

Observations on the epidemic cholera of 1848-9 : chiefly as it prevailed in the 13th medical district of the city parish, Glasgow / by James Maxwell Adams.

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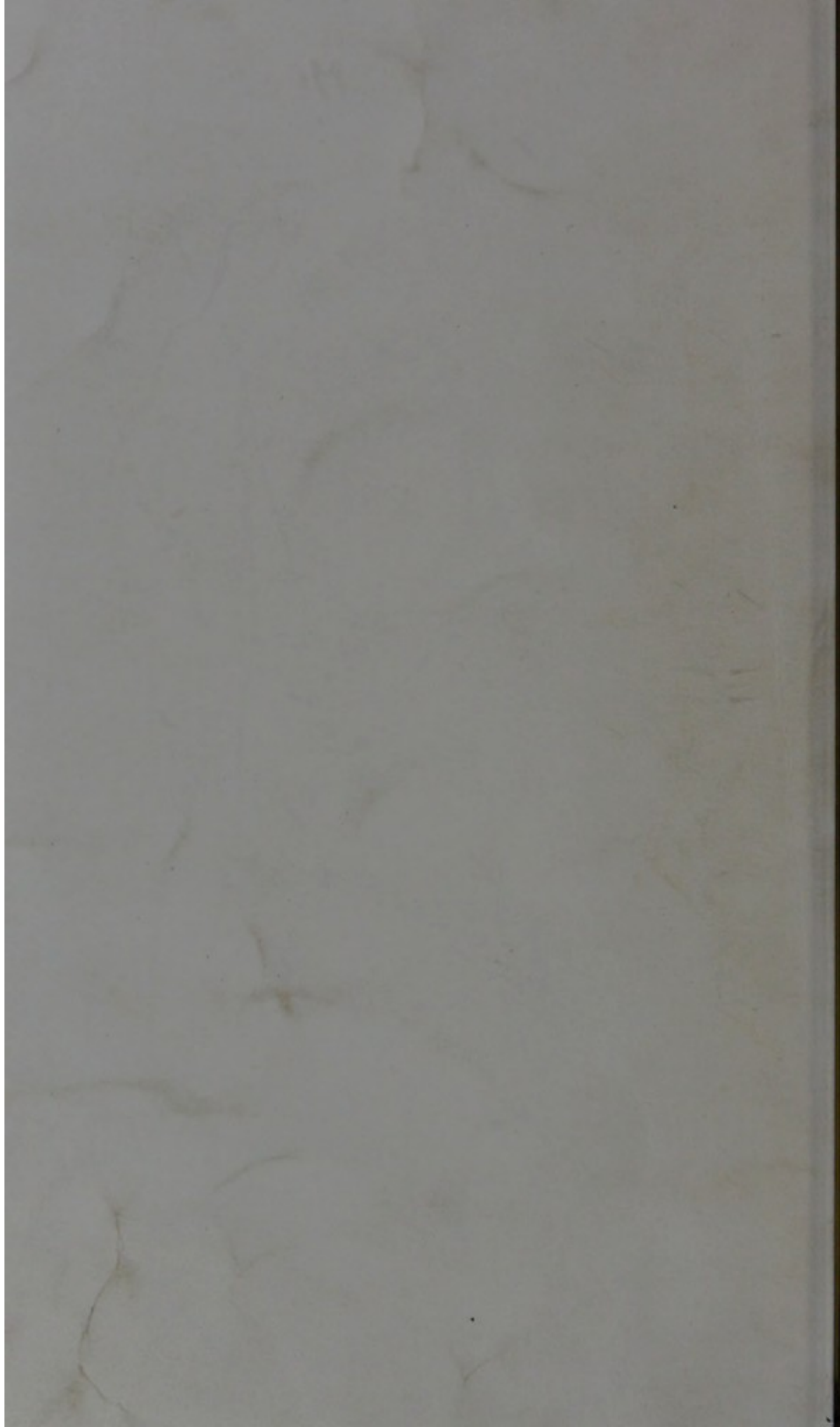
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OBSERVATIONS
ON
THE EPIDEMIC CHOLERA
OF 1848-9,
CHIEFLY AS IT PREVAILED IN THE 13TH MEDICAL DISTRICT
OF THE CITY PARISH, GLASGOW.

BY
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OBSERVATIONS ON EPIDEMIC CHOLERA.

DURING the late epidemic of cholera in the City parish, Glasgow, I had favourable opportunities of observing the disease, having had the charge of one of the seventeen medical districts, into which the parish is divided. The following observations refer chiefly to the disease as it appeared in that district; but include, also, the results of cases treated in private practice, and which occurred in various localities throughout the city.

The thirteenth medical district comprises that central portion of the city which is bounded on the upper or north side by George Street; by the west side of High Street to Stirling Street; by Stirling Street to Candleriggs; thence to Argyle Street; by Argyle Street to Buchanan Street, and thence to George Street. It forms pretty nearly an oblong quadrangle, running from east to west, half a mile in length, by a quarter in breadth. The population of the entire district can scarcely be under 14,000; and of this number, I consider that about 5,000 are of that class who avail themselves of the services of the parochial surgeon. By far the greater proportion of this class reside in the north east corner of the district, within a space 280 yards in length, by 120 in breadth, and it was within this limited area that fully nine-tenths of the cases of the late epidemic occurred.

