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CONTENTS.

THE

CHOLERA GAZETTE.

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ADVERTISEMENT.

A periodical work, devoted exclusively to the subject of cholera, published at short intervals, and under the management of medical men, so as to convey intelligence as early as possible, and of an *authentic* character, respecting the progress of the disease, the phenomena it exhibits, and the most successful mode of treatment, is manifestly required at the present moment. It is through such a work that the profession may be most readily put in possession of the fruits of the ample experience in the treatment of the disease, gained during the fifteen years the epidemic has prevailed, and that the medical community may receive the most speedy information of the progress and character of the disease, so as to enable them to disabuse the public in relation to the thousand distorted stories, and baseless rumours, circulated from mouth to mouth, and through the public prints, and causing a panic productive of incomparably more evil than the disease itself.

No epidemic that has occurred of late years has excited a greater degree of interest among all classes of society, and in every quarter of the world, than the present; nor has any one been investigated with equal zeal, and by a greater number of talented practitioners, or called forth such numerous publications, furnishing the most minute details relative to its history, nature, and treatment.

A large portion of the profession in this country have, however, no access to the immense and invaluable mass of facts that has thus been accumulated; the works in which these facts are recorded, being, many of them, very expensive, but few of them to be found in our bookstores, and the most valuable being written in foreign languages.

Their chief dependence must then be on the periodical journals, and it is believed that the *Cholera Gazette*, from the facility with which it can be circulated, and the short intervals at which it will appear, will best accomplish the desirable object of diffusing early and important information to the profession.

Independent of all considerations connected with the physicians of this country being about to be called upon to treat this disease, the study of the present epidemic is important as affording ample data upon which to establish a more correct theory in regard to epidemics in general, their causes, and the proper means for their prevention.

The facts which have already been collected in relation to epidemic cholera, show the necessity for an immediate and entire revision of the existing quarantine laws, both in Europe and America, as well as the importance of a well-digestive sanitive code, carried into effect by competent agents, for the preservation of the health of every community.

The editors have devoted a considerable amount of time and labour to the investigation of the disease under consideration through the medium of the very large mass of official and other authentic documents which have appeared in relation to it; and it is their intention, in the pages of the Cholera Gazette, to communicate to the profession the result of their investigation in a form which appears to them to be calculated to meet the wishes and the wants of all its members. The Gazette will present a minute history of the origin and progress of the disease—an account of the peculiar phenomena which it has exhibited in the various climates and localities where it has appeared—the facts connected with its origin in each place—the influence of quarantines, sanitary cordons, and other measures adopted with the view to its prevention—the arrangement of hospitals for the reception of the patients attacked by it—whatever facts are calculated to throw any light upon its pathology—and a general view of the various plans of treatment that have been adopted, and so far as can be ascertained, their comparative efficacy.

To the progress of the disease in this country, the editors will pay the strictest attention—under this head each number of the journal will present the fullest information.

Early History of Cholera.

Cholera is a disease that has been known from the earliest periods, and has been described by the fathers of our art. In every country

sporadic cases of it occur, and in not a few instances it has existed epidemically.

In 1762 it prevailed very extensively in upper Hindostan, destroyed, according to Le Begue de Presle, thirty thousand negroes, and eight hundred Europeans. Dr. Paisley, in a letter from Madras in. 1774, states that it was often epidemic, especially among the blacks. M. Sonnerat, in the account of his travels in India, between the years 1774 and 1781, mentions that cholera prevailed on the Coromandel coast, and at one period more particularly, assumed an epidemic and malignant character. Curtis, in his work on the diseases of India, and Girdleston, in his essay on the spasmodic affections of that country, speak of an unusual prevalence of the disease during 1781 and 1782. It prevailed in the northern Circars in the early part of 1781, and in the latter end of March, it affected at Gangam, a division of Bengal troops, consisting of five thousand men, who were proceeding under the command of Colonel Pearse, of the artillery, to join Sir Eyre Coote's army on the coast. Men previously in perfect health, dropped down by dozens, and those even less severely affected, were generally dead, or past recovery within less than an hour. Above five hundred were admitted into the hospital in one day, and in three days, more than half the army were affected.

