FROM APPENDIX A
OF THE
REPORT OF THE
GENERAL BOARD OF HEALTH
ON THE
EPIDEMIC CHOLERA
OF
1848 & 1849



APPENDIX (A)

TO THE

REPORT OF THE GENERAL BOARD OF HEALTH

ON THE

EPIDEMIC CHOLERA

OF

1848 & 1849

REPORT BY DR. SUTHERLAND

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1850

7.- Defective Sanitary Alterations, &c.

The first outburst of cholera in the city of Bristol took place in three courts in Red Cross-street, known by the names of Wellington-court, Wellington-buildings, and Gloucester-court, which cover a piece of land 56 yards in length by 37 in breadth. This measurement includes the houses in Red Cross-street, so that the actual area covered by the courts is about 1850 square yards. On this oblong piece of land are 6 rows of houses built back to back, making in all 66 dwellings. An overcrowded graveyard extends along two sides of the ground, and on the other two sides it is shut in by buildings, and two out of the three courts are entered from Red Cross-street by narrow covered passages about 10 yards in length, the third court being open. Were there no other unfavourable circumstance than the position which these courts occupy, it would be sufficient to account for their unhealthiness, the only ventilation they receive being from the adjacent burial-ground, the drainage from which no doubt also exercises a most injurious influence on the neighbourhood. The houses are very small, and when the disease broke out they were crowded with people. The supply of water was deficient and impure, and was derived for all the three courts from one pump in Wellington-court, into which there had been an escape of drainage, either from the sewer of the court, which passed