The condition of the great mass of the inhabitants, and the general sanitary state of this portion of the district, are probably as bad as can well be conceived. The locality consists chiefly of five or six narrow streets, and about a dozen of the dirty "closes" or "wynds" for which Glasgow has acquired a discreditable notoriety. There are very few sewers, or gratings which conduct to sewers, and the greatest amount of drainage consequently takes place on the surface. The receptacles for filth consist of large open dungsteads placed either in the centre of the closes, or of the lower flats of inhabited tenements, with an open window through which the refuse is cast, and in these places of deposit, the filth accumulates till it is in such quantity as to necessitate the removal of a portion from want of space for further deposit. The cases are exceptional in which regular arrangements are made for this purpose, and in all they are miserably inefficient. Thus, in three of the worst closes of the district, I occasionally observe a frail old pauper paddling about the principal dungstead with a broom or shovel, and the entire sanitary operations of these localities are due to his solitary exertions,—in return for which, he receives the shelter, rent free, of a wretched cellar in the neighbourhood.

The supply of water is very scanty; a single pipe or fountain is made to suffice for one or more of these closes, and the trouble of going such a distance as is required in order to procure a supply, seems to be sufficient excuse for the people to limit the use of this essential element to the narrowest limit compatible with necessity.

The houses are of a wretched character, excessively over-crowded and filthy. They generally consist of one apartment, but occasionally of two, of from eight to twelve feet square, seldom containing less than four, and very commonly as

many as twelve, inmates for each apartment. A great proportion of the population is migratory, and only lodge with the party who rents the premises, paying a small pittance nightly or weekly. Beds are rarely seen—the inmates lying on the floor, often without *doffing* the clothes worn during the day. In numerous instances where the parties work in-door upon soft fabric goods procured from warehouses, the webs of cloth so obtained, serve as coverlets until the period when they are returned to the manufacturer or warehouseman. There are few of these houses in which there is not a pauper receiving out-door relief.

Fever may be considered as endemic in the district, and the expense which the parish incurs in the maintenance and attendance of the victims of epidemic, endemic, and contagious diseases, and in making the various provisions which are, in consequence, obligatory on parochial boards, cannot fall far short of the whole rental which the proprietors of these lazarettos draw from their inheritances.

During six months only of 1847, as many as 400 cases of typhus fever occurred within this portion of the district, and were treated at the cost of the parish. The total cases of disease occurring within the district, within the last two years, and treated at the cost of the parish, was 1900, of which number, fully 1000 were cases of epidemic, endemic, and contagious disease.

Cholera first appeared in the district on 9th December 1848, in the ground flat of a building in 22 Shuttle Street. The patient, a female aged fifty-six, was of occasionally intemperate habits, and her previous general health was not good. She had not been in communication with any infected district or locality so far as could be ascertained. She was immediately conveyed to hospital, where she died on the following day. I immediately got the house lime-washed, and the straw-bed on which she had lain destroyed, but the inmates would not consent to removal.

The next case occurred in the same house. A female child, aged two years, became affected on 12th December with bilious diarrhœa, which was followed on the 17th by all the symptoms of cholera. She died on the following day.

The third case occurred in 51 Shuttle Street, being on the opposite side of the street, and at a distance of about thirty yards from the last locality. The patient, a female aged twenty-six, was of irregular habits, of infirm intellect, and subject to occasional attacks of dysenteric diarrhœa. She resided in the top story of the tenement: and for a few days prior to December 18th, had been very little out of doors, and had not, so far as I could ascertain, been in communication with the sick. I had her conveyed to hospital, where she died on the following day.

The fourth case occurred in the same house with the preceding. The patient, a female, aged fifty-three, of irregular habits, and average good health, became affected with bilious diarrhœa on December 23, and, on the following day, with all the best marked symptoms of the malignant disease. She recovered after a somewhat protracted convalescence.

The fifth case occurred in 34 Shuttle Street, in the top flat of a building closely adjoining that in which the first case occurred. There is no direct communication between the buildings. The patient was a healthy temperate female, aged eighteen. She had slight diarrhœa on December 24, and next morning, soon after breakfast, she was seized with vomiting, speedily followed with purging and cramps. I had her immediately sent to hospital, where she died, soon after admission.

Up to this date, there had occurred, in all, of cholera and diarrhœa, only seven cases, all within a circle of a few yards, and at the extreme north-east corner of the district; but within the next *three* days, I was called to *twenty* cases in various parts of the district, and of this number, eleven were malignant cholera. The farther progress of the epidemic will be best illustrated in the following table, which includes all cases of cholera, and of other diseases which occurred in the district, within the period specified.

No. I.

Table of Cases of Disease occurring in 13th Medical District, from December 9, 1848, to March 10, 1849.

