ON THE TREATMENT
OF
CHOLERA AND EPIDEMIC DIARRHŒA;
WITH A RECORD OF CASES.

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THERE are few subjects connected with medical science upon which greater diversity of opinion exists than upon the nature and treatment of cholera.

The disease occurs so seldom, is so obscure in the laws of its causation, so insidious in its development, so alarmingly rapid in its progress, and generally so short in its stay as an epidemic, that opportunities are wanting to investigate its nature thoroughly. Each epidemic has, however, done something towards elucidating the pathology of the disease.

From the accumulated material of the past much of the doubtful and erroneous has been removed ; facts have been retained and hypotheses inconsistent with them abandoned. Opinions that formerly it would have been heresy to question are now scouted as erroneous. Medicines that were formerly looked upon as sheet-anchors in the treatment of the disease have been laid aside with the hypotheses involving their administration. We were long taught to believe that the essential phenomena of cholera were referable to a drain of fluid from the blood produced by the intestinal evacuations. The treatment consequent upon this hypothesis was the arrest of these discharges.

Of late years, however, it has received a rude shock. It has been shown to be inconsistent with many of the acknowledged facts of the disease. Another hypothesis, which is at present engaging the attention of the medical world, attributes the collapse of cholera to a totally different cause, regards the discharges as salutary, and involves a treatment diametrically opposite to the other. Which is right ? To attempt a solution of this question we must bring both hypotheses face to face with the disease, and endeavour to ascertain which of them embraces the greater number of its facts and explains the more extensive range of its phenomena.

We had unusual opportunities during the late epidemic of observing and recording the phenomena of the disease in all its phases. Our experience we give to the profession in the hope that it may assist in placing the pathology of cholera upon a firmer basis and lead to a more rational mode of treatment. The publication of mere statistics of mortality under any mode of treatment is, for pathological purposes, useless. A record of the cases must be given showing the age, habits, &c., of the patient, his condition on admission, and the effect of the therapeutical means used ; and this as well in cases that proved fatal as in those which resulted in recovery. It would, however, be manifestly impossible in a paper like the present to give a minutely detailed record of all the cases that came under our observation, amounting, as they do, to many

hundreds. We shall therefore give in the first part of our paper a detailed record of a number of cases, embracing all the stages of the disease, and showing the general method of treatment adopted. In the concluding part we purpose giving an abstract of our cases, as tending, not only to abridge our labours, but to bring within a narrow and more distinct field of view numerous facts which in narration would extend over many pages. All the cases included in our record were treated in the Liverpool Parish Infirmary. In giving our detailed cases we selected those which would best illustrate the principles of the treatment and the main pathological facts involved in the "eliminative theory." In the abstract which follows we took the cases principally according to the dates of admission. Where there was any selection, it was only exercised in order to have as much variety, and present the disease in as many of its phases, as possible.

The number of deaths given in our record represents almost exactly the absolute death-rate under the particular mode of treatment there illustrated. The total number of admissions into the Liverpool Parish Infirmary during the epidemic was 375, and the total number of deaths 161, giving a gross mortality under all modes of treatment of 42·93 per cent. The following table shows the mortality under the different modes of treatment.

TABLE I.

Mode of Treatment.	Number of cases.	Mortality per cent.
Astringent and stimulant, camphor and ice water, applications of ice, hypodermic injections	91	71·42
Castor oil, with liberal use of food and alcohol.	87	41·37
Castor oil alone	197	30·45

The first class of cases, those which were treated by astringents and stimulants, occurred, for the most part, at the very outbreak of the epidemic, and amongst a class of

patients the most unfavorable, including drunkards, scrofulous, ill-fed youths, and foundling children (*vide* 'Lancet,' August 18, 1866, paper by Dr. M'Cloy). We cannot, therefore, attribute the high mortality under this mode of treatment to the greater severity of the epidemic at that time, because the mortality was much the same under the mode of treatment at every period of the epidemic. In the West Derby Cholera Hospital, indeed, the mortality continued almost as high as this throughout the whole epidemic. Again, the *sudden* decrease in the death-rate which followed the change of treatment pointed to the latter as being the cause of the former. The second class of cases was treated with castor oil, but large quantities of alcoholic stimulants, beef-tea, arrowroot, &c., were given during collapse. This we are now convinced was almost as faulty a combination as would have been that of castor oil with powerful astringents. The third class was treated with castor oil, receiving little or no alcoholic stimulants or food of any kind until reaction was fairly established. The second and third classes of cases were treated simultaneously.

Taking all the cases together, the mortality was greatest at the two extremes of life, as may be seen by the following table, No. II, in which is given the total number of admissions at different ages and the per-centage of deaths.

TABLE II.

Total admissions.		Per-centage of deaths.	
Under 2 years	26	Under 2 years	57·6
From 2—10 "	52	From 2—10 "	46·1
" 10—20 "	52	" 10—20 "	25·
" 20—40 "	130	" 20—40 "	36·1
" 40—60 "	90	" 40—60 "	52·2
Above 60 "	25	Above 60 "	60·
Total	375	Average mortality...	42·93 p. c.

Table III gives the ages of the patients treated by the three different methods, with the mortality at each period of life.

TABLE III, *showing the relative ages of the patients treated by the different methods, with the mortality at each period of life.*

Astringents, stimulants, ice, hypodermic injections, camphor, &c. &c.			Castor oil, with liberal use of stimulants, food, ice, &c. &c.			Castor oil alone.		
Age.	Cases.	Death-rate.	Age.	Cases.	Death-rate.	Age.	Cases.	Death-rate.
Under 2 years	19	73·68	Under 2 years	0	0	Under 2 years	7	14·28
From 2—10 "	10	80·00	From 2—10 "	22	27·27	From 2—10 "	20	50·00
" 10—20 "	16	56·25	" 10—20 "	10	0·00	" 10—20 "	26	15·38
" 20—40 "	21	80·95	" 20—40 "	22	54·54	" 20—40 "	87	20·68
" 40—60 "	21	71·43	" 40—60 "	31	54·84	" 40—60 "	38	39·47
Above 60 "	4	50·00	Above 60 "	2	50·00	Above 60 "	19	63·15
Total.....	91		Total.....	87		Total.....	197	
Mortality under this mode, 71·42 per cent.			Mortality under this mode, 41·37 per cent.			Mortality under this mode, 30·45 per cent.		

In Table IV (see Diagram, p. 127*) the same results are shown by means of curved lines. It will be seen, that the line which represents the rate of mortality under the treatment by castor oil alone rises above both the other curves in the cases above the age of sixty. This is without doubt an accidental result of the small number of patients—only six—who were treated by the first and second methods. It so happened, that of the 4 cases above the age of sixty who were treated by astringents and stimulants, 2 recovered, giving a death-rate of 50 per cent., which is actually lower than that at any other period of life under the same treatment. This result, so contrary to the general experience of the relative mortality at different ages, is obviously an accident arising out of the small numbers included in that part of the series.

The two oldest patients that recovered were respectively aged seventy-one and seventy-two years. Both were admitted in collapse, both had fever during reaction, and both were treated with evacnants. The youngest child that recovered was three months old. Both its parents had previously died of cholera, and notwithstanding that it was admitted in a state of pulseless collapse, it made a rapid convalescence under aperient treatment.

In connection with the rate of mortality we may state that 11·32 per cent. of the cases admitted were moribund—dying in from ten minutes to nine hours after admission.

The rate of mortality and the mode of treatment of other cholera hospitals may be given for comparison. Almost all the cases treated in the WEST DERBY CHOLERA HOSPITAL came under our observation. These were considerably over a hundred in number. The treatment was either strongly astringent or consisted in the administration of calomel and opium. The mortality was 63 per cent. It is, however, only fair to state that many of the patients were brought very long distances in a collapsed condition, much valuable time being thus lost in the transit, and the patient rattled in a jumbling vehicle over a rough road. In the ASHFIELD STREET SHEDS the mortality was 50 per cent. The treatment adopted there was, we believe, at the first astringent. During the later months of the epidemic, castor-oil injections, administration of chloroform, hot injections into the bladder, and finally calomel in frequently repeated doses, were, we are informed, the principal means used. We have not as yet seen any details of cases or treatment from this hospital in any of the journals. We shall now give our record of cases, merely premising that the date of discharge had rarely any relation with the date of "cure." Our patients belonging to the very dregs of society, living in the lowest dens of the lowest streets, and surrounded by all the attendants of habitual drunkenness, squalid wretchedness, and abject poverty, were we considered very liable to fresh attacks of the disease or relapses, and we consequently kept

them as long as possible in the convalescent wards, thus converted into a temporary sanatorium.

CASE 1.—*Relapse ; recovery*.—M. O'N—, æt. 57, admitted September 6th, 1866, 6.45 p.m. Had been ill for two days with diarrhœa ; was treated with chalk mixture, laudanum and brandy. Was seized to-day with vomiting and severe cramps.

On admission.—Skin cold ; face livid ; voice husky and almost imperceptible ; pulse very weak and rapid ; intense thirst ; no purging or vomiting ; severe cramps ; considerable dyspnœa. To have ℥ss of castor-oil every hour. Sinapisms, dry heat, friction, &c., &c. 8 p.m.—Has been purged twice. Pulse rather better. To repeat oil.

7th.—Had five doses of oil and was purged very freely during the night ; skin warmer ; pulse much improved ; slept a little during the night ; cramps not complained of. Ordered small quantities of arrowroot, milk and wine.

8th.—Seems much better. To have another dose of oil.

9th.—Convalescent ; put on full diet.

10th, 8 p.m.—Was suddenly seized a short time ago with vomiting, purging, and cramps. Is now in slight collapse. To have oil every second hour, and hot enemata every hour. Mustard sinapisms : friction with phosphuretted oil. 11 p.m.—In complete collapse : pulseless at wrists ; severe cramps. Ordered five drops of chloroform every fifteen minutes for two hours. Repeated oil and injections.

11th.—Slight improvement ; pulse just perceptible in radial. Vomited twice and purged freely four times during the night ; passed no water ; thirst intense ; skin covered with a clammy perspiration. To have oil again. 8 p.m.—Improving ; pulse rather fuller ; has been purged three times ; is drowsy. To have a little ammonia mixture.

12th, 10 a.m.—Has slept a good deal ; seems much improved ; no cramps or vomiting ; skin warmer, but pulse still weak ; passed no water. To have oil again. Ordered small quantities of arrowroot and brandy to four ounces. 10 p.m.—Improving.

13th, 10 a.m.—Is rather feverish; pulse full and soft; eyes congested; respiration considerably embarrassed; skin hot. Vomited once, purged twice; passed a quantity of high-coloured urine; great thirst still. To omit brandy and arrowroot, and have effervescing mixture every second hour. To have oil again.

14th.—Improving; purged twice during the night; evacuations horribly foetid. Not nearly so feverish. To go on with effervescing mixture.

15th.—Feverishness almost gone; passed water very freely; pulse gaining strength rapidly; was purged twice. Ordered arrowroot and milk in small quantities.

16th.—Still keeping better.

17th.—Convalescing rapidly; ordered beef tea. To have a dose of oil.

19th.—Put on full diet.

24th.—Discharged cured.

Remarks.—It will be remarked that the relapse in this case, if not consequent upon, at least followed the administration of nitrogenous food and alcoholic stimulants.

CASE 2.—*Collapse with subsequent relapse and recovery.*—M. C—, æt. 35, admitted September 4th, 6.30 p.m. Is of intemperate habits; had an attack of diarrhœa yesterday morning which continued all day, although she took “a good deal of cholera mixture and brandy.” Vomiting and cramps began this morning.

On admission.—Considerable collapse; pulse just perceptible in radial; eyes much sunken; voice husky and very feeble; temperature in axilla 95° Fahr.; extremities cold and livid; great thirst and severe cramps; no vomiting or purging. To have ℥ss castor oil every hour for three doses; to be repeated if vomited. Dry heat, sinapisms, friction, &c. 10.30 p.m.—The three doses of oil retained; no purgation; no improvement; pulse not perceptible in radial. To have another dose of oil and an enema of hot gruel, and ℥j of oil; the injection to be repeated without the oil every third hour.

5th.—Was purged very freely during the night; passed

water freely; no vomiting or cramps; pulse distinct at wrist. Inclines to sleep. Ordered a little ammonia mixture and wine.

6th.—Convalescing rapidly. To have oil.

7th and 8th.—Still doing well; pulse good; bowels have acted twice every day. Ordered beef tea and arrowroot.

9th.—Put on diet.

12th, 7 p.m.—Was seized at 5 p.m. with vomiting, purging, and cramps. Is now in slight collapse. Ordered a mustard emetic, to be followed in half an hour by ℥ss castor oil. Oil to be repeated every half hour for four doses.

13th, 10 a.m.—No improvement; has had five doses of oil; purged freely during the night; ordered a little ammonia mixture and a hot enema. 8 p.m.—Much improved; has been purged three times; pulse much stronger; general appearance better.

14th.—Improved considerably. To have a dose of oil.

15th.—Had considerable vomiting last night; is much better this morning; passed water freely twice. To have small quantities of arrowroot and brandy.