In April, 1783, it broke out at Hurdwar, on the Ganges, a spot held peculiarly sacred by the Hindoos, among a crowd of between one and two millions of persons, assembled for the purpose of ablution in the holy stream. It is the custom of the pilgrims to repair to the bed of the river, where they pass the night with little, if any shelter. Very soon after the commencement of the ceremonies, the cholera attacked the pilgrims, and in less than eight days, is supposed to have cut off twenty thousand of them. The disease was, however, on this occasion so confined in its influence, as not to reach the village of Jawalpore, only seven miles distant.

We have accounts of the disease having also prevailed at different periods in various parts of Europe. It has been very extensively prevalent in Paris at various periods, particularly during the summer of 1730, and in July, 1780. Sydenham notices its general occurrence in London, in 1669 and in 1676, and Huxham in 1741. Dr. Ayre states, that it was epidemic in 1817 in Hull and other parts of Great Britain; and in 1825 it was, according to Dr. Thackrah, epidemic in the town and neighbourhood of Leeds, and affected nearly one-half of the inhabitants. So completely did this last epidemic present the characters of the present one, that when Dr. Johnson read to the Westminster Medical Society, Dr. Thackrah's account of it, omitting

the name of the place and the period of its prevalence, it was at once pronounced to be a most accurate description of the disease then existing in London. We have no certain accounts however of the disease ever before having been epidemic over so large a space as the present one, and in our next number we shall present a brief sketch of its commencement and progress.

Hôtel-Dieu of Paris.

Many erroneous statements have been in circulation relative to the mortality among the physicians, nurses, &c. of the Hôtel-Dieu of Paris, and which have produced considerable alarm, and have been triumphantly adduced as evidence of the contagiousness of the disease. The following *facts* will show how far that evidence is available.

The usual number of medical students, nurses, &c. attached to the Hôtel-Dieu, is 216. During the prevalence of the epidemic, this number was increased by the addition of 189 persons. Of these last, 167 were nurses, who were picked up in the streets, and those of them who attended upon the patients during the day, went home at night, whilst those who were in attendance during the night, remained at home during the day. The Hôtel-Dieu is situated in the lowest, dampest, most confined, and filthiest part of Paris, and in the place where the disease first broke out and prevailed most extensively. In this hospital during the first three weeks nearly 1800 patients were crowded in eight wards appropriated to the disease, and no precautions were taken against contagion.

Of the 405 persons attached to the service of this hospital, living in the impure atmosphere of crowded wards, exposed to incessant fatigue, and in the very centre of the choleric atmosphere, 12 only were affected with the disease up to the 19th of April, of whom but 5 died. We shall take another opportunity of showing how small this proportional mortality is to that of the whole mortality of the 9th arrondissement, in which the Hôtel-Dieu is situated.

This might seem at first view to prove too much, but it must be remembered, that the attendants were furnished with good and wholesome nourishment, and their wages enabled them to obtain more comforts than could be commanded by the class of persons to which they belonged, and who were the chief sufferers by the disease; thus most conclusively showing the protective influence of such circumstances.

The editor of the *Gazette Medicale de Paris* states, that none of the house pupils, or attending physicians, of whom many passed the greater part of the day in the cholera wards, or in the dissecting rooms, were severely attacked, though several of them were affected with derangement of the digestive organs, as has always been the case with persons residing in places where cholera was prevailing epidemically; and "the public," he adds, "has been improperly alarmed by the daily papers that have spoken of the indisposition of several of the physicians of the Hôtel-Dieu, in terms which lead to the belief of their having had severe attacks of cholera."

M. Magendie's *Letter describing the Cholera at Sunderland, England.*

The following letter, written by M. Magendie, when on a visit to Sunderland in England, for the purpose of investigating the nature of cholera, was addressed by him to the president of the French Institute. It will doubtless interest many of our readers—communicating, as it does, in a vivid manner, the impressions which the phenomena of that disease made upon the mind of this illustrious physician, and his conviction of the injurious effects of restrictive measures to prevent the spread of the pestilence. We cannot pretend, of course, to have preserved, in all respects, the peculiar spirit of the original in our translation. The letter is evidently the transcript of M. Magendie's first impressions—for, however violent the symptoms and rapid the course of many cases of the disease, the general features which he has attributed to the malady, will not, we are persuaded, be realized, when it shall have made its appearance in this city.