Divisions of Table.	Classification of Cases.	Total Cases.	Number of Cases in the week ending													Total Deaths.
			Dec. 16.	Dec. 23.	Dec. 30.	Jan. 6.	Jan. 13.	Jan. 20.	Jan. 27.	Feb. 3.	Feb. 10.	Feb. 17.	Feb. 24.	Mar. 3.	Mar. 10.	
A. Cases of Choleraic Disease.	1. a. Bilious purging	47	2	...	13	3	11	3	11	2	...	...	1	...	1	2
	b. Bilious purging, with vomiting or cramps	23	...	...	1	9	2	6	4	...	1	...	...	...	...	...
	c. Bilious purging, vomiting, and cramps	12	...	1	1	4	2	1	1	...	1	...	...	1	...	...
	2. Vomiting and cramps	7	...	...	...	1	1	1	...	1	2	1	...	...	...	...
	3. Serous purging	12	...	...	...	5	2	...	1	1	2	1	...	...	...	...
	4. a. Serous purging, with vomiting.....	14	...	...	4	2	3	1	...	2	...	...	1	...	1	5
	b. Serous purging, with vomiting and cramps	67	1	2	21	12	11	7	7	2	1	2	1	...	...	32
	Total cases	182	3	3	40	36	32	19	24	8	7	4	3	1	2	39
	Of the above there was sent to hospital of Class 4 ...	17	1	1	3	3	3	...	3	3	...	...	...	...	...	...
	Deaths from Class 4 at home	24	...	1	5	10	2	3	1	...	1	...	1	...	...	...
B Diseases <i>not</i> Choleraic	... .. in hospital	13	1	1	2	3	3	...	2	...	1	...	...	...	...	...
	Acute diseases, or of recent origin	67	4	2	0	4	8	7	7	8	4	8	3	7	5	5
	Chronic diseases, or of very trivial nature	104	5	2	4	4	13	8	8	8	17	7	10	7	11	...
	Deaths	5	...	...	...	2	2	1	2	...	...	...	...	...	...	...

In this and subsequent tables, I have classified all cases of disease which partook of the epidemic character, according to the manner in which certain very evident and easily recognised symptoms were grouped. This will enable me better to convey the result of my individual observation and experience; the vague and ill-defined use of the term "*cholera*," leading to most unsatisfactory and contradictory inferences. One practitioner loses fifty per cent. of his cases of cholera, and another boasts of 1 death in 100. It is therefore highly desirable that every medical man, who contributes his share of experience to the general stock, should define rigidly the meaning of any important term of which he makes use, so that his labours may be made available by subsequent *collaborateurs*. With this object, I have endeavoured to analyse the cases of epidemic disease in such a form as will enable any one who studies them, to draw his own inferences.

In the first class of cases, the dejections were characterised by the presence of bile or fæces. In the third and fourth classes, the dejections, to all appearance, and from such an examination as could be made at the bedside of a patient, contained no bile or feculent matter. With the exception of two cases of bilious diarrhœa which continued for several weeks, and from their protracted severity, exhausted the strength of the patient, no fatality occurred in the three first classes. It is, therefore, to the last class that I restrict my application of the term "*cholera*," viz., to cases characterised by a purging and vomiting of serous fluids without admixture of bile or feculent matter, and generally accompanied with spasms of the extremities. At the same time, I have no doubt that all of these cases partook of the same character, and originated from the same source, and that the differences observed were only those of degree, or in other words, were results of the same morbid influence, modified by individual peculiarities, circumstances, predisposition, &c.

In the first class, the stools were generally of a dark blackish colour, always loose and watery, and containing bilious matter, with a feculent odour; occasionally they resembled thin pea-soup, and between these extremes, there were various degrees of appearance and consistence. The first call to stool was, in many cases, sudden, and they were afterwards very frequent. They occasioned little or no pain, and were rather accompanied with a feeling of relief. In a few cases, spasms were the forerunners of the diarrhœa.

In the second class of cases there was no purging, the bowels rather *tending to constipation*.

These two classes of cases were very amenable to treatment. In many the effects of medicine were immediately evident, and, with the exceptions already quoted, all terminated favourably. They included, nevertheless, numerous serious cases, requiring assiduous watchfulness and active treatment. In eight cases there was morbid suppression of urine; in twenty-eight there was induced such an amount of prostration, with marked coldness of surface, that I have termed them collapsed, and in twenty cases there existed a febrile condition characterised by high pulse, dry red tongue, heat of skin, thirst, &c., and lasting for several days.

The third class of cases had neither bile nor feculent matter in the dejections, which were identical with those of the early stages of cholera. These cases were also very amenable to treatment. One case of cholera was seen and treated in this stage and was doing well, but the patient improperly went out and exposed himself for several hours to cold and wet, which was followed by a return of symptoms in an aggravated form, and the case ended fatally.

Very few cases of the fourth class, or that to which I apply the term *malignant cholera*, occurred without the patient being affected with premonitory symptoms. Some individuals had, for days previous to the attack, headache more or less severe, nausea and sense of oppression at pit of stomach, rumbling sensations in the bowels, and a peculiar pallid aspect. But as few persons living in the affected localities failed to experience, at frequent intervals, these and other anomalous disturbances of the general health, which were not, however, followed by any other or more severe affection, I am not disposed to place much