18th.—Recovering rapidly.

21st.—Put on diet.¹

25th.—Discharged cured.

CASE 3.—*Great collapse; fever during reaction; recovery.*
—C. B—, æt. 35, admitted September 28th, 11 a.m. Has been ill since midnight, when she was seized with vomiting, purging, and severe cramps.

On admission.—In almost complete collapse. Pulse just perceptible at wrist; cramp very severe; extremities quite purple; great thirst, &c. Ordered ℥ss castor oil and ʒj turpentine, to be repeated at once if vomited, if not, in two hours. To have fifteen minims of chloroform every half hour for two hours. Dry heat, sinapisms, friction. 3 p.m.—No improvement; no purging; vomited first dose

¹ *Diet* includes tea, coffee, potatoes, meat, soup, &c. *Full diet* includes these with extras (*e.g.* chops, eggs, milk, &c.).

of oil. To have an emetic and two more doses of oil. To have hot injections. 11 p.m.—Vomiting frequent and cramps severe; retained one dose of oil; purged twice, discharges horribly offensive. To have oil and injection repeated. To have small quantities of beef tea.

29th, 10 a.m.—Much better; pulse distinctly perceptible. Vomiting less; skin warmer; no cramps; purged freely during night; passed no water; inclines to sleep. Ordered effervescing draught with a little brandy every second hour, and hot beef tea injections. 8 p.m.—Vomiting a little. To omit brandy and give ammonia mixture.

30th.—Rather better; skin warm and moist; inclines to doze; vomiting a little still; no purging; passed no water. To repeat oil every half hour for three doses. To have *Mist. Potas. Chlor.*

October 1st, 10 a.m.—Rather better; vomiting allayed; two doses of oil retained; purged twice during the night. To have a little brandy every second hour.

2nd.—Improving rapidly; slept well; passed water freely; purged once; no vomiting. To continue treatment.

3rd.—Considerable fever and pulmonary oppression; tongue dry and brown; passed very little water. To have one dose of oil. Ordered 4 oz. brandy.

4th.—Much the same as yesterday; still very feverish; purged once; breathing still embarrassed; passed very little water.

5th.—Feverishness and oppression still continue; eyes greatly congested; slight delirium; pulse weak and very quick; purged once; passed a little water. Ordered chlorine mixture every third hour. Blister to nape of neck and chest. Head to be shaved and cold applied.

6th.—Blisters rose well and patient seems much better; passed water freely; purged once; general appearance good.

8th.—Still improving.

9th.—Convalescent.

11th.—Put on diet.

16th.—Discharged cured.

CASE 4.—*Complete collapse, with gangrene of hands; recovery.*—J. O'B—, æt. 10, admitted August 14th, at 2.50 p.m. Was taken ill some days ago with choleraic symptoms. Treated at one of the dispensaries, and was apparently recovering. A few hours ago he had a sudden relapse: vomiting and purging set in, which was soon followed by intense algide symptoms. At this time his mother noticed his fingers and right hand rapidly alter in colour.

On admission.—Usual phenomena attending collapse. Fingers of right hand greatly shrivelled, and of a dark purple colour, apparently gangrenous. Discoloration, which was perfectly defined, extended on back of hand to above the wrist. On the left hand the discoloured patches were confined to the last three fingers. The mother distinctly stated that these discolorations had only made their appearance an hour or so before his admission. Ordered ʒss oil and ʒj turpentine, to be repeated in two hours. To have a mustard emetic, hot injections, sinapisms, dry heat. Hands to be wrapped in dry cotton wool. 5 p.m.—Seems better; retained oil; bowels acted on twice. Oil just been repeated. 11 p.m.—Purged freely; vomiting and thirst less; general improvement.

15th, 10 a.m.—Considerably improved; pulse distinctly perceptible; purged twice; passed a little urine; thirst much less; right hand quite black and insensible to stimuli; fingers of left hand in the same condition. To have a dose of oil and a little beef juice. 8 p.m.—Has been purged twice; marked general improvement; sleeping.

16th.—Doing remarkably well. Right hand and wrist quite dead, also distal parts of the three fingers of left hand. Ordered wine 6 oz.

17th.—Still improving. Hands in same condition.

18th.—Going on admirably. To have one dose of oil. Ordered small quantities of beef juice and arrowroot.

20th.—Convalescent. Line of separation very distinct above right wrist and second phalanges of left hand.

24th.—Transferred to surgical wards. Amputation above

the line of gangrene separation was performed in each case by Mr. Barnes, and the boy made a rapid and complete recovery.

CASE 5.—Slight collapse and recovery ; subsequent relapse and death.—J. S—, æt. 32, admitted August 20th, at 6.45 a.m. Was seized this morning, about two hours ago, with vomiting and purging. Took nothing but a drop of brandy.

On admission.—Is in slight collapse ; pulse very feeble and quick ; skin cold ; vomiting a little ; complains of cramps and great thirst. Ordered ℥ss of oil, to be repeated in an hour. Sinapisms, dry heat, &c. 11 a.m.—Very much better ; has retained both doses of oil and been purged four times ; vomiting ceased ; passed water freely. To have another dose of oil. 11.30 p.m.—Greatly improved ; skin quite warm ; has been purged twice since she took the oil ; passed water once.

21st.—Improving rapidly ; slept well ; purged three times during night. To have small quantities of beef tea, arrow-root, and wine. Ordered quinine mixture.

22nd.—Convalescent. Put on diet. 7.30 p.m.—After having partaken freely of “scouse”—a dish principally made from potatoes—she was seized at 5 p.m. with vomiting, purging, and cramps. Collapse rapidly setting in. Ordered ℥j of oil at once, to be repeated in two hours. To have a little ammonia mixture.

23rd.—Purged once, after both doses of oil had been given. Is now pulseless and completely collapsed. Oil to be repeated, and hot injections of oil and gruel given. Neither of these had any effect ; she rapidly sank and expired in the afternoon.

CASE 6.—Great collapse ; recovery.—M. N—, admitted August 28th, at 3.30 p.m. Husband and son died last night of cholera. Had no “premonitory diarrhœa,” but was suddenly seized about two hours ago with profuse purging, excessive vomiting, and severe cramps. She rapidly got worse,

and *on admission* was in a state of pulseless collapse; no vomiting or purging; surface of the body deadly cold and livid; had taken some medicine before she came in. Ordered half an ounce of castor oil every hour, an emetic to be previously administered. Sinapism to stomach, body to be rubbed well with oil of cajeput. 7.25 p.m.—Retained three doses of oil: has been purged twice. To have half an ounce of oil with a little ammonia mixture every two hours. Collapse still very great; pulse not perceptible in radial.

29th, 10.30 a.m.—Slight improvement; pulse feebly perceptible; skin rather warmer; breathing better; had four doses of oil, one of which was vomited; purged freely during the night; evacuated matters very offensive; has voided no urine; oil to be repeated, with ammonia mixture, every fourth hour. 3 p.m.—Better; purged twice very freely; evacuations ash green and very fœtid; no urine voided; little or no sickness. 12, midnight.—Skin warmer; pulse much stronger; purged once; vomited twice. To have a hot injection.

30th, 10 a.m.—Improving; pulse gaining strength; purged twice during night; matter yellowish green; thirst less; slept a little; breathing improved; passed a little water. Ordered an electuary containing equal parts of potass., bitart., and treacle, ʒij every three hours. To have ammonia mixture.

31st.—Improving rapidly; no thirst; not purged during the last twelve hours; tendency to sleep; passed a little water.

September 1st.—Slightly feverish this morning; breathing embarrassed; not purged since yesterday morning. To have half an ounce of oil, small quantities of brandy, arrowroot, and milk.

2nd.—Still very feverish; tongue dry and brown; vomiting twice and purged three times since oil was given; oil repeated; brandy discontinued; to have effervescing mixture *ad libitum*.

3rd.—Less feverishness; passed water freely; to continue with effervescing draught and arrowroot.

4th.—Improving rapidly ; feverishness altogether gone ; pulse gaining strength.

6th.—Had a dose of oil ; still going on favorably.

7th.—Convalescent.

9th.—Put on diet ; had a dose of oil.

14th.—Discharged cured.

Remarks.—The feverishness here may have been increased by the partial arrest in the eliminative process, and by the early exhibition of stimulants ; altogether, however, this was a most satisfactory case. It was undoubtedly a very severe one. About six ounces of oil were retained and very free purgation induced.

CASE 7.—*Collapse ; recovery.*—E. B—, æt. 25, admitted September 3rd, 12.40 p.m. Was ill all day yesterday with diarrhœa ; was seized this morning with vomiting and cramps, took “mixtures” and brandy.

On admission.—Considerable collapse ; skin icy cold ; *facies* and *vox cholERICA* well marked ; eyeballs sunken ; pulse small and rapid ; great thirst. To have an emetic, afterwards ℥ss oil every second hour. Ordered mustard poultices to calves, dry heat, friction with phosphorated oil. 5 p.m.—No improvement ; cramps very severe ; has had three doses of oil ; thirst intense ; has not been purged ; pulse almost imperceptible. Oil to be repeated with ℥j turpentine in each dose. 8 p.m.—Improved ; retained two doses of oil, and has been very freely purged ; skin warmer ; less lividity ; little vomiting ; passed a little water ; evacuations ash-coloured and very fœtid. To have a little ammonia mixture. 12, midnight.—Sleeping ; skin warm and moist. To have small quantities of arrowroot and beef tea.

4th.—Considerably better ; pulse gaining strength ; slept pretty well ; was purged twice freely ; passed a considerable quantity of water. Ordered wine 4 oz.

5th.—Still improving ; purged once.

6th.—Improving rapidly ; passed water freely. Oil to be repeated.

9th.—Convalescent ; to have beef tea and full diet.

13th.—Discharged cured.

CASE 8.—*Great collapse : recovery.*—M. M'A—, æt. 38, admitted September 7th, 4.40 p.m. Was ill for two days with diarrhœa. Was seized early this morning with vomiting and cramps.

On admission.—Presented all the phenomena that usually mark collapse. Pulse not perceptible in the radial. Ordered ℥ss oil and ʒj turpentine every second hour. To have an injection of warm gruel. Sinapisms and dry heat to be applied. 8.30 p.m.—No improvement ; retained three doses of oil ; purged slightly once after the injection ; cramps very severe ; vomited three or four times. Oil and turpentine to be repeated. To have five drops of chloroform on sugar every fifteen minutes for three doses. Injection to be repeated. 12, midnight.—A slight improvement ; skin rather warmer ; cramps less severe ; inclines to sleep ; purged twice. To have another dose of oil.

8th.—Considerably better ; pulse weak, but distinctly perceptible ; cramps nearly gone ; purged very freely in last six hours ; vomiting ceased ; passed a small quantity of urine. Ordered small quantities of arrowroot and beef tea. Brandy to be given to 3 oz. 8 p.m.—Slept a little ; vomited after the brandy ; purged twice ; general improvement.

9th.—Going on favorably ; passed water freely ; pulse pretty good ; to have a dose of oil.

12th.—Put on diet.

15th.—Discharged cured.

CASE 9.—*Collapse ; recovery.*—J. P—, æt. 28, admitted August 11th, at 11 a.m. Has had premonitory diarrhœa for some days, for which he was treated with astringents. At 3 this morning was seized with vomiting and severe cramps ; purging ceased about mid-day.

On admission.—Pulseless collapse ; persistent vomiting ; no purging ; severe cramps ; intense thirst. Ordered half

ounce of oil every hour. Sinapisms, dry heat, water *ad lib.* 3 p.m.—Still vomiting freely; oil rejected as fast as given; no purging; temperature very low; extremities livid; cramps severe. To have two drops of croton oil with ten minims of chloroform on a piece of sugar, to be repeated again in two hours. 8 p.m.—Retained both doses of oil; no purging; patient expresses himself better. To have nothing but water *ad lib.*, and one hot injection. 11 p.m.—Slightly improved; pulse perceptible; has been freely purged, the matter being light-coloured and horribly fetid; still vomiting slightly.

12th, 11 a.m.—Much better; skin warm and moist; pulse greatly improved; very freely purged during the night; vomiting ceased; passed no water. To have small quantities of arrowroot and milk, and beef tea.

13th.—Greatly improved; passed water freely; bowels moved once this morning; matter semi-natural in colour and consistency. To have one dose of oil.

14th and 15th.—Going on admirably. Taking small quantities of wine.

16th.—Transferred to Convalescent Ward, and put on diet.

21st.—Discharged cured.

CASE 10.—*Collapse; recovery.*—B. D—, æt. 37, admitted August 13th, 6 p.m. Was ill with diarrhœa for three days; took no medicine. Was seized this morning with vomiting and severe cramps in stomach, legs and arms.

On admission.—Great collapse; almost pulseless; persistent vomiting; great pulmonary embarrassment; cramps very severe; voice inaudible; not purging. Ordered $\mathfrak{z}$ ss of oil every hour. Sinapisms, friction, dry heat, hot enema. 11 p.m.—No improvement; vomited first two doses of oil; retained the others. Not purged since admission; cramps very severe. Ordered an ounce of oil to be given with warm gruel as an injection, and repeated in half an hour. To have another dose of oil.