"Here I am at length in Sunderland. Notwithstanding all my efforts to arrive here as speedily as possible, and the admirable accommodations for traveling in this country, I was obliged to remain at London nearly three days in order to communicate with the council of health and some of the members of government. I have received in all respects the most favourable reception, while every thing has been done to forward the objects of my mission. The noise which the appearance of cholera in England has occasioned does not obey the laws by which the propagation of sound is regulated; its intensity being, on the contrary, in a direct ratio to the distance. In London every one spoke to me of cholera, inquiring whether it is or is not contagious, what are the means to be adopted to prevent its attack, &c. All looked upon me as a man of courage, inasmuch as I was about voluntarily to confront so great a danger, and for my-

self it was not without a degree of secret satisfaction that I harkened to these praises. But every thing truly changed as soon as I commenced my journey to this place. I had not gone one hundred miles, when the exclamations against my journey ceased, and after two hundred miles of the road were gone over, I was permitted to pass as the most ordinary traveller; and finally, at Sunderland, where I have been since yesterday morning, no one appears to notice my arrival, nor have I received from any one a single compliment upon the nature of my visit; always excepting the physicians of this place, who have extended to me the most brotherly reception.

"Here we have no longer uncertain rumours. In viewing the evil where it exists, there is nothing to weaken the idea which we form of it. Far from this; I conceive it would be impossible for the most active imagination to create an image equal to the reality. I may probably convey to you some idea of the impression it made upon me, when I state that an individual in perfect health, attacked with the cholera, is in an instant transformed into a corpse! He presents the same condition of the eyes—the same appearance of the whole body—the same coldness of the limbs—the same hue of the skin and so on. Did not the intellectual powers remain as it were unaffected, and the patient's power of speech continue, though in an almost imperceptible degree, we might proceed to inter him as a corpse, the moment even after he is attacked. Such then is the cholera which is here denominated Asiatic, spasmodic, or malignant. It does not appear to me to be modified by any plan of treatment. In a few hours all is terminated, and this almost invariably in death. What evinces the appalling character of the malady, even in its very commencement, and shows with what a destructive force it seizes upon the organs of the body, is that corpse presents precisely the same appearance as the patient did before his death—death adds nothing to that which had previously existed. In a word, the disease I am describing *cadaverizes* in an instant the person whom it attacks.

"Happily the cholera does not always exhibit this frightful degree of intensity. In two-thirds of those attacked, I am informed, it is much less severe. But as I have not yet seen any of these privileged cases, I cannot now describe them to you.

"Has the disease been imported, or did it originate in this unwholesome place, crowded with poor and badly-lodged inhabitants? Is it, or is it not contagious? Upon these questions they trouble themselves very little here. The chief point is, that no sanitary measure has been adopted, and all are of the opinion that if the English government had surrounded, by a cordon of troops, the people of Sunderland, who amount to about four thousand, in place of being as they now are, tranquil, giving little or no attention to the disease, they would have been soon thrown into consternation or despair, and events would have occurred more serious even than the disease itself. I would add, that the propagation of the disease, supposing it to be of a nature capable of propagation, would not have been retarded—probably it would have been even accelerated.

"They are contented here with distributing wholesome aliment to the poor, and flannel to cover their bodies, and with exhortions to cleanliness. Such are the only sanitary measures that have been adopted.

"Such, Mr. President, is all the positive information I have it in my power to

transmit to you in relation to the cholera of Sunderland. If you think proper to communicate my letter to the Academy, add, if you please, that at whatever table I dine, I hear a toast in compliment of the Institute of France.

"I trust that my sojourn in this gloomy country will not be long, where the cold, the fogs, the smoke and the cholera are leagued against the inhabitants, and of course, against such amateur travellers as your affectionate confrere."

MAGENDIE.

December 31, 1831.

Effects of a belief in Contagion.

Some few amongst us, whose entire ignorance of the subject can scarcely be allowed as a sufficient excuse for their folly, have insisted that even though the cholera may not be contagious, it is safest to act upon the principle that it is so. Every one we think will admit that it is the safest and wisest course to act in all things upon the truth, so far as it is known, and that deception is never allowable in order to amuse the prejudices or to accord with the ignorance of any class of society. But let us see what have been the effects of the strict measures that have been adopted in conformity with the opinion that the cholera is contagious. The following remarks on this subject, translated from the communication of Dr. Houselle, in reference to the epidemic as it appeared at Elbing, will exhibit in vivid colours what are the actual effects to be anticipated from the adoption of any measure founded upon the supposition that cholera is capable of being propagated by contagion.