weight on their presence as a forerunner of cholera. Some cases occurred in which I could not learn that the patients had been affected with any premonitions of disease, and which had suddenly, and within a few hours, passed into the extremest state of cholera; but in most of these cases the parties had been, for several hours or days previously, indulging in spirituous drinks, and in that way undoubtedly lowering the tone of vitality, and rendering the system more susceptible to the impressions of epidemic influences. In other cases of a sudden nature, the symptoms occurred close upon the taking of a full meal, and especially where the food was of unaccustomed kind, or of difficult digestion. In no instance did I observe a case of *cholera foudroyant*, as it is termed, *i. e.*, where the patient, while in the full possession of his accustomed health, and without any premonitory symptoms, is alleged to have been at once, and like a lightning stroke, prostrated by the disease. On the contrary, I found that besides the premonitions already spoken of, there was in sixty-nine cases a loose state of the bowels, unaccompanied by any other urgent symptoms, for a period varying from five or six hours to as many days, and very commonly two days. During this period the stools were bilious and feculent, and the general condition in nowise to be distinguished from that attending an ordinary case of diarrhoea, excepting that there was not the same amount of pain or uneasiness that generally attends a bowel complaint. So little alarm or inconvenience did this state of health occasion, that the patients spoke of it with unconcern, and often attended to their ordinary avocations. This relaxed state of the bowels was observed so frequently to precede an attack of cholera, that I regarded it as the most practically valuable indication of the approaching disease, and a symptom, therefore, that should never be neglected during the prevalence of a *cholera epidemic*. In a very few instances I have heard statements of a contrary kind; but in investigating into this point, a source of misapprehension requires to be guarded against. The attention of the lay community is naturally directed to that period of a disease in which the condition of the sick becomes alarming, and evidently dangerous. They attach little importance to symptoms, which, in their view, can have had little influence upon the progress of the complaint, and they are guided in these impressions in reckoning the outset of illness. In this way reports of cases are circulated which convey exaggerated impressions regarding the fearful rapidity of fatal cases, and the blind uncertainty with which this disease strikes its victims—reports which are calculated to paralyse the measures of prudent precaution, by exhibiting the apparent futility of such attempts. From the same causes some practitioners allow themselves to be misled, and without any or sufficient investigation, adopt statements which, when subsequently given forth by them, tend greatly to embarrass the researches of others, who, with greater interest and nicer discrimination, seek to discover the landmarks of medical science.

After more or less of premonitions, as already described, the patients affected with cholera passed into the *active stage*, in which there was profuse and frequent evacuations from the stomach and bowels, generally accompanied with spasms. The stools, always watery and opalescent, varied in appearance—water tinged with milk, and having scales of bran suspended through the fluid, or forming a small sediment at the bottom of the vessel, would give a tolerably accurate idea of their general character. Sometimes they were more opaque, and had a cream-like froth at top, at other times they were of a dark tinge resembling moss water. Latterly they became as clear and limpid as pure water. There was commonly no offensive odour, although occasionally the odour was peculiar and very offensive. The quantity passed at one stool varied greatly. At the commencement of the active stage, it was not uncommon for three, four, or five pints to be discharged at one evacuation. After one or two large stools, the others varied in quantity from a few ounces to a pint, and continued to be passed for several hours, as often as one every few minutes or half-hour; the number of stools being generally in the inverse proportion to the quantity passed at each stool. For in some cases, after one or two large evacuations, which seemingly drained the body of its whole fluids, the patient sunk

at once into collapse, and any further discharge from the bowels oozed away without effort or consciousness. Vomiting or retching, which sometimes preceded, and always accompanied the other symptoms, was frequently very distressing to witness, and in the early period of the epidemic, I was anxious in devising measures for its alleviation. I am now satisfied that it is not always an unfavourable symptom, having observed that in most of the cases which recovered, vomiting or retching had been a very severe symptom, and little under the control of curative measures. In some instances I have even ventured to give mustard in hot water, as an emetic, and, as I have supposed, with good effect. The act of vomiting did not often seem to occasion great distress to the patient, although the contents of the stomach were thrown off with great force; that viscus alone seemed frequently to be the sole propelling power,—the abdominal muscles not being called into play, or not in the same degree as is observed in ordinary vomiting.

After the purging and vomiting had continued for some time, generally an hour or more, spasms supervened, affecting chiefly the flexor muscles of the toes and legs. Less frequently the upper extremities were affected, and in such cases, they assumed more of the character of clonic spasm, were less painful and more persistent. The greatest suffering, and, I may add, the greatest danger, seemed to be in those cases in which the abdominal muscles, and especially the diaphragm, were mainly affected, as they often were towards the termination of those cases which ended fatally.

Spasms were present in sixty-five cases, but in some they existed only in slight degree, and were not much complained of.

Two cases were singular with regard to this symptom. The patients were both females, and during the active stages of a very severe attack, had not in the slightest degree been affected with spasms; but when fairly convalescent, and at a distance of eight or ten days from the accession of their illness, they were seized with spasms of remarkable severity, affecting by turns every part of the body, and causing severe suffering for fully twenty-four hours.

The *active stage* of the disease, after continuing for a period varying from two to twenty-four hours, was succeeded by that of *collapse*. In this condition, the surface of the body became perceptibly cold to the hand of a bystander, and the strength of the patient seemed entirely prostrated. In numerous cases this state of depression was very extreme. The coldness was more intense than that of a dead body, and the surface became bedewed with a cold unctuous sweat; the voice was reduced to the faintest whisper, the eyes deeply sunk in their sockets, and surrounded with a livid areola; the features pinched and of a ghastly expression; the skin of a pewter, or deep livid colour; the members contracted, and the whole body shrunk in its general volume; the expired air felt cold and raw, and the pulse could not be felt at the wrist. In some cases it was with difficulty it could be ascertained that the patient was actually in life. From this extreme state of collapse I have observed very few recoveries.

In a larger proportion of cases, collapse was present in a less intense form, the degree of severity varying in individual cases. In two cases, there was not such an amount of depression as to warrant me in terming them collapsed.