14th, 11 a.m.—Rather better; pulse distinctly per-

ceptible; skin warmer; only purged once after injections; vomiting continues; passed no water. To have ten grains of calomel and a little ammonia mixture. 11.45 p.m.—No improvement; vomiting persistent; no purgation; passed no water. To have injections repeated and to take ʒij turpentine in warm milk.

15th, 11 a.m.—Much better; pulse improved; purged six times during the night; skin warmer; vomiting still continues; passed a little water. Ordered a mixture containing hydrocyanic acid, carb. soda, and ammonia. To have a little arrowroot and milk. 11 p.m.—Sickness still continues; no other change. To have ice water.

16th, 11 a.m.—Much better; slept for a few hours; pulse improving; not purged; passed a little water; vomiting unabated; thirst excessive. Ordered ʒij of turpentine in warm milk. To have injection repeated. 11 p.m.—Feverish; eyes suffused; purged freely after turpentine; vomiting ceased; to have another dose of oil.

17th.—Improving rapidly; not so feverish; purged twice; matter nearly natural. To have a little beef tea and brandy.

18th.—Improving still; passed water twice freely.

20th.—Convalescent; put on chop diet.

27th.—Discharged cured.

CASE 11.—*Extreme collapse; death.*—J. B—, æt. 36, a German, admitted September 5th, at 2 p.m. Taken ill at 6 p.m. yesterday with vomiting, purging, and cramps. Has not been purged since noon.

On admission.—In a state of extreme collapse. Eyes greatly sunken; face livid; tongue and breath icy cold; *Vox cholericæ* well marked; pulse totally imperceptible in radial and almost so in trachial artery; great restlessness, jactitations and pulmonary embarrassment; intense thirst; vomiting freely; no cramps just now. To have half an ounce of castor oil and half an ounce of turpentine immediately, the one to be repeated alone in an hour afterwards. Large mustard poultice to abdomen; dry heat; friction;

water *ad libitum*. 4 p.m.—Vomited both doses of oil; no purging; great restlessness; breathing very quick and gentle; pulse still imperceptible. To have ℥j of oil in warm gruel as an injection now, and to be repeated again in an hour. 12, midnight.—No improvement; no purging; neither of the injections returned; abdomen to be well rubbed; to have four drops of croton oil laid on tongue; vomiting abated.

6th.—Worse; was not purged during night: vomiting ceased; friction over abdomen continually; to have an ounce of oil every hour with some spirit of ammonia. Noon.—Died.

Remarks.—It will be observed that this patient was never purged, notwithstanding the large quantities of castor and croton oil given. No *post-mortem* was made.

CASE 12.—*Extreme collapse; death.*—M. D—, æt, 26, admitted September 18th, at 9 p.m.—Has had diarrhœa for a few days; was seized to-day at noon with vomiting and severe cramps; had been taking brandy and a mixture obtained from one of the dispensaries.

On admission.—In extreme collapse; was similar to Case 11, with the exception that here there were very severe cramps. Ordered ℥ss of oil every half hour; Sinapisms to calves and abdomen; dry heat; friction; to have a little ammonia mixture. 12, midnight.—No improvement; no vomiting or purging; retained four doses of oil; cramps still severe. To have a dose of oil now and to be repeated in half an hour. Ordered five drops of chloroform every fifteen minutes for an hour; hot saline injections; to go on with ammonia.

19th.—10.30 a.m.—Still pulseless; cramps ceased; no purging; has not vomited since yesterday; passed no water since admission. 12, noon.—Rapidly sinking. 1 p.m.—Died.

CASE 13.—*Slight collapse; death.*—M. H—, æt. 48, admitted September 25, at 7 a.m.—Was seized this morning

at four o'clock with purging, cramps, and slight vomiting; had been drinking freely the day previous. No diarrhœa until this morning.

On admission.—In slight collapse; temperature sensibly reduced; pulse very quick and feeble; well-marked choleric voice and face; respiration rather difficult; great thirst; severe cramps. Ordered three ounces of oil every hour; sinapisms: dry heat; friction. 10.30 a.m.—Expresses himself better; cramps not so severe; but temperature has diminished and pulse become weaker, in fact, it is now just perceptible; there has been no purging or vomiting; retained three doses of oil. Ordered $\frac{3}{4}$ ss oil, $\frac{3}{4}$ j turpentine, and $\frac{3}{4}$ j spirit ammonia, every hour. 3.30 p.m.—Rather worse; has retained three doses of oil, &c.; has not purged or vomited; passed no water since admission; extremities and face livid. Oil to be repeated; to have hot injections every hour. 8 p.m.—No improvement; has not been purged; has retained two doses of oil; oil to be repeated; to have injections of oil and hot gruel; abdomen to be well rubbed. Midnight.—Patient completely collapsed and pulseless; no vomiting or purging; great restlessness; to have a salt and mustard emetic: to go on with injections; previous injections returned; passed no water.

26th, 10.30 a.m.—Evidently sinking fast; emetic acted very little; purged twice during night; great dyspnœa. 12 noon.—Died.

Remarks.—This case requires few comments. It is only necessary to observe that the patient stated he had taken "a good drop" of brandy through the night and in the morning. The quantity of oil given was very large; perhaps stronger and more irritating purgatives would have been of greater service.

CASE 14.—*Complete collapse; death.*—W. P—, æt. 40, admitted August 14th, at 9 p.m.—According to his mother's account he had been drinking hard and had had diarrhœa for nearly a week. This morning he was seized with vomiting and severe cramps. He had not been purged much since yesterday; does not well know how he felt yesterday as he was nearly drunk.

On admission.—In complete pulseless collapse; no vomiting or purging. Ordered ℥ss castor oil and ʒj turpentine every hour; hot saline injections; dry heat; sinapisms, &c. 12 midnight.—No improvement; vomited two doses of oil, retained one; not purged since admission. To have three doses of oil, &c., at intervals of an hour each.

15th, 11 a.m.—Seems a little better; retained the three doses of oil; bowels acted on twice; evacuations fetid and watery; pulse just perceptible; no vomiting. To have hot saline injections. Oil to be repeated with ammonia, but without turpentine. 3.15 p.m.—Not purged; had two doses of oil; severe cramps came on an hour ago. 5 p.m.—No improvement; severe cramps still; purged three times; evacuations ash-coloured, watery, and horribly fetid. Ordered injection of starch and turpentine; oil to be repeated. 11 p.m.—Purged a little after injection; pulse imperceptible; evidently sinking; great dyspnœa. To have an emetic followed in an hour by one dose of oil.

16th, 5 a.m.—Died; had not been purged since last visit.

CASE 15.—*Recovery from collapse and death during reaction.*—M. N—, æt. 20, admitted August 28th, 11.30 a.m. Yesterday morning felt a sort of faintness come over her, this was followed by vomiting and purging, which continued until about six this morning. She had been taking some medicine which stopped the purging, still she felt a deadly feeling coming on.

On admission.—In complete collapse; pulseless at radial; great dyspnœa; livid extremities. Ordered ℥ss of oil and ʒj of turpentine every half hour for three doses. Sinapisms, friction, dry heat, small quantities of ammonia, one hot injection. 3 p.m.—Retained the oil; purged four times, evacuations ash-coloured, watery and fetid; vomited twice; complains of cramps; temperature of body has risen a little and pulse is just perceptible at wrist. 7 p.m.—Purged six times since last visit; cramps severe. To have a little beef

tea every two hours. Small quantity of arrowroot and milk.

29th, 11 a.m.—Slightly improved; pulse feeble; purged freely during night; vomited little; passed no water since admission; skin clammy. To have another dose of oil. 6 p.m.—Vomiting; purged twice; pulse rather better.

30th, 11.30 a.m.—Patient much improved this morning; temperature considerably increased; pulse much better; inclines to sleep; purged once at 5 a.m., but not since; vomited a quantity of yellowish green matter (probably beef tea and arrowroot previously administered, J. W. M'C.); has passed no water yet. To have another dose of oil and turpentine, effervescing mixture every third hour. 6 p.m.—Still improving; bowels moved twice after the oil. 11 p.m.—Doing well; not purged since; inclines to sleep.

31st.—Improving; bowels moved once, stool of a brownish tint; passed a large quantity of water; sleeping. 8 p.m.—Feverish; had a rigor an hour ago; pulse full, soft and very compressible; skin hot; has been purged once; vomited twice. Ordered a mixture containing liq. acet. of ammonia, chlorate of potash, and carb. soda. 11 p.m.—Much worse; considerable delirium; great restlessness. To have head shaved and blister to the nape of the neck. 1 a.m.—Sinking rapidly.

September 1st.—Died 8 a.m.

CASE 16.¹—*Recovery from collapse; death by coma during reaction.*—A. L—, æt. 44, admitted September 6th, 6.45 p.m. Had diarrhœa and slight vomiting all day yesterday. Seized with severe cramps this evening. Took some medicine which stopped the purging.

On admission.—The patient was in considerable collapse; skin cold and clammy; pulse very feeble and rapid; voice almost inaudible; eyeballs much sunken; intense thirst; no cramps, vomiting, or purging. Ordered ℥ss castor oil every hour for three doses. Dry heat, sinapisms, water *ad libitum*. 8 p.m.—No improvement; no purging or vomiting; has retained the three doses of oil; oil to be repeated for two

¹ For this case we are indebted to our colleague Dr. I. de Zouche.

doses. 12 midnight.—Much in the same condition as before; no vomiting; purged three times. To have a hot injection.

7th.—Improved; skin warmer; appearance better; pulse much stronger; vomited a quantity of yellowish flocculent matter; purged twice, evacuations light coloured and offensive; passed no water. To have a dose of oil with ammonia mixture. 8 p.m.—Improving rapidly; purged once after the oil.

8th, 10.30 a.m.—Continues to improve; passed water freely; no vomiting; was not purged during the night. 11 p.m.—Not so well; eyes congested; breathing laboured; face flushed; pulse soft. Has been drowsy.

9th.—Patient very feverish; considerable dyspnœa; passed a little water; purged once. To have chlorate of potash mixture every two hours. Ordered arrowroot, beef tea, and brandy in small quantities. 8 p.m.—Fever increasing rapidly; patient very dull and stupid; respiration embarrassed.

10th.—Impossible to rouse her; is very comatose in appearance.

12th noon.—Died.

CASE 17.—*Great collapse; death during reaction.*—Wm. T—, æt. 38, admitted September 7th, 12.25 p.m. Is of intemperate habits. Was seized yesterday morning with vomiting, purging, and cramps; took some brandy. On examination this patient was found to be in an almost dying condition; pulseless at radial; extremities livid; jactitations and continual moaning; vomiting a little; cramps very severe. Ordered ℥ss oil, ʒj turpentine, and ʒj aromatic spirit of ammonia, to be repeated in two hours afterwards. Friction with oil of cajeput, sinapisms, dry heat, &c. 3.30 p.m.—No improvement; vomiting persistent; no oil retained; passed no water; pulse still imperceptible; no purging. To have an emetic, and three injections of castor oil and warm gruel at intervals of half an hour. 8 p.m.—Purged twice after injections; can just detect pulse at

radial; vomiting still persistent; cramps not so severe. 11 p.m.—To have injections of warm gruel; vomiting not so persistent. Not purged since.

8th, 11 a.m.—Slightly improved; vomiting still; no cramps; purged once during night; passed a very little water. To try oil by mouth now for three doses. 3.30 p.m.—Very restless; skin warmer; pulse distinct at wrist; troubled with hiccough; vomiting a little; did not retain any oil; has not been purged. To have injections repeated. 8 p.m.—Purged twice; great somnolency. To have a little ammonia mixture.

9th, 10.30 a.m.—Seems better; pulse improved; skin warmer and a little moist; no vomiting; purged twice; passed no water; sleeping; rather restless. To have arrowroot, beef tea and brandy in small quantities, brandy given not to exceed 4 oz. 11 p.m.—Has been purged once; still very restless.

10th, 10 a.m.—Improving in pulse; passed no water; has not been purged during night; sleeping. To have a dose of oil; linseed poultices and turpentine stupes to be applied to loins. 4.30 p.m.—Still sleeping; has passed no water; purged once; drowsy and stupid-looking; breathing difficult.

11th, 10.30 a.m.—Patient in a semi-comatose condition; stertorous breathing; face flushed; eyes congested; rather delirious; no vomiting or purging; has not passed any water. Ordered blister to nape of neck. To have $\frac{3j}{\text{ss}}$ brandy every three hours. 9 p.m.—Died; had a little rigor about an hour previously.

Remarks.—There are two points worthy of notice in this case. The length of time the patient was in collapse, and the total amount of urine voided. We believe, as we shall hereafter point out, that the longer a patient remains in collapse the more liable is he to pulmonary congestion during the period of reaction. The administration of stimulants, we are now convinced, not only increases *this* risk but *also* that of uræmic poisoning.