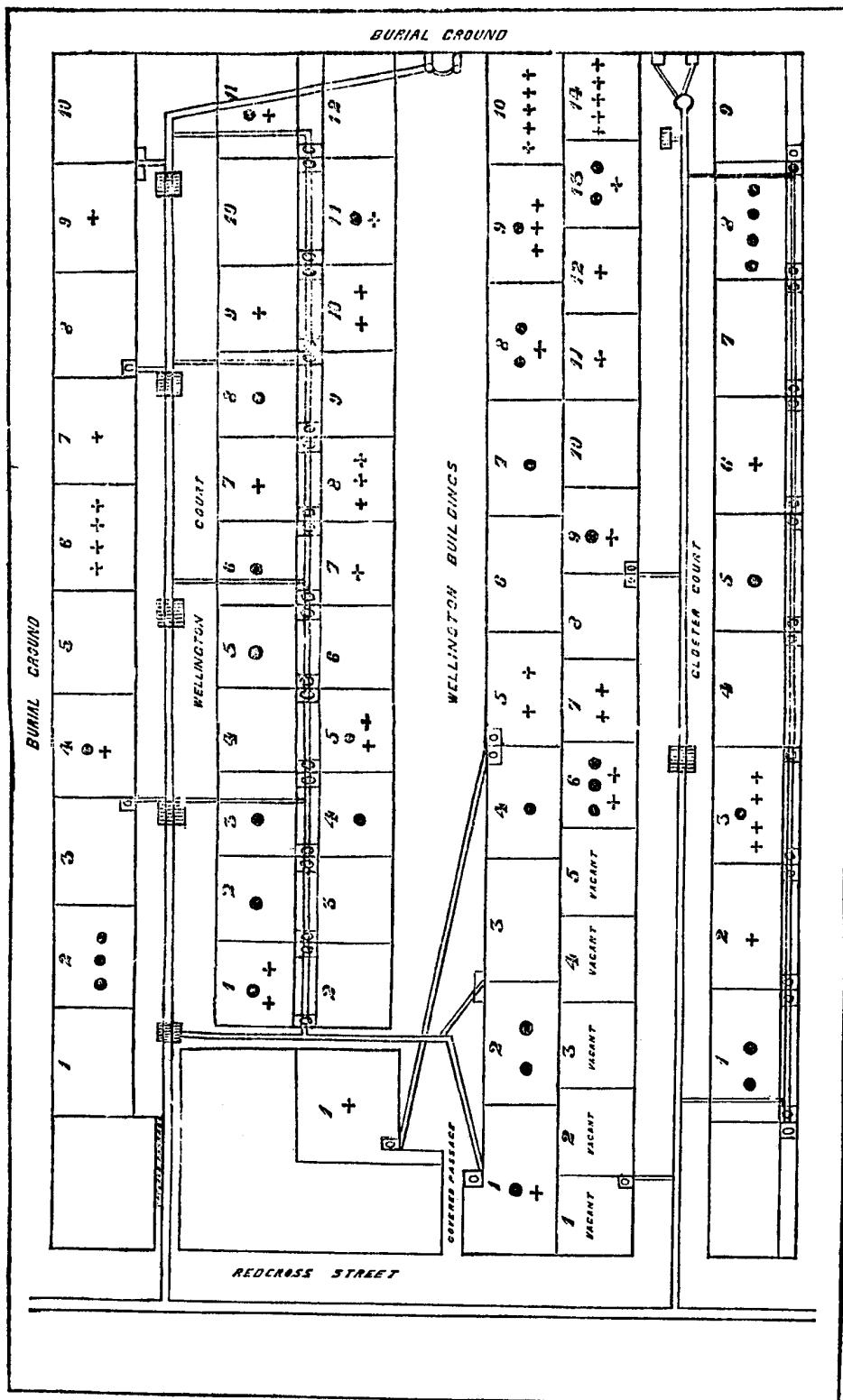


Plate 3. Plan of Courts in Red-Cross Street, Bristol, showing the position of the privies, drains, gully-holes, and burial-ground.

The deaths from Cholera are marked by black discs, the recoveries by crosses.

[p25] close to it, or from the burial-ground. A sewer runs through Red Cross-street, which is connected with two drains in Wellington-court and Gloucester-court; but there being no fall to carry off the drainage, the court drains were constantly full of the refuse of the privies. These drains are in fact the cesspools of all the houses, and they communicate directly with the surface of the courts by a large number of ill-trapped gully-grates, the effluvia from which are at times most horrible. The people were obliged to cover the gratings with canvas pressed down by a weight.

The position and construction of the privies require also to be noticed. On one side of Wellington-court there are two in the houses, and one in the court itself. On the opposite side there are 11 houses, corresponding to the same number in the next court, called Wellington-buildings. Between these two rows of houses there is a narrow space, which contains the privies belonging to both. The privies in Wellington-buildings are placed some of them behind the houses, some within the houses, and some in the courts. In Gloucester-court there are two privies in the court, and three in the houses on the left-hand side. Behind the houses on the right-hand side there are 18 privies belonging to them and to the dwellings of the adjoining street. Many of the privies are badly constructed, and allow the percolation of soil through the masonry. These conveniences communicate directly with the court drains by branch drains passing underneath the floors of some of the houses, and were either not trapped at all, or so inefficiently done as to afford no obstacle to the escape of the poisonous effluvia which filled the interspaces between the houses, and found a ready entrance at all times into them by means of the back doors. The extent of these evils will be better understood from the accompanying plan (Plate 3). It would indeed be difficult for human ingenuity to contrive and arrange a set of conditions more thoroughly unhealthy, or more likely to predispose the inhabitants to epidemic disease. Sixty-six houses shut in on two sides by a graveyard, on the other two sides by the adjoining buildings, honeycombed with cesspools, the atmosphere of the dwellings and courts polluted by the continued admixture of putrid exhalations from a number of open conduits, so as to impregnate the whole air both internally and externally with a strong cesspool odour,

notwithstanding the use of chloride of lime for the purpose of abating the nuisance; add to these things a deficient and poisonous water-supply, and an overcrowded population, and there will be no difficulty in accounting for the catastrophe which followed. I subjoin on the following page the statistics of the attack which took place on the 10th of June, 1849, sent to me by Mr. Williams, medical officer of the district, to whom I am also indebted for the plan of the locality.