When death did not take place in collapse, there succeeded within a period varying from a few hours to several days, the stage of *reaction*, a condition more or less febrile, in which the pulse and natural warmth gradually returned; the face became flushed, and occasionally there was slight delirium. The secretions were also gradually restored, bile appearing in the stools, and urine being passed in natural quantity,—after which recovery generally took place. Sometimes a smart attack of hiccup seemed to be the first indication of favourable reaction. In other cases, this reaction, or rallying of the powers of nature, was characterised by a smart attack of vomiting of fluids mixed with bile, and by the stools becoming excessive in quantity, or containing vitiated bile, or bloody mucus as in dysentery. This dysenteric condition proved fatal in one case after a lapse of several weeks, and in some others, it caused the convalescence of the patient to be considerably protracted. Reaction occurred

in seventy-nine cases, but in seven of these, the primary symptoms suddenly returned; and the patients passed for a second time into collapse, and died within a few hours. These cases were truly disheartening, as, in some, there had been for several days the most encouraging signs of amendment, and their recovery was hardly a matter of doubt.

In twenty-one cases, reaction was succeeded by a low fever closely resembling our common typhus, and which, in most instances, seemed to depend on structural lesions of the viscera of the abdomen, chest, or head. Where the head was implicated, the patient lay in a drowsy or semi-comatose condition, capable of being roused, and of answering questions coherently; the sclerotic became intensely congested; the pupils contracted as if from opium, and the eye-balls turned upwards. This state generally ended in complete coma and death.

In some cases from the commencement, and in all within a few hours, the patients became tormented with an insatiable thirst for cold drinks. No supply seemed sufficient to give more than momentary relief; and in many, the fluids swallowed were immediately and invariably returned by vomiting. The quantity swallowed was often enormous, and the desire continued, even in the extremest state of collapse as long as the sufferer retained his consciousness, and was able to intimate his wishes.

In every case seen before reaction had taken place, the tongue was cold and moist, and of a pale or white colour. The pulse was commonly slow, feeble, and like a thread under the finger, often very indistinct, and sometimes altogether imperceptible for many hours before death. The action of the heart, which was not always noted by me, was generally low and the sounds indistinct; sometimes it was tumultuous, and occasionally the impulse was very violent and strikingly perceptible. The respiration was short and laborious, and often accompanied with rough gurgling rales. A constant uneasy restlessness was present in almost every case, but especially in those where the collapse was not extreme; and in all the severe cases of collapse, the patient complained of intolerable burning pain around the heart. I have frequently observed, that before the stage of collapse, and while the body continued warm, the patient complained of a feeling of cold, while, in the stage of collapse, an opposite feeling was manifested.

In several cases, not only of true cholera, but of the less severe forms of choleraic disease, there was observed an eruption of a measly character, chiefly confined to the neck and trunk; and one case, where this eruption was strongly apparent, ended fatally.

I have not met a case of that kind where death is alleged to have taken place without purging; so contrary is my experience, that I regard the disease as purging, and the danger to depend, *cæteris paribus*, on the amount and suddenness of the evacuation. The amount of fluids discharged from the stomach and bowels, was productive of very different effects in different cases, as might naturally be expected. A person of meagre spare frame will be thrown into severe or fatal collapse from the loss of a quantity of fluids which would not cause any serious results to another whose body was of an opposite build.

Nothing short of actual observation can give a proper conception of the extraordinary change which takes place within a few hours in the appearance and condition of a cholera patient, and it is even more difficult to expect the recovery of a patient in such apparently hopeless circumstances. In six cases, however, where the pulse at the wrist had, for several hours, been quite imperceptible, and in fifteen cases where the surface was of marked livid hue, recovery took place.

On the subject of treatment, I have little satisfactory to communicate. It would indeed be difficult for me to select a case of recovery in which I am clearly satisfied that the treatment had produced that result. That treatment was beneficial, may, however, be inferred from the following analysis of cases, showing the period which had elapsed from the onset of active symptoms, till that in which the case was brought under treatment.

	Cases.	Deaths.	Recoveries.
Not longer ill than six hours,	33 ...	7 ...	26
Ill more than six, and not longer than twelve, hours,	24 ...	8 ...	16
... twelve, ... twenty-four,	20 ...	9 ...	11
Upwards of twenty-four hours,	16 ...	10 ...	6
	93 ...	34 ...	59

Those cases, therefore, which were earliest brought under medical treatment, recovered in the largest proportion.

As to the remedies employed either in combating individual symptoms, or in dealing systematically with the disease, it would be tedious and unprofitable to enter into detail. My routine practice latterly, and in the majority of cases, was to rely, in the premonitory and active stages, upon the acetate of lead, with opium and capsicum, in small doses, frequently repeated. In the stage of collapse, I gave calomel sometimes, in small doses, and at very short intervals, sometimes in 10 grains or 3j doses at longer intervals. Large doses of calomel had a decided effect in allaying the vomiting, much more so than any remedy which I tried. Moderate warmth was kept up with hot bricks and bottles of hot water, and frictions were employed to relieve the cramps. Turpentine was chiefly employed for this purpose; but I believe that the real efficacy lay in the rubbing alone. Cold fluid drinks were permitted, in small draughts at a time, *ad libitum*. Plain cold water was the drink most anxiously desired, and was always permitted. When practicable, I substituted the albuminous drink recommended by Dr A. Buchanan, consisting of water, sweet milk, white of egg, and a little common salt. In a number of cases in the stage of collapse, I administered this albuminous emulsion in the form of tepid enemata, and with very satisfactory results. That these enemata were largely absorbed, there can be no doubt, as, in some cases, I have injected several pints *per diem* for two days in succession, not one spoonful of which was returned.