CASE 18.—*Collapse: death from pneumonia during convalescence.*—E. E—, æt. 16, admitted October 1st, at 7.30 p.m.—Was seized this morning with vomiting and purging, which was soon followed by severe cramps; she believed that she was well yesterday; cholera prevailed in the street where she lived; does not know whether she had been in any of the houses where there was cholera; took four doses of a medicine which she got at the dispensary. At the time of her admission she was in a state of collapse; pulse very feeble; voice husky and weak; skin very cold; intense thirst; sinking of eyeballs; persistent vomiting; no purging. Ordered $\frac{3}{4}$ ss of oil to be repeated again in two hours if retained, but at once if first dose be vomited; to have a little ammonia mixture every second hour. 11 p.m.—Retained both doses of oil; not purged; to have an injection.

2nd, 10 a.m.—No improvement; no vomiting; purged twice during night; to have oil repeated and hot beef-tea injections every two hours. 8 p.m.—Slightly improved; retained a dose of oil; to continue injections.

3rd. Improved; skin warm; pulse stronger; purged once; no vomiting. 8 p.m.—Much the same; to have four ounces of wine.

4th. Rather feverish this morning and very restless; pulse full and soft; has not been purged; no vomiting; passed no water since admission; to have another dose of oil. Ordered a blister to nape of neck; small quantities of arrowroot and milk with wine. 11.20 p.m.—Still very restless; has passed no water; not purged.

5th. Very feverish; tongue dry and brown; great restlessness and frequent jactitations; passed no water; to have another blister to neck. 10.40 p.m.—No improvement; dyspnœa; restlessness; has passed no water.

6th. Sinking; very feverish; to have turpentine stupes and poultices to loins. Ordered *Mist. Pot. acet.* 11 p.m.—Has not passed any water; has not been purged; still very restless. To have a dose of oil.

7th. No improvement; has passed no water; takes no

notice of what is passing; was purged once during night; eyes greatly congested; has passed no water. Ordered a leach to each temple. 8 p.m.—Could not get any leeches to bite; no improvement.

8th. Improved a little; pulse a little stronger; passed a little water; purged once. To have injections of beef tea and Condyl's fluid.

9th. Rather better; passed a little water; pulse stronger.

10th. Better; pulse much stronger; passed water.

11th. Improving rapidly; purged twice, motions natural; passes water freely and regularly.

12th. Still doing well; to have quantity of beef-tea and arrowroot increased.

13th, 11 a.m.—Convalescent; sitting up in bed. 8 p.m.—Having got out of bed and walked about the room during the nurse's absence she was suddenly seized with a pain in the chest and a feeling of chill; she was put to bed, but, immediately after, her breathing became hurried and difficult, her pulse rapid and her face flushed. Crepitation heard over the bases of both lungs; to have a mustard jacket. Ordered ammonia mixture and brandy every two hours.

14th. Much worse; no respiratory sounds at base of right lung; crepitation heard high up in both lungs.

15th. Getting worse; lungs becoming more and more obstructed; counter irritation to chest. Brandy increased.

16th. Much worse; respiration almost stopped; crepitation at apices of both lungs and slight râles at bases. 11.30 p.m.—Died.

Autopsy twelve hours after death.—Inferior half of both lungs infiltrated with purulent matter, above this hepatization and intense congestion; several pleuritic adhesions and a small quantity of sero-purulent fluid in the cavity of the pleura; brain greatly congested; pale patches here and there on the intestinal mucous membrane, which was otherwise normal; kidneys apparently healthy; bladder con-

tained a considerable quantity of urine which was very ammoniacal.

Remarks.—This case shows very clearly how essential it is for the patient to be kept quiet during convalescence. The slightest excitement or irregularity of any kind, at this time, may be productive of the most serious results.

CASE 19.—*Slight attack of cholera ; recovery ; relapse ; death probably from uræmia.*—A. J. E—, æt. 12, admitted September 4th, at 7.30 p.m.—Parents died of cholera a few days ago ; was taken ill with vomiting and purging a few hours ago ; took some “medicine.”

On admission.—Case considered “choleraic diarrhœa ; there was no collapse. Ordered a mustard emetic to be followed by four two-drachm doses of oil at intervals of half an hour each ; dry heat ; sinapisms.

5th. Has been purged very freely and is much better ; to have a little arrowroot and milk with a little port wine added to it.

6th. Improving.

7th. Sent to convalescent ward and put on diet.

11th, 11 a.m.—Early this morning was seized with severe cramps and purging ; at present is bordering on collapse. Ordered $\mathfrak{z}$ ss oil and $\mathfrak{z}$ j turpentine to be given at once ; if not retained an injection of oil and warm gruel to be given ; to have a small quantity of ammonia mixture. 3 p.m.—In complete pulseless collapse ; oil was not retained ; was purged once after injection ; to repeat injections every hour ; oil to be again tried by mouth. 8 p.m.—Much in same condition ; retained oil and injections but has not been purged.

12th. Slightly improved ; pulse just perceptible ; intense thirst and persistent vomiting ; purged twice. Ordered 15 minims of chloroform every fifteen minutes for two hours ; to have a hot injection. 3 p.m.—Improving ; to have a little ammonia mixture every two hours.

13th. Still improving ; vomiting and thirst abating ; inclines to sleep ; pulse still feeble. Ordered wine, arrow-

root and milk, in small quantities; passed water this morning.

14th. Still doing well; has not been purged since 12th; to have oil.

15th. Improving; passed water freely; has not been purged; vomiting ceased; to have oil again. Ordered chlorate of potash mixture.

16th. Sleeping constantly; rather feverish; passed little water.

18th. Feverishness continues; eyes congested; tongue dry and brown: very drowsy; passed no water.

19th. Very feverish; not purged; passed no water; to have oil. Ordered febrile mixture every hour.

20th. Has not been purged; passed no water. 12 noon.—Had a strong convulsion and died immediately afterwards.

Remarks.—There is little doubt that this patient died from uræmic poisoning. We cannot tell how much arrow-root, beef tea, &c., were given as the instructions were “small quantities and often.”

PART II.—*Abstract of 100 cases of Cholera and Epidemic Diarrhoea, treated in the Liverpool Parish Infirmary, during the months of July, August, September, October, and November, 1866.*

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
1	J. B—, æt. 14, admitted 26th July. Inmate of Epileptic Ward of the Infirmary. Was eating in refuse out of one of the refuse tubs, shortly after which he was seized with choleraic symptoms.	Vomiting freely; cramps in abdomen and legs; twitchings in arms; pulse very weak; eyeballs sunken; and skin cold, and being undressed.	Free action of bowels kept up by small and frequently repeated doses of castor oil.	Cured.	Convalescent on the fourth day.
2	T. W—, æt. 13, admitted 26th July. Ill with diarrhoea for twelve hours, which came on very suddenly. Took some medicine, but does not know what it was.	"Choleraic diarrhoea."	Had ʒij castor oil in small doses, and was very freely purged in first two days.	Cured.	Discharged on the third day.
3	M. G—, æt. 24, admitted 30th July. Has been ill since yesterday morning, when she was suddenly seized with choleraic symptoms. Had been eating potatoes for supper.	Slight collapse; no vomiting; purging; complains of cramps and great thirst.	Free purgation induced by castor oil, and kept up until the third day.	Cured.	Had altogether about nine ounces of oil, and was convalescent on the third day.

4	M. H—, æt. 12. Admitted 30th July. No history.	Great collapse; respiration very difficult; jactitations and great restlessness; no vomiting or purging; seems comatose.	Castor-oil in $\frac{3}{8}$ ss doses every quarter of hour for four doses. Friction, &c.	Died.	Died a few hours after admission; was very freely purged about half an hour before death.
5	W. P—, æt. 26, admitted 30th July. Was seized this morning with choleraic symptoms. Was drinking the day previous.	Extreme collapse; no vomiting or purging; pulse imperceptible; algidæ symptoms very intense.	Had in first twenty-four hours six ounces of oil, and was purged twelve times.	Died.	On the evening of the second day he was sitting up in bed drinking beef-tea, when he suddenly fell back and died shortly after. This patient had a severe attack of rheumatic fever about twelve months previous.
6	M. M—, æt. 40, admitted 31st July. A convalescent from fever. Was seized this morning with vomiting, purging, and cramps. Had been eating pea-soup.	Slight collapse; vomiting a little; no purging; pulse very weak; great sinking of eyes; is emaciated.	Free action of bowels kept up by castor oil for two days.	Cured.	Had two and a half ounces of oil. Was convalescent on the third day.
7	T. H—, æt. 40, admitted 31st July. Was taken ill with choleraic symptoms at 3 o'clock this morning. Took a quantity of hot gin.	Was admitted at 6 a.m. in a state of collapse; pulse just perceptible in radial; extremities very cold and livid; complains greatly of cramps.	Had $\frac{3j$ castor oil on admission. 11 a.m., purged once. To repeat oil every hour. A free action of the bowels was kept up this and the following day. Third day ordered effervescing mixture as he was slightly feverish. To have <i>Pil. Rhei Co. gra. v. omne nocte.</i>	Cured.	On the third day reactionary fever began to manifest itself. It continued for nearly ten days, during which the patient was taking febrile mixtures, aperients, &c. Counter-irritants were applied to head. When the fever began to abate recovery was very rapid.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
8	A. C—, æt. 34, admitted 31st July. Is of very dissipated habits. Has suffered from diarrhœa for two or three days.	Commencing collapse; pulse very weak; skin cold; extremities livid; voice almost inaudible.	Had ʒiss castor oil on admission, and ʒij doses every hour afterwards for six hours. An emetic was administered previously.	Cured.	She was very freely purged for two days, and was declared convalescent on the fourth day.
9	J. M—, æt. 9, admitted August 3rd. Was suddenly seized this morning with choleraic symptoms. Had not any medicine.	Is in slight collapse; vomiting a little; no purging; complaints of cramps and thirst; is very dirty and is covered with itch.	To have ʒss oil every half hour until free purgation be produced.	Cured.	This patient had eighteen doses of oil before his bowels began to act. Three of the doses were vomited. He was very freely purged. Convalescent on fourth day; sent to itch ward on sixth day.
10	M. E. W—, æt. 7, admitted 3rd August. Parents died of cholera a few days ago. Was much sunken; pulse very quick and feeble. Did not get any medicine.	Slight collapse; considerable reduction of temperature; eyes much sunken; pulse very quick and feeble.	To have ʒij castor oil every second hour for six doses. A little <i>Mist. Ammoniacæ</i> Co. with each dose.	Cured.	This child had altogether ʒij of oil and was purged sixteen times.
11	F. P—, æt. 42, admitted 4th August. A nurse in the cholera wards of the workhouse. Was seized suddenly to-night with choleraic symptoms.	In stage of evacuation; vomiting and purging freely.	Had an emetic. ʒiv castor oil given in first eight hours. Was very freely purged.	Cured.	There is very little doubt that this was a case of genuine cholera cut short. Convalescent on second day.

12	E. T—, æt. 30, admitted 5th August. No history.	In considerable collapse; slight purging and vomiting; is very restless.	Ordered three 3as doses of oil in first two hours. A third of this was vomited. To be repeated until two doses are retained. This was at the end of the eighth hour, when free purging was produced. An injection of oil and warm gruel was then given, after which very free purgation took place, and the patient began to recover.	Cured.	A very moderate quantity of oil in this case produced the desired effect. Discharged on third day.
13	T. M—, æt. 26, admitted August 6th. Is of intemperate habits. Was seized with vomiting, purging, and cramps two days ago. Took some "cholera mixture" and brandy.	Vomiting freely; no purging; pulse almost imperceptible; skin very cold; extremities livid; severe cramps.	Had an emetic on admission. Took 3vi castor oil in first two days and was very freely purged.	Cured.	About one third of the oil was vomited in this case.
14	W. R—, æt. 40, admitted August 8th. No history.	In extreme collapse; pulse just perceptible; skin livid and very cold; no vomiting or purging; severe cramps; is drowsy and heavy, and has evidently been drinking largely of spirits.	Half-ounce doses of oil given every half-hour until the time of death took place. Enemata and emetics also given.	Died.	Kept gradually sinking and died ten hours after admission.
15	J. L—, æt. 64, admitted August 8th. Was seized immediately after supper last night with vomiting and severe cramps. Was very little purged.	Intense algide symptoms; great collapse; no vomiting or purging; great thirst.	Endeavoured to produce purging with large doses of castor oil, croton oil, calomel, podophyllin, &c. Injections of oil, &c., given.	Died.	Was in collapse over two days; was never once purged. Had 3vij castor oil, 40 grs. calomel, ʒvi croton oil, and 10 grs. of podophyllin. Several injections of oil were also given.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
16	R. M—, æt. 16, admitted August 8th. Was a patient here a week ago with cholera, and was discharged apparently well. Was seized again last night with fresh choleraic symptoms.	Slight collapse; vomiting and purging a little; pulse very weak and quick.	Had 3jss of castor oil during first day and half. Was very freely purged.	Cured.	This relapse was most likely caused by some irregularity or excess when the girl returned to her home. It is a curious fact that this girl was again admitted with a third attack on the 1st November.
17	J. O—, æt. 10, admitted August 10th. Yesterday after dinner, at which he partook freely of vegetables, he was seized with vomiting, purging, and cramps. Was treated by a medical man.	Considerable collapse; pulse very weak; skin blue and cold; hands and wrists almost black, and very painful to the touch. The extremities of the fingers were gangrenous, and covered with small white blisters.	Free action of the bowels kept up for three days. The fingers (which were wrapped in the dry cotton wool) gradually regained their usual appearance. The boy after being declared convalescent, was ordered lime-juice for a squamous eruption on the body.	Cured.	There is little doubt that this case would have resulted in gangrene (like one previously reported) had not the circulation rapidly gained power after the purging. Convalescent on fifth day.
18	J. P—, æt. 28, admitted August 11th. Is of very intemperate habits, and has been drinking very hard lately. Has been ill with diarrhoea for some days. Took some medicine. Became much worse this morning.	In a state of great collapse. Pulse just perceptible; all the symptoms very intense.	Had 3ij castor oil in first three hours, which did not produce purging. Four drops of croton oil every hour for two doses. This was followed by very free purging. The skin began to get warmer, and all the symptoms less severe.	Cured.	As the oil which was administered at first did not produce purging, and as the patient was rapidly sinking, it was deemed expedient to resort to a stronger purgative. The result is shown, in that the patient was pronounced convalescent on the fourth day.