A more deplorable event perhaps never occurred than these tables describe. A very slight consideration of the whole circumstances is in my opinion sufficient to prove that this great sacrifice of human life was occasioned by ignorance or negligence, as flagrant as any which from time to time gives rise to railway or other accidents. A glance at the plan will show that something like sanitary improvements had actually been contemplated; and no doubt it was believed that the object would be attained if only a sufficient number of drains and privies were constructed. Like every other step taken in a false direction, the [p26] so-called improvements increased the evil they were intended to mitigate, and, with the other circumstances above detailed, caused the untimely death of many innocent persons.*

WELLINGTON COURT.

Houses.- Left side.			Houses.- Right side		
No.	Cases.	Deaths.	No.	Cases.	Deaths.
1	-	-	1	3	1
2	3	3	2	1	1
3	-	-	3	1	1
4	2	1	4	-	-
5	-	-	5	1	1
6	4	-	6	1	1
7	1	-	7	1	-
8	-	-	8	1	1
9	1	-	9	1	-
10	-	-	10	-	-
			11	2	1
Total.	11	4	Total.	12	7

The three deaths in No.2, on the left-hand side of the court, took place in a family who had just removed from Gloucester-court. An inspection of the plan will show at once why the left-hand side should have suffered less than the right. It will be seen that the latter has a row of open privies behind the houses, and that a death took place in every house under the floor of which a drain passed:-

WELLINGTON-BUILDINGS

Houses.- Left side.			Houses.- Right side		
No.	Cases.	Deaths.	No.	Cases.	Deaths.
1	1	-	1	2	1
2	-	-	2	2	2
3	-	-	3	-	-
4	1	1	4	1	1
5	3	1	5	2	-
6	-	-	6	-	-
7	1	-	7	1	1
8	3	-	8	3	2
9	-	-	9	4	1
10	2	-	10	5	-
11	2	1			
12	-	-			
Total.	13	3	Total.	20	8

* Notwithstanding the terrible warning given in this case, and the temporary measures adopted at the time, I learn from Mr. Clark's report on Bristol, which I have seen while this sheet is passing through the press, that within twelve months after the catastrophe everything has reverted to its old condition, and were cholera to recur it would find its former haunts ready to receive it!

GLOUCESTER-COURT.

Houses.- Left side.			Houses.- Right side		
No.	Cases.	Deaths.	No.	Cases.	Deaths.
1	Uninha	bited.*	1	2	2**
2	Ditto		2	1	-
3	Ditto		3	5	1
4	Ditto		4	-	-
5	Ditto		5	1	1
6	5	3	6	1	-
7	2	-	7	-	-
8	-	-	8	4	4
9	2	1	9	-	-
10	-	-			
11	1	-			
12	1	-			
13	3	2			
14	5	-			
Total.	19	6	Total.	14	8

* The inhabitants of the first five houses fled on the appearance of the disease, and none of them suffered.

** These deaths took place immediately after the family had left Gloucester-court, on account of the attack of cholera. The only two privy-drains which pass under the houses are those in No.1 and No.8 on the right-hand side, where the greatest mortality took place.

The following is a summary of the attacks:-

Courts.	Inhabited Houses.		Cases of Cholera.	Deaths.
	Attacked.	Free.		
Wellington-court	14	7	23	11
Wellington-buildings	15	7	33	11
Gloucester-court	13	5	33	14
Totals.	42	19	89	36

The total number of deaths from first to last was 44.

8.- Graveyards, &c.

Bristol affords more than one example of an outburst of cholera, in which a chief exciting cause was the existence of an overcrowded burial-ground in the affected locality. The most striking of these illustrations is afforded by a place called the Rackhay, situated in St. Nicholas parish, and behind the front row of houses in Back-street. The Rackhay consists of an irregular square of buildings, entered from the street by an arched passage, and having a burial-ground occupying the whole centre of the square, with only a narrow passage, varying in breadth from 6 feet to 11½ feet, between it and the houses. Running parallel with one side of this square, and separated from the burying-ground by a row of cottages, is a long narrow court called Coronation-