Mustard sinapisms, or other rubefacients, were used in most cases, but with very questionable effect, either beneficial or otherwise. In no case did I think it necessary to prescribe spirituous stimulants internally. Often, however, they were administered prior to my being called, and sometimes they were tolerated, where, from the condition of the patient or other circumstances, I did not feel justified in opposing a popular prejudice. A very favourite remedy with the poor was whisky or brandy stirred thick with black pepper. In numerous cases I prescribed as a stimulant carbonate of ammonia, in the proportion of forty grains to the pint of water, a table-spoonful of which was given at frequent intervals, and, I think, with occasional benefit.

A very important subject is the treatment of the sick in the hospitals.

In addition to the cases already commented upon, and which were treated at the houses of the sick, there were seventeen cases of cholera sent to Clyde Street hospital, only four of which recovered. This result could not be owing to difference in treatment, as the sick in hospital wanted nothing that skill and humanity could suggest. Neither was it owing to the cases being of a more malignant character than those treated at home, nor to delay in transmitting the patients to hospital, nor to there being an undue proportion of the early cases of the epidemic. The first table shows the period of the epidemic at which the cases occurred; six of the cases were sent to hospital within six hours of attack, four cases within twelve hours, three within eighteen hours, and four were sent after reaction had taken place. The cases were of average severity. A very large proportion was of the female sex, and none were under ten years of age. What, then, was the cause of so marked a difference in the result?

Almost from the instant of attack, a cholera patient may be considered as engaged in a death struggle. To be raised in this dying condition, carried along crooked stairs and narrow passages to a cholera van, to be there rattled and jolted for a distance of half-a-mile or upwards, followed by a second transference to the hospital ward, cannot be considered an unimportant process by any medical man who has witnessed the disease. I set aside any consideration of the probable effect on the mind of a patient, as I have observed that in

cholera the patient is singularly apathetic, presenting in this respect a contrast to a fever patient. At first, when I had all my experience to gain with regard to the treatment of cholera, I was favourably disposed to the employment of hospitals, and looked with painful apprehension to the treatment available to the sick poor, residing in dwellings abounding in negatives, *sans* food, fire, bedding, clothing, light, air, quiet, attendance, &c. &c. I am now, however, clearly satisfied that a pauper patient, lying on his wisp of straw or bare floor, with a relative or other attendant to supply him with a draught of cold water, and to surround him with a few hot bricks, has his chances of recovery fearfully diminished by removing him to all the comforts and *refined* treatment of an hospital. If my experience on this subject were singular, I would hesitate to venture so decided an opinion, but, from careful inquiry which I have made among many of the parochial surgeons, I find their experience so entirely corroborative, that I feel justified in condemning the principle of hospital treatment for cholera patients. Hospital provision must undoubtedly be made for cases which cannot otherwise be dealt with, such as those which have been abandoned by relatives or others; these hospitals should, however, be within a very limited distance—in short, mere temporary hospitals, on the simplest and smallest scale for limited districts. Motives of economy and expediency may be pleaded in urging the adoption of large central hospitals, but much information of a satisfactory kind is wanting to show that their use is advantageous or even economical, and to satisfy a medical man that he is not casting heavy odds against the life of a patient who is conveyed thither by his order.

The subjoined tables contain the results, and an analytical view of the most important facts connected with all the cases of choleraic disease which came under my observation.

There are various points intended to be illustrated in these tables, and to several of these I will refer briefly in explanation, restricting my comments to those cases which I have termed cholera. I have first to remark that the mortality in private and in parochial practice was much alike. With reference to age, it will be seen that the mortality under ten years was $55\frac{1}{2}$ per cent.; between ten and thirty it was $12\frac{1}{2}$ per cent. only; between thirty and fifty it was 30 per cent.; and above fifty years it was nearly 42 per cent. The number of females affected with cholera was absolutely greater than males, but the relative mortality was less—that of the males being 46 per cent., and that of females 39 per cent.

By far the most severe cases were those in which there was no premonitory diarrhoea, by which I mean, that within a less period than five or six hours from the first loose stool, the evacuation lost all appearance of bile or feculent matter, and either vomiting or spasms supervened. The mortality in these cases was 50 per cent. Where premonitory bilious diarrhoea existed for five or six hours prior to the occurrence of serous stools, and of vomiting or spasms, the cases were of milder character, and the mortality was 31·8 per cent.

The previous general health and habits had, as might, *a priori*, have been expected, an important influence on the chances of recovery. Children under ten years cannot be said to have acquired habits; their early age is also of even more consequence than their previous general health. I have therefore entered their cases in the column headed “not known.”

A section of the table shows the number, &c., of cases occurring in infected houses. I have entered the first case which happened in any tenement in the column headed “non-infected;” when a second occurred in the same building or house it is entered in the respective columns headed “infected.”

In farther illustration of this last point, I have with considerable labour prepared a sufficiently accurate return of the number of houses, and the extent of population, comprised in those tenements in which any cases of choleraic disease occurred, and which came under my treatment in parochial practice. I have also ascertained the number of additional cases which occurred in the same tenements, and which either received no treatment, or did not come under my cognisance at the time. I exclude some isolated cases which happened in buildings inhabited by a mixed or superior class of population, and in which certain information could not be obtained.