19	E. F—, æt. 25, admitted August 12th. The patient enormously swollen. Was being unable to speak, we could purged twice in transit to the hospital. Very like a case of three doses of oil, and was irritant poisoning.	In great distress; tongue enormously swollen. Was to be followed in half-an-hour by ʒss of castor oil. She had freely purged.	Ordered calomel five grains, to be followed in half-an-hour by ʒss of castor oil. She had freely purged.	Cured.	The day following her admission, the tongue was so much swollen that the mouth could not be opened. Eight leeches were applied under the jaw, which gave great relief. Patient was convalescent next day.
20	H. N—, æt. 19, admitted August 12th; a vagrant. Had no food yesterday, and was wandering about the streets all night. Was suddenly seized this morning with choleraic symptoms.	Slight collapse; severe vomiting, purging, and cramps.	Had an emetic, four ʒss doses of castor oil, and small quantities of ammonia mixture.	Cured.	Was very freely purged during first day. Convalescent on third day.
21	B. D—, æt. 37, admitted August 13th. Is of phthisical appearance. Has been ill for some days with diarrhoea. Was seized with severe cramps this morning. Has taken no medicine.	Slight collapse. Intense thirst; great pulmonary emphysema; coughs a good deal; is cold and clammy. Persistent vomiting. Pulse almost imperceptible.	It was impossible to give oil on account of the persistent vomiting; ten doses vomited. Injections of oil and warm gruel were given, and free purging followed. A mixture containing hydrocyanic acid was given to allay the vomiting when it became excessive. Effervescing mixtures were given during reaction.	Cured.	There was considerable difficulty experienced in producing purging. When this was effected, however, the patient began to recover. Reaction was marked by considerable pulmonary congestion and fever, the tendency to which was most likely increased by tubercular deposit in the lungs.
22	J. T—, æt. 15, admitted August 13th. Was suddenly seized with a feeling of faint-intense thirst; skin very cold; purginess when at breakfast. Purg-	Considerable collapse. Severe vomiting; no purging; cramps; skin very cold; pulse almost imperceptible;	Castor oil in ʒiij doses was given every half hour until the bowels were freely acted upon.	Cured.	Although only five hours had elapsed from the commencement of the attack till the removal to hospital, the patient on ad-

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
	ing, vomiting, and cramps soon followed, and he was hurried to hospital.	eyes much sunken and surrounded with a livid ring.			mission was in great collapse. He had about five ounces of oil, and was purged fourteen times.
23	C. McC—, æt. 19, admitted August 14th. Was a week in Oxford Street cholera sheds with cholera; was discharged yesterday. Last night was seized with vomiting, purging, and cramps.	Slight collapse; vomiting and cramps.	Had an emetic. Had five ounces of oil in first two days; was very freely purged. Had small quantities of arrowroot, beef tea, and wine.	Cured.	Convalescent, and put on full diet on the fourth day.
24	J. M—, æt. 9, admitted August 16th. Has been ill since yesterday morning with diarrhoea. Was purged six or eight times to-day. Took some cholera mixture.	Considerable collapse; pulse almost imperceptible. Extremities very cold; great thirst; no vomiting, purging, or cramps.	ʒij of castor oil every hour. A little ammonia mixture. Dry heat; friction; water <i>ad lib.</i>	Cured.	Had eight doses of oil, and was very freely purged. On third day began to be feverish. Effervescing draughts and small doses of <i>Pil. Rhei Co.</i> given. Convalescent on fifth day.
25	J. H—, æt. 64, admitted August 16th. No history. Brought by drivers who know nothing of him, except that there was cholera in the street in which he lived.	Moribund.	ʒij of turpentine every half hour, with injections of oil and hot gruel.	Died.	Was never purged. Expired soon after admission.
26	M. R—, æt. 11, admitted August 11th. Was seized this morning with vomiting, purging,	"Choleroïd diarrhœa."	Had three ʒij doses of castor oil, and was freely purged.	Cured.	Discharged on the third day.

27	and cramps. Had several doses of chalk mixture. M. K—, æt. 27, admitted August 18th. Was seized this morning with severe cramps, which were soon followed by severe vomiting and purging.	Severe cramps; incessant vomiting; purging of thin flocculent matter.	Had four 3ss doses of castor oil in the first twenty-four hours.	Cured.	Discharged on the fourth day.
28	J. S—, æt. 60, admitted August 19th. Has had diarrhœa for two days. Vomiting and cramps came on this morning.	"Choleroïd diarrhœa."	Had two 3ss doses of castor oil, and was pretty freely purged.	Cured.	Discharged on the fourth day.
29	M. O—, æt. 38, admitted August 20th. One of her children died of cholera yesterday. There is much cholera in the street where she resided. She was seized suddenly this morning with choleraic symptoms.	Severe cramps; persistent vomiting; slight purging; no collapse.	Ordered <i>Spts. Chloroformi</i> <i>co.</i> ; this was given up in the evening and castor oil in half-ounce doses given every hour until free purging was produced.	Cured.	Was convalescent on the second day, and discharged on the fourth. The mixture contained <i>Spts. Chloroform. Mist. Crete co., Liq. Opii sed.</i>
30	M. M'N—, æt. 23, admitted August 20th; a prostitute. Had been ill since the day before yesterday, when she was seized with vomiting, purging, and cramps. Took a good deal of medicine which she purchased at a chemist's shop.	Is in collapse; is fearfully filthy; skin very cold. Pulse scarcely perceptible.	Had frequent doses of oil up to second day, and was moderately purged. Passed water freely every day.	Died.	Had a strong epileptiform fit on the evening of the second day, shortly after which she died.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
31	E. C—, æt. 48, admitted August 23rd. No history.	Is in complete pulseless collapse.	Had eight ʒss doses of oil and turpentine, and several injections of oil and warm gruel.	Died.	Death took place thirteen hours after admission, during which time purging never once occurred.
32	J. Mc—, æt. 15, admitted August 23rd. Was suddenly taken ill a short time ago with vomiting, purging, and cramps.	"Choleroid diarrhoea."	Had four ʒiij doses of castor oil; was freely purged.	Cured.	Discharged on the third day.
33	M. C—, æt. 37, admitted August 24th; a tailor. Is addicted to drinking. Was suddenly seized last night with severe cramps, followed by purging and vomiting. Took several doses of a medicine obtained at the Richmond Row Dispensary.	Persistent vomiting; little purging; no cramps; pulse weak; pupils contracted; extremities cold.	Had an emetic; free purgation produced and kept up by ex-castor oil.	Cured.	Had about four ounces of oil, and was purged nineteen times. Convalescent on the third day.
34	J. R—, æt. 28, admitted August 25th; a sailor. Took ill with vomiting and purging very last night. Was seized very suddenly, and felt very cold at the time.	Vomiting persistent. Purged while being undressed; pulse very weak; extremities cold and eyeballs much sunken.	Had three ʒi doses of castor oil during the first day. The second day he had ʒj of oil, after which he was purged five times. Third day had no oil, but was freely purged.	Cured.	On the evening of the third day he had a very severe ague fit which left him very weak. He was then ordered <i>Mist. Quine fort.</i>

35	E. C—, æt. 24, admitted August 26th; a patient in the cleansing ward of the work-house. Was eating "scouse" for supper last night; was seized with vomiting, purging, and cramps this morning.	Is in slight collapse; vomiting a little; pulse very weak; skin cold; great thirst.	To have ℥j of castor oil. Heat, sinapisms, &c. Oil to be repeated in two hours. To have ammonia mixture every hour. Had ℥j oil during second day.	Cured.	Had about three ounces of oil; was very freely purged and declared convalescent on the third day. Reaction was marked by slight fever.
36	E. C—, æt. 23, admitted August 26th. Has had diarrhœa for two days. Took medicine.	Is in slight collapse; vomiting very severe; pulse very weak; temperature much reduced.	Had an emetic. Had three ℥ss doses of castor oil during first day; was freely purged. Oil given every day until the day of discharge.	Cured.	Convalescent on the fourth day.
37	R. T—, æt. 71, admitted August 26th. Has had diarrhœa for two days. Was seized with vomiting and cramps about an hour since.	Slight collapse; sunken eyeballs; livid, cold extremities; severe respiratory embarrassment; persistent hiccup.	Had three ℥ss doses of castor oil, and two oil and gruel injections.	Cured.	Was very freely purged during the first day and night. Discharged on the third day.
38	M. A. S—, æt. 46, admitted August 28th. Has had diarrhœa for three days. Vomiting and cramps set in this morning; was taking medicine from one of the public dispensaries.	Severe "choleraic diarrhœa."	Had two ℥ss doses of castor-oil and one injection of oil and gruel.	Cured.	Was very freely purged by oil. Convalescent on second day.
39	J. W—, æt. 22, admitted August 28th. Brought from the "Classification Ward" of the workhouse, where she was seized some few hours ago with severe cramps, vomiting, and purging.	Vomiting and purging a good deal; cramps severe; pulse weak and very quick.	Had ℥ij of castor oil in first twelve hours; was very freely purged. Action of oil kept up.	Cured.	Convalescent on the second day.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
40	M. A. R—, æt. 49, admitted August 28th. Was discharged from the cholera sheds in Ashfield Street to-day, and shortly after leaving was seized with choleraic symptoms. Was brought here by a policeman.	Slight collapse; severe cramps, cold skin, &c.	Had five ʒss doses of oil, and was eight times freely purged.	Cured.	The relapse here may have been due to some excess indulged in by the patient when discharged from the cholera sheds.
41	E. M—, æt. 22, admitted August 30th. Is a convalescent from typhus fever. Was seized this morning in the convalescent fever ward with severe choleraic symptoms.	Considerable collapse; pulse excessively weak; skin cold and clammy.	Had two ʒij doses of castor oil on first day. She was very freely purged, and was then ordered <i>Mist. Rosa</i> .	Cured.	Convalescent on the third day.
42	J. C—, æt. 11, admitted August 30th. Is a very delicate-looking child. Has been ill with diarrhœa for two days. Became much worse this morning.	Vomiting, purging, and cramps; slight collapse.	Had grey powder, and two ʒij doses of oil which produced considerable purgation, and gave great relief.	Cured.	The child had a brisk reactionary fever which lasted four days.
43	E. C—, æt. 26, admitted August 31st. Is a prostitute. Has had diarrhœa for two days, pulseless at radial; passed water for little a short time since; vomited a few minutes ago; no purging; no cramps; respiration purging; no cramps; respiration	In extreme collapse; extremities livid; eyes much sunken; ʒij turpentine every two hours pulseless at radial; passed water for little a short time since; vomited a few minutes ago; no purging; no cramps; respiration	Ordered ʒvj castor oil and ʒij turpentine every two hours for three doses. These were retained and followed by free purging. Second day had ʒij castor-oil. Third day had ʒiss.	Cured.	She had about eight ounces of oil and was purged very freely and frequently during the first two days. Reaction was marked by considerable feverishness, which, however, soon subsided.