"Whenever," remarks the doctor, "all communication was interdicted with the inhabitants of a dwelling in which a case of the disease had occurred, scarcely an hour elapsed before twenty to thirty persons in the immediate neighbourhood were found to apply for medical aid—showing strongly the influence of the fear excited by the seclusion to which patients labouring under the epidemic were subjected. The system of seclusion not only, however, augmented the number of cases, but it was found to deaden all the moral feelings and every principle of humanity. The slightest deviation from health in an individual was the signal for his desertion by his nearest relatives—no one was willing to remain near him from the dread of contagion, and the horrid anticipation of being shut out if attacked, from all intercourse with his fellow men. Servants and apprentices attacked with cholera have been cruelly cast forth at night from their master's houses, and have been left to die in the open streets. All business in the neighbourhoods where the disease appeared was suspended—in consequence labourers and mechanics were thrown out of employment, and unable longer to procure proper food and other necessaries, and passing their time in common with numbers of idle apprentices in dissipation, have afforded fresh food for the disease.

"No one for a moment can contemplate the condition of the poor beings, who were shut up in their houses to prevent the spread of the supposed contagion, without their hearts bleeding for their sufferings. Twenty long days were they obliged to pass, deprived in very many instances of the kind services of either friend or relative—in dwellings often damp and miserable in the extreme—without occupation or proper nourishment. Looked upon by their fellows as objects of horror, in whose presence dwelt pestilence and death, and forced to endure all the pangs of disease without any one to comfort, to pity, or to assist them: Can we blame the poor, who in the dread of such a species of cruel imprisonment, concealed the fact when the disease appeared amongst them? Can we be surprised that in the dwellings thus closed up new cases of the disease should have so frequently occurred?

"It is," adds Dr. H. "my decided conviction, as well as that of all my colleagues, that the intensity of the epidemic in this place, (Elbing) increased just in proportion to the strictness with which measures for the seclusion of the sick were carried into effect."

Method of Warming the Patient in the Cold Stage of Cholera.

Various methods have been proposed of applying warmth to patients in the cold stage of cholera, some of which we shall describe hereafter. The following one, resorted to by M. Dumeril, at the Maison Royale de Santé, strikes us as among the most effectual, and is certainly the simplest that has hitherto been devised.

The bed-clothes of the patient are raised and supported upon two hoops; a plate, upon which is placed a small shell or cup capable of containing about half an ounce of alcohol, is laid between the legs of the patient. Fire is applied to the alcohol, the bed-clothes drawn down, and the fire not extinguished until the patient complains of the heat.

Cholerine and its Treatment.

Since the appearance of the cholera morbus among us, it has been conclusively demonstrated, that the disease is produced by an epidemic influence; that is to say, that it has not been imported from abroad, and that it has not arisen spontaneously without having been preceded by successive modifications of the economy. These truths are too generally admitted to require additional demonstration. Let it be borne in mind, that for more than six months past, a large proportion of the population of Paris and France have experienced derangements of the digestive functions, which were necessarily the

prelude of the epidemic. These disorders did not affect the whole population, any more than cholera attacked every individual. There were only certain constitutions, those which now compose the class of cholera patients, who were attacked with them. By the changes in the weather, and by the progress of the epidemic constitution, those individuals who were most susceptible of its influence, were finally subjected to its full effects, and were attacked with cholera. Others, as those who had not hitherto experienced any predisposition, finally underwent the first degree of it, and they also were attacked with the first grade of the disease it occasions. This first degree we shall term *cholerine*, as this epithet has already been employed to designate the same affection at an epoch when it was wished to distinguish the preludes of cholera from cholera itself. *Cholerine* is then the diminutive of cholera, as respects cause, symptoms, and course; and it ought to be considered in the same light as regards its treatment. We will successively give the different points of this question.