{ Number of tenements in which choleraic disease appeared,	45
{ Number of houses contained within the above tenements,	426
{ Population of the above houses,	2035
{ Of the houses above referred to, the disease was confined to	107
{ The population of the houses to which the disease was confined, was	483
{ The number of individuals actually affected was	213

From this it appears that in those buildings in which choleraic disease occurred, the number who were affected with illness amounted to ten per cent. of the entire population of the tenements, while the individuals who resided within the same houses with the sick, were affected in the proportion of forty-four per cent.

Taken in the mass, the circumstances and habits of these individuals were alike, and they all inhabited similar localities, and may therefore be considered to have been equally exposed to a general atmospheric or epidemic influence. It appears difficult in this view to account for the comparative immunity enjoyed by one section, and the large extent to which those individuals were affected who resided within the same house, or, as may be said, within the same four walls, which enclosed the sick. It certainly shows that the disease, when it does effect a lodgment, has a tendency to become intensely localised. But a large allowance must be made for the increased predisposition caused in the inmates of an apartment containing a sick person, and proceeding from inability to secure the customary attendance and comforts—want of their usual rest—depression of mind—apprehension, &c. &c.

This leads me to the subject of contagion of cholera, which, however, I have neither space nor inclination to review, and yet cannot pass altogether without notice. There certainly did occur under my observation a number of circumstances and of individual cases, to some of which I have already alluded, tending strongly to show that the affection is propagated by actual contact, and I think that *where the epidemic influence is present*, contact with the sick may prove a possible cause of determining an attack in an individual otherwise predisposed. But I am much more satisfied that the cases which I saw in the early period of the epidemic, and the large proportion of those occurring during its prevalence, could not be accounted for on the principle of contagion unless by stretching the arguments for that doctrine far beyond the limits of legitimate deduction.

With regard to the efficacy of preventive measures in the way of cleansing, &c., I can say little, having had imperfect opportunities for judging. Too many agents were concerned in these operations, clashing interests were affected, and views diametrically opposite as to the manner and extent in which the instructions of the Board of Health should be carried out, were held by the principal parties who directed these operations. The partial cleansing which was effected in the district under my charge, was carried on after the disease had attained its acme, and was followed by no marked results, as for every instance of exemption enjoyed by the inmates of a house which had undergone cleansing, there could, I have no doubt, be furnished a counter case. In only one instance was the experiment of cleansing, as a preventive, fairly tested, and I think the circumstance worthy of notice. At No. 15 College Street, there is a back tenement of four stories, having a building of equal height in front at a distance of about nine feet, a considerable part of the ground-story of this back tenement forms a common dungstead, and it is built up at the back by another tenement of nearly equal height, and with an interval of *only ten or twelve inches*. This latter building forms a part of the "Broad Close," viz., Nos. 4 and 6, and contains nearly the same number of houses and of inhabitants as the back tenement of 15 College Street, and the houses are tenanted by the same class of inmates. The entrance to both buildings is from different streets, and the inhabitants have no communication with each other, save in wordy warfare from the back windows. The building in 15 College Street is, therefore, as unfavourably situated, with regard to light and ventilation, as can well be imagined. The two tenements thus closely approximated, have hitherto been nurseries of disease. During the last six months of 1847, almost every

house had two or more cases of typhus. I anticipated, therefore, a considerable amount of disease in this locality, and from the outset of the recent cholera epidemic, I directed special attention to these buildings, and caused a house-to-house visitation to be made once or twice daily by my assistants. From first to last there occurred in 15 College Street, only two cases of choleraic disease, while in Nos. 4 and 6 Broad Close, there occurred fifteen cases, of which three proved fatal. It may be difficult to account for this unusual contrast, unless from the circumstance that the relative condition of the two tenements became altered a few months prior to the commencement of the epidemic. No. 15 College Street passed into the hands of a factor who, within a few months, caused all the houses and lobbies of the tenement to be whitewashed thoroughly several times, and by constant inspection enforced habits of cleanliness on the tenants. In Nos. 4 and 6 Broad Close, matters remained in their usual dirty condition.

A new element in the treatment of cholera consists in the house-to-house visitation, first suggested twenty years ago by Dr Kirk of Greenock, and adopted during the late epidemic under the orders of the General Board of Health. In the city parish of Glasgow it was only very partially carried out, and to that extent was productive of beneficial results. In reference to the effects in the district of which I had the superintendence, I may make a few extracts from a letter which I addressed to Dr Sutherland on the subject:—

“As regards the principle itself of the system of house-to-house visitation, I am satisfied that it is good, and that in no other way can a large proportion of cases, and especially of the incipient stages of cholera, be brought under notice or under medical treatment. * * * *

“Cases of cholera have been discovered which were fully developed in the symptoms, or were collapsed, or were actually dead, which had not undergone medical treatment, and which would not otherwise have been brought under medical notice; and numerous cases of disorders of the general health, believed to be premonitory of cholera, have been brought under effective medical treatment. * * * *

“I place little or no value on house-visitation, so far as relates to the more successful treatment of cholera. The chief value of the system I believe to be in the moral agency which is brought to bear on the ignorant and unreflecting—in the stimulating and teaching of the people—in the continuous iteration of advice and warning as to the subject of individual health, and the means of avoiding and preparing for the common danger. After this, which is the main result to be looked for, I place the very satisfactory control which medical aid, timeously applied, possesses in tying down, as it were, at a certain stage, the large majority of those cases of disease which prevail during a cholera epidemic, and which, however slight, must all, in some measure, be regarded as modified or undeveloped results of the general choleraic influence pervading the locality. On the whole, I am satisfied that, through the agency of house-visitation, many lives have been saved, and much aggravated disease and suffering obviated.”