44	H. W—, æt. 20, admitted September 1st. Is a vagrant. Was suddenly seized in the Vagrant Sheds to-night with severe choleraic symptoms.	embarrassed.	castor oil. Small quantities of arrowroot, &c., were given on second and third days.	Conalescent on fifth day.
45	W. I—, æt. 47, admitted September 1st. Brought from the Royal Infirmary at 7 a.m. Was seized in the Infirmary (where he was a patient) with choleraic symptoms this morning.	Severe "choleraic diarrhœa," with slight collapse.	Had three ʒss doses of castor oil, and was purged moderately in first forty-eight hours. Placed on strong quinine mixture on the third day.	Conalescent and put on full diet third day. Discharged sixth day.
46	E. D—, æt. 42, admitted September 1st. Was taken ill yesterday with vomiting, purging, and cramps. Was "on the spree" the day before.	Considerable collapse. Pulse barely perceptible; skin very cold and clammy; greatly emaciated; extremities livid; intense thirst, and severe cramps.	Had in the thirteen hours which he was in hospital eight ounces of castor-oil and was purged about twenty times. He sank from intestinal hæmorrhage probably.	The last half-dozen stools contained a considerable quantity of blood. There was probably a great deal too much oil given in this case, considering the stamina of the patient.
47	M. D—, æt. 26, admitted September 1st. Was brought from the Classification Wards of the workhouse where she was seized last night with choleraic symptoms.	Pulseless collapse; severe cramps.	Had two ʒss doses of castor oil and three of the potash electuary. Two drops of croton oil were rubbed on tongue, and four oil and gruel injections given.	Effort after effort was made to produce purgation, but in vain. The patient was never purged until <i>in articulo mortis</i> . Died nine hours after admission.
		"Choleraic diarrhœa," with slight collapse.	Had three doses of oil in first six hours which produced very free purgation. A strong astringent mixture was then administered, shortly after which the patient became feverish. Elimination, however, con-	This case affords an excellent illustration of "the natural mode of recovery," and of the results of "waging an intestine war." Conalescent on sixth day.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
48	M. R—, æt. (cir.) 30, admitted September 2nd. Was seized this morning with choleric symptoms. Is of intemperate habits; mother believes she was drinking yesterday.	In pulseless collapse; unable to speak; algide symptoms very intense; great pulmonary embarrassment.	continued, the patient being more or less purged every day until her discharge. Friction with oil of mustard. Dry heat, &c. Had ℥vj castor oil by mouth and several ounces by injection. Was purged once scantily.	Died.	This patient died about six hours after admission, having been purged only once. Vomiting never occurred.
49	F. B—, æt. 34, admitted September 3rd. Was seized about an hour ago with severe choleric symptoms. Is of intemperate habits.	"Choleric diarrhœa."	Had three ℥ss doses of castor oil with ℥ij of turpentine in each.	Cured.	Was very freely purged. Convalescent on the second day.
50	D. E—, æt. 46, admitted September 4th. Is of very intemperate habits and was drinking very hard all last week. Was seized with vomiting and purging this morning. Took nothing but some hot gin.	"Choleric diarrhœa."	Ordered ℥j of castor oil on admission, and another in two hours.	Cured.	Had ℥ij of castor oil; was purged very freely and pronounced convalescent on second day.
51	—, apparently about 26 years of age, admitted September 6th, a Swede. Took ill on	Is in complete pulseless collapse.	Ordered ℥ss of castor oil, and ℥j turpentine every hour. Hot injections to be given	Died.	Retained six doses of oil. Was scantily purged after the injections. Died fourteen hours

	his way from Sweden with vomiting, purging, and cramps.		every hour. Ammonia mixture. Friction with oil of mustard. Dry heat, &c.	after admission.
52	E. H—, æt. 25, admitted September 6th. Came from Hamburg a few days ago. Has been ill with diarrhœa for some days. Has been getting worse for last twenty-four hours.	In a state of extreme collapse.	<p>3vj of castor oil given at once. Was repeated in forty-five minutes. This did not produce purging; oil to be repeated every hour.</p>	Had five doses of oil and several injections of oil and warm gruel. Died six hours after admission, having never been purged.
53	W. T—, æt. 16, admitted September 7th. Has had diarrhœa for two days. Was seized with vomiting, purging, and cramps in the Vagrant Sheds this morning.	Severe diarrhœa.	Ordered ʒss of oil every hour for four doses; second day had ʒi of oil.	Had ʒiij of castor oil; was freely purged; convalescent on second day.
54	W. T—, æt. 16, admitted September 7th. Was suddenly seized about twelve hours ago with severe cramps and profuse purging. Had been eating largely of mussels.	Very severe "choleroïd diarrhœa."	Had three ʒiij doses of castor oil with ten drops of chlorodyne in each. Free purgation with great relief followed. Convalescent on second day.	The diarrhœa was most probably caused by the mussels eaten. (It is well known that the whole family (<i>Mytilacœ</i>) are poisonous at certain seasons and when taken from particular beds. J. W. M'C.)
55	E. D—, æt. 34, admitted September 7th. Is of intemperate habits. Has been ill since yesterday morning, when he was suddenly seized with choleroïd symptoms.	Considerable collapse; severe cramps; vomiting a little; no purging; algidæ symptoms well-marked.	During first three days had ʒiv of oil, and was very freely purged. Was declared convalescent on the fourth day and ordered full diet.	On the evening of the fourth day he had a slight relapse; oil was again administered and he soon recovered.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
56	J. R—, æt. 43, admitted September 9th. Was seized yesterday morning with profuse purging. He vomited very much shortly after, and the diarrhœa continued until about four hours ago.	Pulse small and very weak; skin cold and clammy; eyeballs sunken; respiration a little embarrassed.	3ss of castor-oil was given on admission; about half an afternoon he passed a bloody stool. Injections of starch and opium were then administered, and "Rose mixture" ordered.	Cured.	He made a rapid recovery, but was kept in hospital a week or so.
57	R. L—, æt. 56, admitted September 10th. Has had diarrhœa for four or five days, accompanied by severe cramps. He became worse this morning. Took some medicine.	Severe diarrhœa.	Had five doses of oil, the first action of which brought a quantity of scybala from the intestinal canal.	Cured.	Was convalescent on the second day. The scybala were undoubtedly the cause of the diarrhœa in this case.
58	W. C—, æt. 52, admitted September 10th. Is a fat man and works at the Queen's dock. There is no history.	In pulseless collapse; is unable to speak; pulse only just perceptible in brachial artery.	Large quantities of oil given by mouth and by injections.	Died.	Death took place ten hours after admission. The patient was never once purged.
59	W. E—, æt. 28, admitted September 13th. Was brought from Garston. Is of very intemperate habits. Was seized with choleric symptoms this morning. Took great quantities of brandy.	Has a wild expression; is apparently drunk; furious delirium; legs much cramped; no purging or vomiting; pulse almost imperceptible; algidæ symptoms intense; great dyspnoea.	Mustard emetic given followed by a dose of oil and turpentine every hour.	Died.	Death took place about twelve hours after admission. Scarcely any vomiting and no purging while in hospital.

60	M. M—, æt. 48, admitted September 13th. Is of in-temperate habits. Was seized at 5 o'clock this morning with severe cramps, which were soon followed by an attack of profuse purging. Was not ailing yesterday.	In slight collapse; severe cramps and intense thirst; pulse very quick and feeble; algidæ symptoms well-marked.	3ss of castor oil and ʒj of turpentine every second hour. Free purging was produced. Was convalescent on third day. Action of bowels kept up until the day of discharge.	Cured.	Had altogether about ʒiv of oil. Was very freely purged first day.
61	J. P—, æt. 40, admitted September 14th. A vagrant from the Vagrant Sheds. Had diarrhoea all day yesterday; was suddenly seized with vomiting and cramps during the night.	Persistent vomiting; slight purging; approaching collapse; temperature sensibly reduced.	A mustard emetic. Had two doses of castor oil and turpentine on first day.	Cured.	Was very freely purged. Convalescent on second day. Action of bowels kept up until day of discharge.
62	J. S—, æt. 48, admitted September 15th. Is of very in-temperate habits. Has been ill for two days with diarrhoea. Was seized to-day with vomiting and cramps.	In considerable collapse; pulse just perceptible at radial. No purging or vomiting; passed water a short time ago.	3ss doses of castor oil with ʒij of turpentine, and ʒxv of chlorodyne given every hour. Small quantities of ammonia and brandy given.	Died.	This patient remained in collapse about sixteen hours, during which time he was only once purged.
63	J. R—, æt. 8, admitted September 17th. A delicate strumous-looking child. Has had diarrhoea for a few days, this was accompanied by griping pains. Was seized with vomiting this morning, when the purging also became worse.	"Choleroïd diarrhoea."	Had five powders containing six grains of grey powder each. Was very freely purged for some days. Starch enemata were subsequently given. Small quantities of wine and arrow-root given from the commencement.	Cured.	This was most likely a neglected case of irritative diarrhoea. The evacuations contained much undigested food &c.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
64	M. McC—, æt. 5, admitted September 17th. Was brought from the "Emigrant Sheds" where her parents died of cholera. Had diarrhœa all day yesterday.	Considerable collapse; pulse just perceptible; skin very cold; eyeballs much sunken.	Had small doses of castor oil. Body rubbed with oil.	Died.	The oil was given up till the time of death (nine hours after admission). Was purged twice very scantily; never vomited.
65	S. B—, æt. 18, admitted September 17th. Was picked up from the streets by a policeman. Was seized about five hours ago with choleroïd symptoms.	"Choleroïd diarrhœa."	Free action of bowels produced and kept up by oil and turpentine. <i>Mist. Potass. Chlor.</i> given during the reactionary fever.	Cured.	Was rather feverish on second day. Convalescent on third day.
66	C. O'G—, æt. 32, admitted September 18th. A vagrant, admitted from the Vagrant Sheds, where she was seized about two hours ago with vomiting, purging and cramps.	"Choleroïd diarrhœa."	Had six ʒss doses of castor oil in first thirty-six hours. Was freely purged.	Cured.	Discharged on the third day.
67	S. F—, æt. 61, admitted September 20th. Had diarrhœa for a week. Was suddenly seized with vomiting and cramps yesterday evening. Took some medicine.	Great collapse; pulse very feeble; cramps very severe; skin cold and clammy; considerable dyspnœa.	ʒss doses of oil and turpentine given every hour up till the time of death. Injections of oil were also given but were not retained.	Died.	Remained in collapse for twelve hours, during which time she was never once purged.

68	J. J—, æt. 44, admitted September 22nd, a vagrant. Brought from the Vagrant Sheds where he was suddenly seized with choleroïd symptoms.	Slight collapse; skin cold; pulse very weak; vomiting a little; complains of cramps.	Free action of bowels kept up with oil and turpentine for three days.	Cured.	Convalescent, and put on full diet on the third day.
69	L. N—, æt. 35, admitted September 23rd, had diarrhœa for two days. Was treated at one of the dispensaries. Got worse this morning.	No vomiting or purging; collapse rapidly setting in; pulse just perceptible at wrist.	Had $\frac{3}{4}$ ss of oil every hour with $\frac{3}{4}$ of turpentine, $\frac{3}{4}$ of brandy ordered every second hour, and a little ammonia mixture frequently.	Died.	Collapse rapidly set in, from which she never once rallied. Was purged three times. Died on the third day.
70	A. I. I—, æt. 26, admitted September 25th. Is a prostitute. Has been ill for two days with diarrhœa. Vomiting began last night. Took some brandy and laudanum.	Almost pulseless; algidæ symptoms well-developed. No purging or vomiting.	Treatment commenced with a powder containing <i>Catamel</i> gr. vj, <i>Pulv. Opi</i> gr. $\frac{1}{4}$, <i>Saccharum</i> gr. vj. Oil in $\frac{3}{4}$ ss doses every hour was given soon afterwards and continued for four doses. Free purging was produced and the patient was convalescent on the second day.	Cured.	This case is a good illustration of the rapidity with which patients recover from cholera collapse.
71	S. P—, æt. 60, admitted September 28th. Was a patient in the surgical wards of the Infirmary with uterine disease. Was very suddenly seized with choleroïd symptoms this morning. Was immediately transferred to the Cholera Ward.	Notwithstanding the short time that has elapsed since the commencement of the attack, the patient is now in a state of extreme collapse; pulse is almost imperceptible and there is considerable pulmonary embarrasment.	Ordered powders containing <i>Catamel</i> grs. vj, one every hour. These were retained but did not produce purging, although enemas of castor oil were at the same time administered.	Died.	Death took place about nine hours after admission. The difficulty in producing purging here was probably due to the small stream of blood issuing from the lungs, as evidenced by the dyspnœa and feeble pulse.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
72	M. J. W—, æt. 18, admitted September 28th. A pauper from the Receiving-house of the Workhouse. Was seized the last night with diarrhœa, and this morning with vomiting and cramps.	Vomiting a little; no purging; severe cramps; pulse very weak.	Had an emetic, followed by ʒss of castor oil and ʒij of turpentine every hour, for three doses.	Cured.	Had slight reactionary fever. Convalescent on the fourth day.
73	J. C—, æt. 49, admitted October 1st. A pauper brought from the female "Labour Test" department. Was suddenly seized with choleroïd symptoms about three hours ago. Got no medicine.	Vomiting a little; no purging; pulse very weak; skin cold and clammy.	Had powders, containing <i>Calomelan.</i> gr. x, Pulv. Opii gr. ʒ. One every hour. Took four.	Cured.	Was very freely purged. Convalescent on the fourth day.
74	E. F—, æt. 21, admitted October 1st. Was seized at noon to-day with vomiting, purging, and severe cramps in stomach.	Severe "choleroïd diarrhœa."	Had an emetic. Free purging produced with castor oil and turpentine.	Cured.	Convalescent on the third day.
75	M. F—, æt. 53, admitted October 2nd. Has had diarrhœa for some days, choleroïd symptoms set in this morning.	"Choleroïd diarrhœa" approaching collapse.	Had an emetic, ʒiiss of castor oil and three oil and gruel injections.	Cured.	Very freely purged; convalescent on the sixth day.