It is certain, that since the invasion of the epidemic, that seven-eighths of the population of Paris have presented symptoms belonging to the same affection. Setting aside the effects of the moral commotion which every one must experience on the appearance of the cholera morbus, effects which we shall hereafter notice, it is impossible to avoid recognising, that almost all the inhabitants of the capital, to whatever class they might belong, have for a fortnight past presented the symptoms of an identical disease, modified only in its grades and its secondary appearances. Some lost their appetite, experienced uneasiness after having eaten, have borborygmi during digestion, and especially at night. As yet there is no colic, but there is a sensation of uneasiness, torpor, and intestinal fulness, which ordinarily announce a greater degree of disorder. To these first symptoms of gastric embarrassment are added others which belong to the functions of innervation. The mind is less excited, less active, at the same time that the muscular strength is weakened, the intellectual faculties lose their energy. In other individuals, the disorder of the functions is much greater. Efforts to vomit, borborygmi accompanied with colics, spontaneous sweats, greater lassitude, sudden sinking, and finally diarrhœa manifest themselves. This second stage may merely last for a short time, in which case it only constitutes a slight indisposition, which is dissipated of itself or by the aid of medicine. If it continues, one, two, or many days, it becomes a real disease, which appears to us should attract the more attention, since it is often followed by cholera itself, or may be restricted to its own limits. It is to the complete development of this disease that we give the name of chole-

rine. In this grade, cholerine principally affects feeble and broken-down constitutions, those who are worn out by excesses or fatigue, by age or chronic disease. It is rare that cholera does not ensue in individuals who present these conditions. An observation of more than six hundred patients has proved to us that nearly nine-tenths of the cholera patients taken to the hospitals, had experienced all the symptoms of cholerine before they were seized with cholera. Some complained for four or five days previous of diarrhœa, weakness, and spontaneous sweats; others had nausea, and some vomiting; some even presented, though in a slight degree, the first symptoms of intense cholera, as cramps, coldness of the extremities and body, pains in the stomach and intestines; so that it was impossible not to recognise in this assemblage of symptoms, the first product of the general cause which finally produces cholera morbus. If this be true, it may be conceived of what importance it must be that every one should prevent cholerine, if it has not occurred, and arrest its progress, if it has taken place.

When there is as yet only uneasiness without a marked disorder of the functions, it is sufficient to strictly observe hygienic rules, to eat much less at a time, and not to eat until the preceding meal is perfectly digested, to restrict ourselves to some light gruel, if there be not a marked sensation of hunger. This precept is more important than is supposed. Numbers of persons have been seized with colics, diarrhœa and vomiting, in consequence of having eaten at an improper time, or taken more food than the wants of the system required. When the flatulence and colics last, all solid food should be abstained from, and the utmost care taken to prevent a sudden chill. In the evening before going to bed, a warm infusion of tea or chamomile should be taken, sweetened with a spoonful or two of the syrup of white poppies, and perspiration induced by warm coverings. If the colics still increase, and are followed by some stools, recourse may be advantageously had to one or two doses of Dover's powder, of about five or six grains each, and weak rice water used as drink. To the preceding should be added, tepid and almost cold baths if practicable. These baths are especially suited for irritable individuals, in whom the influence of fear has become combined with the epidemic influence. In this respect, some distinction should be made between gastric symptoms produced by the reigning constitution alone, and those which might appear to be owing to violent and continual emotions of mind. In the first case, there is but little or no irritation properly speaking. The mouth is clammy but a little warm. The patient experiences a sensation of fullness and weight in the stomach

which may increase to pain, but this latter is neither burning nor is it accompanied with great thirst, burning and dryness of the throat, twitching and spasmodic contraction of the stomach, such as takes place when a continued mental reäction is superadded to the gastric disease. In this second case the symptoms rather assume the character of the cause which has induced them. The difference which is but of little importance where the symptoms are slightly marked, becomes of more consequence where they have acquired some intensity. Cholerine exclusively depending on the epidemic constitution, requires, when it has reached its greatest degree of development, curative means which are almost wholly different from those which are proper for diarrhœa arising from the first cause, we will enter on a few details on this point.

When the epidemic diarrhœa has already existed for a day or two, and has resisted regimen, as slightly astringent drinks, or even when it has commenced with appearances of lasting for some time, as a furred tongue, desire to vomit, loss of appetite for several days, super-orbital cephalalgia, lassitude, and spontaneous sweats, recourse must immediately be had to ipecacuanha, which is to be administered in doses of twenty-five or thirty grains at two intervals of twenty minutes. This evacuant has the marvellous property of suddenly checking the diarrhœa, and even the vomiting, if this exists. During the eight days that we have employed, and seen it employed by a number of practitioners, it has never failed of producing the happiest results. Recourse should even be had to it when the stomach is the seat of a fixed pain. The great point is to know the nature of the pain. When this is owing to an irritative concentration to the stomach, under the influence of the causes we have above enumerated, we should restrict ourselves to injections and emollient baths, to the detraction of blood from the anus and the epigastric region, to which may be added small injections, with a few drops of laudanum. But, except in such a case, there should be no hesitation in immediately resorting to the emetic. This appears of such importance to us, that of ten cases of cholera which commenced with cholerine, we think that one-half might have been prevented if recourse had been had to this mode of treatment. This precaution, moreover, ought not to lead us to fear that we may cause an attack of the cholera, as for some days past a majority of the practitioners of the capital have given a preference to this method, as the first and principal agent in the treatment of cholera.