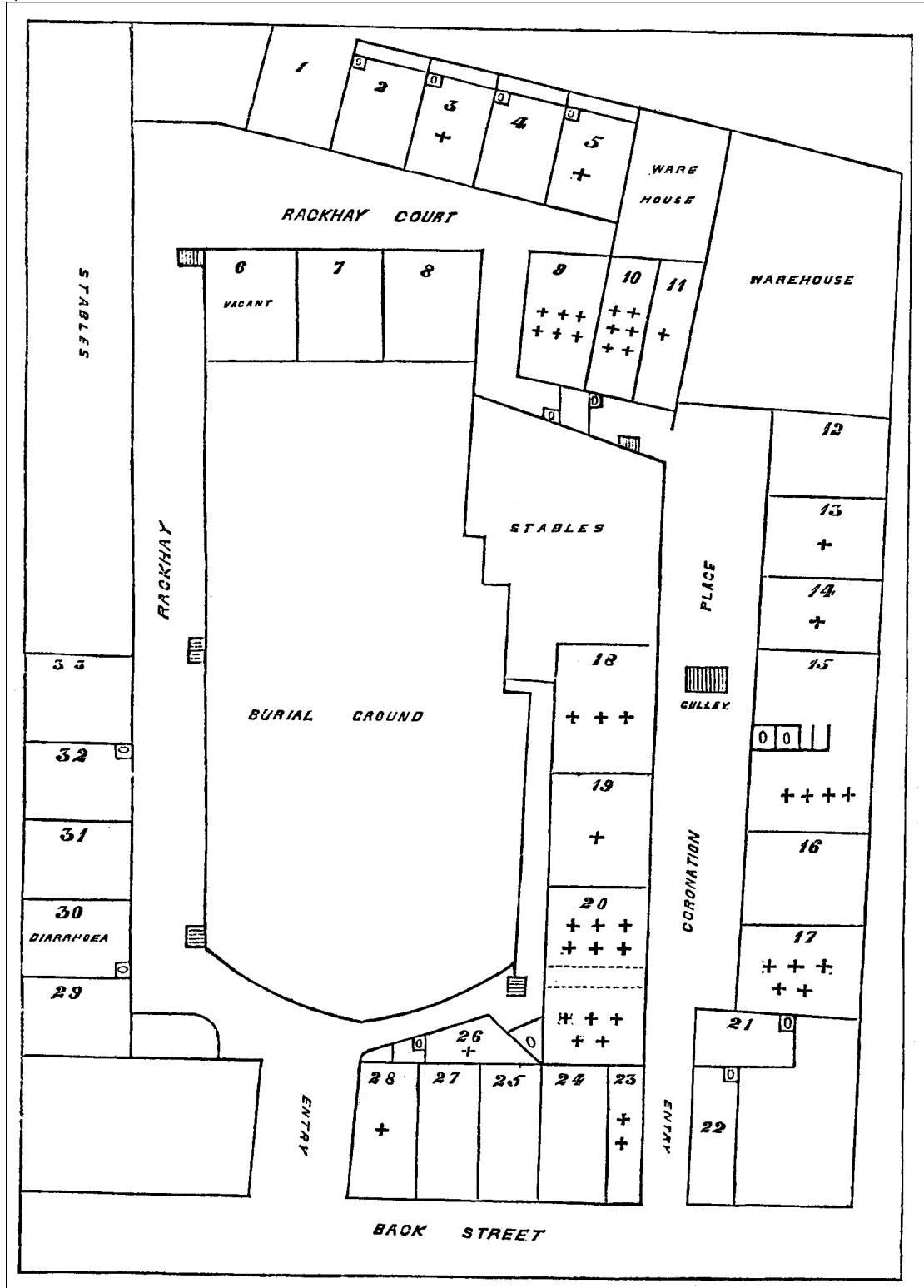


Plate 4. Plan of the Rackhay and Coronation Court, Bristol. The crosses show the number of Cholera cases. The position of the gully-grates and privies is also shown.