76	M. F—, æt. 53, admitted October 2nd. Has had diarrhoea for a few days, vomiting and cramps began this morning.	Slight collapse; no vomiting or purging; pulse very weak; skin cold; complains of severe cramps.	Had one or two doses of castor oil and three powders of calomel (grs. v). Ammonia mixture was given every hour in small quantities.	Cured.	Purged very freely; convalescent on the fourth day.
77	C. K—, admitted October 3rd. No history.	In considerable collapse; great thirst; persistent vomiting and very marked sinking of the eyeballs.	Small doses of oil were given but immediately rejected. Grey powder and calomel shared a like fate.	Died.	Death occurred about twenty-three hours after admission. Was never once purged, but vomited incessantly.
78	J. J—, æt. 23, admitted October 4th. A vagrant from the Vagrant Sheds. Has had diarrhoea for a few days. Was seized a few hours ago with vomiting and cramps.	Severe diarrhoea.	Had an emetic and $\frac{3}{4}$ ij of castor oil on first day. Was freely purged.	Cured.	Discharged on the second day.
79	M. M—, æt. 43, admitted October 6th. Has had diarrhoea for ten days, was taking medicine from one of the dispensaries. Felt much worse this afternoon.	"Choleroid diarrhoea."	Had $\frac{3}{4}$ ij of castor oil and was very freely purged. Small quantities of beef-tea, arrowroot and wine given every second hour.	Cured.	The purging here was very severe. The last stools were bloody. Starch and opium enemas were then given. Convalescent on the fifth day.
80	A. J—, æt. 47, admitted October 8th. Was brought from the Surgical Wards, where she was being treated for a large phagedenic ulcer of the leg. Has been ill for years and is greatly emaciated. Was	In a state of collapse; pulse almost imperceptible; vomiting and purging.	Ordered $\frac{3}{4}$ ss of castor oil after which she was purged twice. She did not rally, however, but continued sinking in collapse, and died about six hours after admission.	Died.	It was not to be wondered at that this patient, suffering for such a length of time from an exhaustive disease, should succumb so soon to cholera.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
	seized during the night with severe cramps, which were soon followed by a profuse diarrhœa.				
81	W. M—, æt. 37, admitted October 9th. A vagrant from the Vagrant Sheds. Has been ill for a few days with diarrhœa. Became much worse a few hours ago.	Severe diarrhœa.	Had a few doses of castor oil and turpentine during first day. Put on <i>Mist. Quinæ fort.</i> on second day.	Cured.	Was freely purged. Convalescent on the second day.
82	J. W—, æt. 48, admitted October 9th. Is just out of prison, where he had fever. Was seized with choleroïd symptoms this morning.	Is in pulseless collapse.	Had six 3ss doses of castor oil with ʒi turpentine in each at half-hour intervals. Ammonia mixture was given every hour in 3ss doses.	Died.	This was manifestly a very bad subject for cholera. He seemed moribund from the first moment. He was purged twice very scantily, and died a few hours after admission.
83	S. E—, æt. 24, admitted October 11th. Had an attack of cholera about a week ago, for which she was treated at one of the dispensaries. Has not been exactly well since. Choleroïd symptoms came on this morning.	Slight collapse; skin cold and clammy; pulse very weak; eyes much sunken; severe cramps, &c.	3ss doses of castor oil every hour for four hours, with injections of castor oil. Small quantities of ammonia given. Oil had to be repeated for two more doses before free purgation was produced.	Cured.	Had ʒiij of oil and three injections of oil (ʒi). She was freely purged. Her stamina may be judged of by the fact that she had bed sores on the fourth day.

84	N. S—, æt. 30, admitted October 12th. Is of very in-temperate habits. Took ill at six o'clock this morning with choleroïd symptoms, admitted at half-past nine a.m.	Slight collapse; vomiting freely; no purging; severe cramps.	3ss castor oil every hour until free purging was produced. Small quantities of ammonia.	Cured.	Free purging was produced after the third dose. The action of the bowels kept up daily until the day of discharge.
85	S. S—, æt. 46, admitted October 12th. Was discharged from these cholera wards yesterday, shortly after which she began to complain of nausea, headache, &c. Purging soon followed.	Slight collapse. Purging and vomiting a little.	Had two 3ss doses of castor oil on first day.	Cured.	Was freely purged during the first day, and felt much better. Convalescent and put on <i>Mis. Quina</i> on second day.
86	A. M—, æt. 63, admitted October 13th. Has been ill with diarrhœa for a day or so; has been getting worse all day; cold; breath icy; dyspnœa. feels himself sinking.	In great collapse; pulse scarcely perceptible; extremities shrivelled and livid; body cold; breath icy; dyspnœa.	Had three 3ss doses of oil during the night after which he was moderately purged. The purged matters were bloody towards the last. Rose mixture was then given, and enemata of starch and laudanum administered.	Died.	Was purged four or five times pretty freely after the oil. Hæmorrhage from the bowels continued till his death. It was never profuse, just sufficient to tinge the stools.
87	W. R—, æt. 39, admitted October 15th. Took ill this morning with choleroïd symptoms. Was lodging in a house where landlady and a lodger died of cholera.	Slight collapse; no purging; persistent vomiting; pulse very weak; extremities cold; great thirst and dyspnœa.	Several ounces of oil given which were rejected. Calomel was then tried and a few doses were retained, altogether about 20 grs. Injections of oil were given.	Died.	The patient remained in collapse about forty hours. Very free purging came on shortly before death, the stools being bloody. Was only twice purged after the calomel.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
88	W. O—, æt. 54, admitted October 16th. Has had diarrhœa for two days. Took a good deal of gin. Became much worse this morning.	"Choleroïd diarrhœa," with slight collapse.	Had four ʒss doses of castor oil with ʒj turpentine in each.	Cured.	Was very freely purged. Convalescent on the third day.
89	D. C—, æt. 56, admitted October 17th. Has been ill with diarrhœa "off and on for three weeks." Became much worse this morning.	"Choleroïd diarrhœa."	Treatment commenced with <i>Tinct. Opii</i> and <i>Infus. Hæmatoxyl.</i> This was soon discontinued and castor oil in ʒss doses given every hour and half. Very free purging followed the third dose. He, however, convalesced rapidly.	Cured.	On the third day he eat heartily of pea soup and was shortly afterwards seized with choleroïd symptoms for the second time. He recovered under purgation and was discharged on the eleventh day.
90	C. D—, æt. 40, admitted October 18th. Was taken ill this morning with vomiting, purging, and cramps. Is of intemperate habits, but was not drinking yesterday.	Approaching collapse; great thirst; severe cramps; husky voice; pulse very quick and feeble; eyeballs sunken.	ʒss castor oil every hour for three doses. A little ammonia mixture every hour. Small quantities of arrowroot, wine, &c., given on second day.	Cured.	This patient was convalescent and put on quinine mixture the second day. Was freely purged during the first two days. Action of bowels ensured daily until the day of discharge.
91	W. H—, æt. 22, admitted October 22nd. Is of intemperate habits. Has been ill for many days with diarrhœa. Vomiting and cramps set in this morning.	"Choleroïd diarrhœa," with slight collapse.	Had six ʒss doses of castor oil with ʒj turpentine in each. A little ammonia mixture was given every hour.	Cured.	Was freely purged, and was convalescent on the third day.

92	B. R—, æt. 18, admitted October 22nd. Has had diarrhœa for a week, for which he took a good deal of medicine. Became much worse this morning.	"Choleroïd diarrhœa."	Had about $\frac{3}{4}$ iv of castor oil in first two days and was freely purged.	Cured.	Convalescent on the third day.
93	A. B—, æt. 46, admitted October 22nd. A nurse in the measles ward of the workhouse. Was suddenly seized a short time ago with choleroïd symptoms.	Severe cramps; vomiting and slight purging; pulse very weak; extremities icy cold.	Had $\frac{3}{4}$ iv of castor oil and three $\frac{3}{4}$ j injections of oil on first day.	Cured.	Convalescent on the second day.
94	A. R—, æt. 39, admitted October 30th. Was eating a cold and clammy; pulse very quick and weak; severe cramps; which she was seized with vomiting and purging. This was soon followed by severe cramps in the stomach, legs, and arms.	Considerable collapse; skin cold and clammy; pulse very quick and weak; severe cramps; considerable sinking of the eyeballs.	Ordered $\frac{3}{4}$ ss castor oil, to be given again in half an hour with 15 minims of chlorodyne. Both doses were retained but neither produced purging. Next morning two more doses of oil given. Very profuse purging followed.	Cured.	This patient had only about two ounces of oil, yet she was so freely purged that it was considered advisable to administer enemata of starch and laudanum. Convalescent on third day.
95	R. M—, æt. 16, admitted November 1st. Has been in the "receiving house" of the workhouse for some days. Was suddenly seized with vomiting and purging this morning.	Slight collapse; no vomiting or purging; pulse very weak; skin cold; severe cramps.	Had three $\frac{3}{4}$ ss doses of oil and three calomel powders (5 gr.). Small quantities of ammonia mixture were given every hour.	Cured.	Purged very freely. Convalescent on the fourth day.

No.	History, &c. &c.	Symptoms on admission.	Treatment.	Result.	Remarks.
96	A. B—, æt. 27, admitted November 1st. Was suddenly seized this morning with severe purging and cramps, accompanied by a sense of faintness and sinking. Took some medicine obtained at dispensary.	Almost pulseless; tongue and breath icy cold; voice husky; extremities livid; severe cramps and intense thirst.	Ordered ʒss castor oil every hour for five times. This produced very free purging during the night. Had 18 grs. calomel and four doses of oil next day, which also produced free purging. About one third of the oil was vomited.	Cured.	Was purged about twenty times. Convalescent on the fourth day.
97	J. C—, æt. 15, admitted November 5th. Was taken ill at twelve o'clock to-day with vomiting, purging, and cramps. Had not been eating anything unusual.	In a state of complete, pulseless collapse.	Ordered ʒij castor oil with 15 minims chlorodyne, to be repeated again in two hours. A little ammonia mixture every hour. Friction, &c. Had two doses of oil first day, and was purged freely during that night. Ordered injection next day which was immediately returned. Purged twice second day. Still pulseless. Ordered oil again.	Died.	This patient had about two ounces of oil and was not profusely purged. He continued sinking until the evening of the second day, when he passed two stools of blood and water, and died.
98	J. S—, æt. 27, admitted November 7th. Is of moderately temperate habits. Has been ill since yesterday morning with choleroïd symptoms.	Is in slight collapse; severe cramps; vomiting freely.	An emetic. ʒss castor oil and ʒi turpentine every second hour. <i>Acet. Potass</i> ordered on third day.	Cured.	Had four doses of oil; was very freely purged; vomited a great deal. Was convalescent on fourth day.

99	J. F—, æt. 33, admitted November 10th. Was taken ill this morning with choleroïd symptoms. Had taken a pork supper.	"Choleroïd diarrhœa."	Had fourteen half ounce doses of oil in two days.	Cured.	Very free purging produced. Convalescent on the third day.
100	R. T—, æt. 28, admitted November 10th. A labourer, is of intemperate habits. Was seized with profuse purging and vomiting this morning.	Severe "choleroïd diarrhœa."	Had four half-ounce doses of castor oil on first day, $\frac{3j}{\text{}} of oil on second.$	Cured.	Was very freely purged. Discharged on third day.

DIARRHŒA.

Our experience of diarrhœa was very extensive. Several thousand cases came under our observation in the different dispensaries connected with the West Derby Union and in the Liverpool Parish infirmary. Among these were doubtless many which would have recovered under any mode of treatment or by the *vis medicatrix naturæ* alone. But there were many too of a most severe choleraic type. The treatment adopted was generally evacuant in its nature and consisted in the administration of castor oil, calomel, rhubarb, or magnesia. In every case relief was afforded "pleasantly, quickly, and safely." It was but seldom that more than two or three doses of oil were required. In one of the public dispensaries (Bootle), in the neighbourhood of Liverpool, many cases of diarrhœa were treated with evacuants and the testimony of the medical officers is in accordance with our own, "We certainly had less trouble with the evacuant mode of treatment. Our patients seldom gave us a third visit, two doses of castor oil or rhubarb mixture being generally sufficient to cure the disease." We found the ordinary fluid magnesia a safe and active aperient in the diarrhœa of infants. We never saw a diarrhœa patient, treated with evacuants from the commencement of his attack, require subsequent removal to hospital.

Upon looking over our cases it will be observed that in a large proportion of them there was "premonitory diarrhœa" which had been treated, often for four or five days, with astringents. Diarrhœa patients undoubtedly recover when treated with astringents, but the recovery is not consequent upon the arrest of the discharges, as these are invariably restored before the patient feels well.