¹ From careful inquiries I have ascertained, that a considerable number of cases of cholera occurred, which from first to last did not receive any medical treatment. In other cases the patients had received only a casual visit from some neighbouring practitioner. In one instance I entered a deserted house, and found, in a back apartment, the corpse of a female, only a few hours dead from cholera. She had not been seen by any medical man, and the other inmates, being filled with apprehension, had fled the house and abandoned her during life. In several instances the doors of houses were secured against the intrusion of myself and assistants, from an impression, prevalent among the poor, that the medical men were hired by the parochial boards with sinister intentions regarding the poor, and that they received a remuneration of so much for every *bona fide* death from cholera which they could report as having occurred in their hands. In the same houses which furnished the majority of cases treated by me there occurred twenty deaths, of which cases none were seen by me during life; and at least in nine of these there was received no medical treatment whatever; while most of the others were only partially brought under treatment.

No. II.

Table of Cases of Choleraic Disease, including Cases in Private Practice.

Divisions of Table.	Classification of Cases of Choleraic Disease.	Total Cases.	Total Males.	Total Females.	Under 10 Years.		10 & under 20		20 & under 30		30 & under 40		40 & under 50		50 & under 60		60 & under 70		70 & under 80	
					M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
A. Cases treated at the Houses of the Patients.	1. a. Bilious purging.....	76	35	41	7	7	6	5	11	11	6	10	3	4	1	4	1	...	...	...
	b. Bilious purging with vomiting or cramps.....	40	18	22	4	2	2	2	4	2	6	4	...	7	1	4	1	...	...	...
	c. Bilious purging, vomiting, and cramps.....	14	5	9	...	...	1	...	2	3	2	4	...	2	...	...	...	...	...	...
	2. Vomiting and cramps.....	10	4	6	...	...	...	...	...	3	2	2	...	...	...	...	...	...	...	...
	3. Serous purging.....	20	8	12	1	...	1	3	1	3	3	4	...	...	2	2	...	...	...	...
B. Analysis of Class 4 treated at Home.	4. a. Serous purging with vomiting.....	28	18	10	9	3	...	1	3	1	2	3	2	2	1	...	...	...	...	...
	b. Serous purging, vomiting, and cramps.....	65	23	42	2	2	2	3	3	11	6	12	5	9	3	2	...	...	1	...
	Total cases.....	253	111	142	23	14	12	14	25	33	26	40	10	26	9	10	5	5	1	...
	Deaths from class 4.....	7	6	1	6	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do.	27	13	14	2	1	...	1	...	2	3	6	5	2	2	...	1	2	...	...
C. Cases sent to Hospital.	With premonitory bilious diarrhoea.....	69	29	40	8	4	2	2	4	9	6	12	5	9	2	2	2	2	...	...
	With no premonitory bilious diarrhoea.....	24	12	12	3	1	...	2	2	3	2	3	2	2	2	...	...	1	1	...
	Deaths with premonitory bilious diarrhoea.....	22	11	11	5	2	...	1	...	1	1	4	4	2	...	...	1	1	...	...
	Do. no.....	12	8	4	3	...	...	...	...	...	2	2	1	...	2	...	...	...	...	...
	Deaths in stage of collapse.....	19	8	11	3	1	...	...	...	2	2	5	2	1	1	...	...	2	...	...
C. Cases sent to Hospital.	Do. after reaction.....	15	11	4	5	1	...	1	...	...	1	1	3	1	1	...	...	...	...	...
	Total cases.....	93	41	52	11	5	2	4	6	12	8	15	7	11	4	2	2	3	1	...
	Total deaths.....	34	19	15	8	2	...	1	...	2	3	6	5	2	2	...	1	2	...	...
	Cases of cholera sent to hospital.....	17	6	11	...	...	1	2	2	5	1	1	...	1	1	2	2	...	1	...
	Died in hospital.....	13	4	9	...	...	...	...	1	3	1	1	...	1	1	1	...	...	1	...

No. IV.

Table of Fatal Cases of Cholera, exclusive of Cases sent to Hospital.

Age.	Total Deaths.		Males.	Females.	Hours.			Days.											
					6 to 12	12 to 18	18 to 24	1	2	3	4	5	6	7	8	above 9			
					M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F
Under 10 years	10	8	2	1	...	...	...	...	1	...	1	2	...	2	1	1	...	1	...
10 and under 20 years	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
20 ... 30 years	2	...	2	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...
30 ... 40 years	9	3	6	...	1	3	...	1	...	...	1	...	2	...	...	...	1	...	...
40 ... 50 years	7	5	2	...	...	...	...	1	...	1	1	...	1	...	...	1	...	...	...
50 ... 60 years	2	2	...	...	...	1	...	...	...	...	...	1	...	...	...	...	1	...	...
Above 60 years	3	1	2	...	...	2	...	...	...	...	1	...	...	...	...	...	...	...	...
Total	34	18	15	1	6	1	3	3	3	5	4	3	2	1	2				