[p29] place, which has a similar ventilation to that of the Rackhay. The burial-ground is about 80 feet in length, and between 40 and 50 in breadth, and the surface of the earth in it is about 4½ feet above the level of the pavement in the courts. It is completely surrounded by houses, and there are drains with open gully-grates close under the external walls, the odour from which was most offensive, and had an unmistakable graveyard smell. The surrounding houses are 33 in number, and there are in addition two stables in Coronation-place, the walls of others forming part of the boundary of the Rackhay. A number of offensive privies are contained in the houses, and in Coronation-place is a large offensive gully-grate, while another opens into a small yard at the top called Gun-yard. The relative position of the affected locality will be easily understood from the annexed plan (Plate 4), which also exhibits the number of houses attacked, with the casualties in each. The following table exhibits the general statistics of the attack from the commencement to July 15th;—

Outbreak of Cholera in the Rackhay.

Houses	Inmates	Cholera Cases	Deaths		Houses	Inmates	Cholera Cases	Deaths
1	3	—	—		18	6	3	—
2	11	—	—		19	4	1	1
3	7	1	1		20	24	11	7
4	10	—	—		21	5	—	—
5	13	1	—		22	6	—	—
6	empty	—	—		23	2	2	1
7	8	—	—		24	3	—	—
8	8	—	—		25	4	—	—
9	8	6	4		26	4	1	—
10	8	6	4		27	8	—	—
11	2	1	1		28	9	1	1
12	4	—	—		29	2	—	—
13	11	1	1		30	10	diarrhoea	—
14	8	1	—		31	unaffected	—	—
15	16	4	2		32	unaffected	—	—
16	4	—	—		33	unaffected	—	—
17	14	5	3					

Up to the end of the attack the number of cases was as follows:-

Cholera 47

The deaths 33

The recoveries 14

It will be seen by a reference to the plan, that the disease confined itself chiefly to the houses on the right-hand side of the burial-ground, where the attack ran its course with great severity. Had it continued for a longer period, it is probable that not a house would have escaped, as diarrhoea had begun to appear in the houses on the left hand side. There were no local sanitary defects which tended to make the Rackhay more liable to an epidemic outburst than other districts in the same neighbourhood, except the presence of the burial-ground, and, the polluted state of the drainage, to which I have no doubt it materially contributed. At that period, however, the neighbouring localities escaped, with the exception of one small district close to another [p30] burying-ground, behind the opposite side of Back-street, where several severe cases of cholera occurred. It is impossible to decide whether the burial-ground was the sole cause of the visitation, but all the circumstances tend to prove that it was at least one of the most powerful agents in determining the localization of the epidemic.

BRISTOL.— The preventive measures in this city were carried out by the Corporation of the Poor of St. Peter's Hospital, with the co-operation of the other local authorities. At the time the cholera appeared the parochial authorities appointed Mr. Samuel Goldney to act as their medical superintendent, and they proceeded to prepare the worst part of the town for the epidemic.

In certain parts of Bristol there are notorious fever localities, which were at once dealt with in compliance with the advice of the General Board of Health. A whole street of fever-courts was thoroughly cleansed and lime-washed, so that, on comparing its condition with what it formerly was, the locality could hardly be recognized. All streets requiring constant attention were reported regularly to the proper authorities, and were preserved in good sanitary condition, so far as the removable causes of disease were concerned. Mr. Goldney reports the results of these measures as follows:—

“The lime-washing operations were continued throughout the whole time of the epidemic, and certainly obtained immunity from attacks of cholera, and escaped.” Mr. Goldney also states that “wherever the disease appeared there were obvious localizing causes, viz., defective drainage, want of water &c.”

From extensive examination I am firmly persuaded that the chief localizing causes of the epidemic in Bristol were connected with the state of the permanent works. The drainage was in many places positively injurious to public health, and the state of the water-supply and privies in the affected localities perhaps worse than I have seen it in most other places.

These special local causes led to sudden and fatal seizures of circumscribed localities, a great number of persons being struck down within a few hours, and a high rate of mortality prevailing.