Before coming to any conclusion upon the value of the evacuant treatment of cholera, as based upon our cases, it must be remembered that in nearly every case the patient had been previously drugged with opiates and astringents. Popular "cholera mixtures"—strongly astringent—were

administered in the most indiscriminate manner upon the slightest approach of choleraic symptoms. It was the exception for us to get a patient in the stage of evacuation. There was a strong and very natural antipathy to "the house," amongst the people from whom our patients were mostly taken. They preferred trying the virtue of cholera mixtures and brandy for a considerable time before consenting to removal. We have the concurrent testimony of many of the medical officers in Liverpool and of the parish relieving officers, to the effect that "it was the last shift, when they could induce the friends of a cholera patient, or the patient himself to consent to his removal to the Workhouse."

We consider these remarks necessary for reasons which shall appear hereafter.

General results of post-mortem examinations—Nine *post-mortem* examinations were made. The appearances found, upon examining patients who had died during collapse, were wonderfully similar, so far as the organs of circulation and respiration were concerned. The right side of the heart, the pulmonary artery and its larger divisions were invariably distended with thick dark blood, while the ultimate lung tissue was pale and exsanguineous. We regret to say, that in no case was the *weight* of the lungs determined. Only one examination was made of a patient who had died during the period of reaction; and on reference to this case it will be observed, that there was congestion and purulent infiltration of the lungs. The patient during life exhibited marked symptoms of pneumonia. This case leads us to make a few observations upon the

Period of reaction.—The tendency to accidents and complications during this period was very great. Pneumonia was a very common and often rapidly fatal complication. There is a natural tendency to pulmonary congestion during reaction, and it is very easily increased. Exposure to draughts of cold air, and the injudicious administration of nitrogenous food, contributed largely, we believe, to the production of this complication in our cases. *Uremia* only

occurred in two or three cases, and in these the patients were receiving a liberal allowance of wine, arrowroot, and beef tea daily. As a rule, it may be said, that the longer a patient remained in collapse the more liable was he to pulmonary complication during reaction. Probably for this reason: during collapse the blood, directly acted upon by the morbid poison, and still further spoiled by the partial arrest of the normal respiratory changes which this poison induces, becomes surcharged with unoxidized material. Where there has been a more or less complete elimination of the blood poison, when the branches of the pulmonary artery (which we assume to have been in a state of spasm) commence to relax, and the blood is allowed to flow more freely into the pulmonary capillaries, it becomes necessary, if it would go further, that the amount of carbonic acid eliminated should be equal to the amount conveyed to the lungs. Where elimination fails to effect this, the blood, whose onward movement now mainly depends upon the proper performance of these chemical changes, refuses to flow. Congestion occurs. We can easily understand how the tendency to this congestion is increased in direct proportion to the duration of collapse and to the amount of unoxidised material introduced from without. As already remarked, alcohol and opium had previously been freely administered in a large proportion of our cases. In many too, we are willing to confess, there was a too early exhibition of nitrogenous food. This was sometimes ordered by ourselves; but was oftener given by the nurses, who were fearful lest their charges should sink for want of nourishment. We have no hesitation in saying, however, that nitrogenous food invariably did harm when administered during collapse or indeed during reaction, until by the flow of urine, &c., we had evidence that the respiratory changes were being briskly effected. Even supposing that the patient in cholera collapse required food, it is certain that this could not be digested or assimilated; and, supposing none of it found its way into the blood, it must lie as an uneasy load and increase the feeling of oppression by embarrassing those vital

functions which it cannot sustain. Any reduction of temperature during reaction, failure in the force or volume of the pulse, or sinking of the eyeballs we looked upon as signs of approaching congestion. Drowsiness or slight coma preceded nearly every case of congestion. This was not due to uræmia, as water was passed more or less freely in nearly every case, but to the accumulation of carbonic acid in the blood as already stated.

Remarks upon the remedies employed.—Castor oil. It will be seen from an examination of our cases that the quantity of oil administered varied greatly. When the natural powers of elimination were pretty active less sufficed, and *vice versd.* Where vomiting was frequent and energetic the oil was so much the oftener repeated. The amount was also regulated by the stamina of the patient and by the treatment adopted at the commencement of the attack. When there was no vomiting the oil was administered at longer intervals, and assisted by enemata, so as to guard against the possibility of over-purgation. We found acidulated or simple cold water the best vehicle for the administration of the oil. It has been said that in cases where the administration of castor oil was followed by good results, these were possibly due to some alterative influence exerted by it on the intestinal mucous membrane. We never saw any benefit result from its use, except where it excited the intestinal canal to expel its contents. In some cases a pint of oil was administered in twenty-four hours without producing purgation. Surely in these we ought to have had some evidence of the peculiar "castor-oilative" influence of the remedy, if such existed. On the contrary, they all proved fatal, the patients dying with distended bowels. Turpentine we considered a valuable adjunct with castor oil. In cases where the stools were tinged, however slightly, with blood, the oil was omitted, and injections of starch and laudanum given. Almost every case had something peculiar to itself, which modified its treatment. The safest rule in using castor oil is that there should be no general rule at all. The object for which it is given must be borne in

mind. This is not to *increase* the amount of morbid material thrown from the blood into the intestines—"the drain of fluid"—but merely to assist nature in her endeavours to expel this material from the intestines, and so prevent its working further mischief.

Emetics.—The value of emetics in the treatment of cholera cannot, we believe, be over-estimated. We found them particularly useful in freeing the stomach of the quantities of opiates and stimulants which had in the majority of our cases been previously administered. The brisk action of a mustard emetic often relieved that feeling of oppression complained of by cholera patients. It may have produced its good effects in these cases by freeing an over-distended stomach, and thus allowing the diaphragm full play, or by throwing out the products of the morbid poison from the stomach. We have seen patients almost asphyxiated improve immediately after the action of an emetic. This may have been owing partly to the mechanical impulse given to the circulation in the series of expiratory efforts accompanying vomiting, and partly to a relaxation of pulmonary arterial spasm probably produced by the *hot water* in which the mustard was suspended. It has been remarked by some of the older writers on cholera, "that collapse was rarely complete till active vomiting had ceased; and it was suggested that such vomiting might tend to obviate the remora of the blood." We made no trial of tartar emetic or any nauseating emetics.¹ *Venesection* was only had recourse to in four cases, and in these it was as a *dernier ressort*. The patients were allowed to remain in collapse too long. Effort after effort was made to restore the eliminative process, under the belief that if this were effected the patient's chances of

¹ It is worthy of remark that in those cases of asphyxia produced by the colliery "choke damp" the usual remedy of the miner is a hot water and mustard emetic.

"The muscular exertion which the frame undergoes in a succession of expiratory actions has the tendency to equalise the distribution and increase the stimulating qualities of the blood."—*Holland's Inquiry into the Laws of Life*.

recovery were greatly increased. Failing in this venesection was resorted to. But the unoxidized and poisoned blood then feebly issuing from the lungs refused to flow. We believe that the abstraction of blood in these cases was the only method by which we could have restored the discharges; as it would, by relieving the pulmonary embarrassment, and freeing the circulation, have increased the excretory power of the intestinal mucous membrane. In similar cases we should resort to blood-letting much earlier.

Alcoholic stimulants, except at the commencement of the epidemic were rarely given to a patient in collapse. We have already stated that in many of our cases we consider alcoholic stimulants were much too soon administered during reaction. Ammonia was a very valuable diffusible stimulant where a stimulant was required. *Enemata*.—We found very marked benefit often follow the use of hot injections. At the commencement of the epidemic we used strong saline injections, but we found hot water answer equally well. The temperature of the water was generally about 120° F. It has been said that these hot enemata warm the blood, and thus lessen arterial spasm. This may be so; but we believe that the good effects which follow their use are due as much to the purgation they excite as to any “dilution” or warming of the blood. After free purgation had been induced warm bland injections often relieved the sinking feeling of emptiness in the bowels. *Application of heat*.—We endeavoured to restore warmth by hot bottles, warm flannels, friction with stimulating oils, &c. &c. Warm baths were never tried. In collapse we had often great difficulty in applying heat on account of the jactitations and restlessness of the patient. We think, indeed, that it is open to question whether the forcible confining of the patient in a warm atmosphere at this time was productive of good results or the reverse. *Chloroform* was often administered with the object of relieving the cramps which so generally attend the disease in some stage. Relief appeared to follow its use in many cases, but we believe its free administration tended to prevent pulmonary elimination and increase the collapse.

This, indeed, may have been the very method by which it gave "relief;" because during extreme collapse there is "a torpid condition which seems to be incompatible with cramp or acute pain." *Thermometry*.—The lowest temperature we recorded was 92° F. in the axilla. The thermometer always indicated a lower temperature when placed in the mouth, but this was no measure of the general temperature of the body, or of the degree of collapse. Fluctuations in temperature were so sudden and so frequent that little information was to be derived even from the most carefully recorded indications. We observed, however, the marked decrease of temperature that followed any lengthened arrest in the process of elimination.

Does the foregoing record of cases give support to the hypothesis which attributes the collapse of cholera to a drain of fluid from the blood?—It is a necessary and legitimate consequence of this theory that there should be a *direct* relation between the cause and the effect. Almost every writer on cholera has stated that there is *no such* relation; but that if any relation exist it is rather of an *inverse* kind. Accurate observers who have studied the disease in its eastern home (*Scot, Orton, Annesley, Martin, &c.*) speak strongly on this point. Our experience is in strict agreement with that of Dr. Parkes when he says "that, exclusive of the mildest forms of the disease, a case with little vomiting or purging is more malignant, and more rapidly fatal than one in which these discharges are prominent symptoms." We often had the utmost difficulty in *producing purgation* in a collapsed patient, and not a few of our cases proved fatal without there having been either vomiting or purging from the time collapse set in, notwithstanding that very large quantities of strong purgatives had been administered. A patient rarely fell into collapse when the evacuations continued uninterruptedly from the commencement of the attack; but any lengthened arrest in the process of elimination was certain to be followed by algide symptoms more or less intense according to the amount of poison previously eliminated, and to the constitutional susceptibility of the patient.

When a patient who had been freely purged for some hours was brought to hospital in a state of collapse, it seemed very natural to attribute the collapse to the drain produced by the purging, and very easy to build a pathological edifice with this assumption for its foundation; but, by administering purgatives and thus keeping up the drain, the collapse, strange to say, gradually lessened and finally disappeared. Any lengthened cessation from vomiting and purging during collapse we looked upon as a sign of most serious import. An arrest in elimination may arise in two ways. First, it may be caused by the administration of therapeutical agents which have a directly constricting effect upon the intestinal canal—a mode of causation unhappily too frequent. Second, it may be caused by pulmonary obstruction produced by the direct action of the morbid poison in the blood. When the arrest is directly produced by the first method it is rendered greater by the indirect action of the second; because when the evacuations are arrested by the direct action of astringents, the blood already vitiated is still further spoiled by the multiplication and reabsorption of the morbid materials now pent within the bowels; it passes through the lungs in streams still feebler than before, and thus proportionately suppresses all the secretory and excretory functions. How much greater the mischief if to the blood at this time there be added large quantities of hydro-carbonized and nitrogenized material! Yet these were precisely the circumstances under which most of our cases were admitted, and as a consequence we often failed in restoring the excretory action of the intestinal mucous membrane.¹

Is there a natural mode of recovery?—That there is a natural mode of recovery in most diseases, we presume few will deny. Cholera, then, is no exception to this rule. Does recovery from it depend upon an arrest or a continuance of the intestinal evacuations? Upon the answer given to this

¹ [In a previous paper ('Lancet,' Aug. 18th, 1866) it was shown that out of seventeen deaths that occurred from cholera "nine were cases in which neither emesis nor purgation could be produced."—J. W. M'C.]

question will depend, in a great measure, the pathological creed held. There is, we believe, no case on record of a patient having recovered from an attack of cholera without having experienced more or less the peculiar discharges of that disease. Upon looking over our record this will be seen to characterize every case of recovery. Whatever the treatment adopted the result was the same—*recovery never occurred without the continuance of the intestinal discharges or their restoration if previously arrested.*¹ But if the collapse of cholera be produced by the drain of fluid from the blood consequent upon these discharges, surely recovery ought to be preceded by their *arrest*, and not by their continuance. Fatal collapse, on the other hand, invariably followed when the discharges could not be restored. If danger was thus marked “not by the violence of morbid actions, but by the diminution or cessation of natural actions.” Death then may and very often does occur without discharges: recovery never. May we not reasonably look upon the discharges as salutary—as the agents by which nature frees the system of a deadly poison? We believe so, and with this belief we can no longer retain that hypothesis which demands their arrest.

¹ Professor J. Seaton Reid, of Belfast, in a paper upon the cholera outbreak in that town, read before the Ulster Medical Society, October, 1866, states, in speaking of his cases, that he considered they “might be interesting; the more especially as one of them had struggled successfully against the disease, and thus afforded an opportunity of noting particularly the course of his disease.” Upon referring to this case we find that the patient was admitted in a state of collapse; that his bowels did not act for twelve or fourteen hours subsequent to admission, although he had taken ninety grains of calomel, and that he was finally pronounced convalescent *after having vomited about fifty and been purged forty-four times!* After 120 grains of calomel had been administered and very free purgation produced, Prof. Reid considered it advisable to establish “a freer secretion from the intestinal surface by the daily administration of castor oil.” This paper appears in some of the October numbers of the ‘Dublin Medical Press,’ from which it was subsequently reprinted.