The medical preventive measures adopted by the guardians were as follows: the city was divided into five districts, with a medical officer to each, and such a number of qualified assistants as might be required to meet emergencies. The medical officers also acted as district visitors. Dispensary relief was freely given. An hospital was opened, of which the medical superintendent took charge, and a suitable staff of nurses provided. During the early part of the epidemic there was

unfortunately no house of refuge, and although I urged the absolute necessity of this measure on the Board, there were found to be a great local difficulties in obtaining one, from prejudice and the want of consideration of persons who ought to have afforded every facility for the saving of human life. The nature of the localizing causes and the sudden and fatal character [p126] of the attacks rendered the removal of the people absolutely necessary; and subsequent experience fully proved that many lives might have been saved had earlier accommodation been obtained. In consequence of the difficulties which had been experienced in this matter, and the great urgency of the case, I deemed it to be my duty to address a written declaration to all the local authorities in the city, calling on them to lend their aid in obtaining suitable premises. The result was, that in a few hours a suitable house was found, and the same night persons were received into it. From this time it was continually in use, and the result thus stated by Mr. Goldney:-

"The number of inmates in the house of refuge was constantly varying. The largest number in at one time was between 50 and 60. It was visited twice a-day by a medical man, and no cholera occurred. There were occasionally cases of premonitory symptoms, but nothing serious. The total inmates admitted amounted to 210."

The following striking illustration of the utility of the house of refuge is also given by Mr. Goldney:-

"In a certain lodging-house in Bristol there were 35 attacks of cholera and 33 deaths during the epidemic of 1832. There was then no house of refuge in existence. During the late epidemic a case of cholera occurred on the same house, and I went, and by the aid of the police turned out of it 64 people, 49 of whom were sent to the house of refuge. Out of that number not a single case of cholera took place, but there was a good deal of diarrhoea, which was immediately arrested."

In addition to the customary district visitation of the medical officers, I recommended the practice, so useful elsewhere, of concentrating the staff on the affected localities, so as to bring as many cases under treatment in the early stage as possible, and Mr. Goldney states, as "the result of these active measures, that a very large number of cases were arrested and prevented from going into cholera, and many lives consequently saved."

During the whole period of the epidemic a prodigious amount of diarrhoea prevailed in Bristol, but the outbursts of cholera were chiefly confined to well marked, defined, bad localities, and along the banks of the river Frome. This peculiarity of attacking particular spots and leaving the interspaces nearly unaffected, or chiefly suffering from diarrhoea, was strongly marked, and afforded many most instructive illustrations of the truth of the principles of sanitary science.

The amount of premonitory cases of all kinds treated was enormous, as the following general results of the statistics from the 10th of June to the 18th of October will show:—

PREMONITORY CASES.				CHOLERA.		
Dispensary Cases	Diarrhoea Cases discovered	Cases approaching to Cholera	Total Premonitory Cases treated.	New Cases	Deaths	Recoveries
10,477	3,546	717	14,730	789	445	344

The daily statistics are given in Table IX., which also exhibits the peculiarities of the epidemic seizure of Bristol. It will be observed that [p127] the latter is made up of a succession of outbreaks of the disease, which occurred each in a different locality. The effect of the preventative measures is also well marked, by using the "Cases approaching to Cholera" as an index. The plan of relief in these local attacks was, as has been said, to concentrate the medical staff on them; and the proportion of cases arrested by this procedure is shown to have increased after each outbreak, and to have been followed by an immediate diminution of the cases reported as cholera, generally on the same day, which may be accounted for by the practice of reporting the cases every morning for the preceding 24 hours; so that, although the effect appears the table to have been synchronous with the cause, it might have followed some hours later.

The number of premonitory cases which passed into cholera was exceedingly small; only one or two diarrhoea cases, and about half-a-dozen of those reported as approaching to cholera, having proved

fatal. With one solitary, but important exception, to wit, the want of a house of refuge in the early part of the epidemic, the preventive measures were very well carried out in the city of Bristol.