To conclude. Chlorine appears to us to be produced in its different grades by the more or less marked influence of the epidemic con-

stitution. When left to itself, it is susceptible of giving rise to cholera morbus, it is proper therefore to treat it as soon as possible. The means to be employed are, at first, warm drinks slightly opiated, and afterwards ipecacuanha. Some physicians add a mild purgative, as Seidlitz water, or calomel; we think, however, it is better to adhere to the ipecacuanha, and repeat the doses if it be necessary.—*Gazette Medicale de Paris, April 19th*, 1832.

Treatment of Cholera by the Polish Physicians.

Viewed in the light of a new and very peculiar disease, and being actually one of which cases had previously been of very rare occurrence in the northern countries of Europe, the Russian and Polish physicians appear to have been entirely at a loss, during the first eruption of the epidemic amongst them as to the proper course to be pursued in its treatment—one remedy after another appears to have been tried and quickly abandoned. By nearly all a tentative or merely empirical practice was pursued. The one which was most generally adopted, particularly in the Polish camp, was that of the East India surgeons, viz. the external application of stimulants, bleeding from the arm, with opium and calomel internally. The result of this plan of treatment was not, at least among the soldiers, such as to recommend it very highly. From the 23d of April to the 31st of May, 2634 of the military were attacked, of whom 776 or 29.5 per cent. recovered, and 1202 or 45.6 died—leaving 656 under care at the last mentioned date. During the first thirteen days there was no case of recovery reported. It must be recollected, however, that not only were the great mass of the soldiers, composing the Polish army, precisely of that description of persons in whom the disease proves rapidly fatal—but they were exposed to very great fatigue and privations of every description, while during the first appearance of the epidemic amongst them the camp was unprovided with surgeons, and consequently many of the patients must have died from the want of medical aid. The largest number of deaths took place during the first twenty-four days, the smallest number subsequently to the 15th of May.

By Dr. Sturm, of the camp near Kamienka, warm water appears to have been the remedy chiefly employed. He gave the patients every fifteen or thirty minutes a glass of water as warm as it could be swallowed—he declares that after fourteen glasses, at the furthest, had been taken, the disease was so far removed that the patient com-

plained only of a slight diarrhœa. The good effects of the warm water were, we are told, so promptly shown, that in two hours or even sooner, a cure was often effected, particularly when it was drank with sufficient freedom.

In desperate cases the liquid caustic ammonia was given internally, and applied in the form of frictions over the epigastrium, particularly when the cramp was peculiarly severe. This practice does not appear to be very highly recommended when the doctor informs us that he has seen it in four cases "restore the patients so that other medicines could be employed." The dose of the ammonia internally was fifteen drops.

Dr. Sturm remarks that the operation of calomel and opium, though he had found it beneficial, and at first depended chiefly upon it, was not to be compared in the rapidity of its effects to the hot water, and accordingly, Dr. S. soon entirely laid aside the former. Blood-letting Dr. S. found to be in the highest degree beneficial in every case in which a flow of blood could be obtained.

Dr. Camillo, surgeon to the Kron-Garde barracks, is said to have been peculiarly successful, losing but few of his patients.

He gave either an infusion of chamomile, ℥vj. with tinc. asafœtid. and sulphuric ether, of each ℈j.; or when there was severe and constant diarrhæa, a decoction of Colombo root, ℥vj. with asafœtida and ether as above. The above quantities where those generally administered in the twenty-four hours. External frictions with stimulants, and sinapisms, were employed at the same time. A more extensive experience with this plan of treatment does not appear to have confirmed the praises with which it was at first announced.

Of 102 patients treated in barracks, from the 9th May to the 7th June, 62 died, or 60.8 per cent. and 20 recovered, or 19.6; remaining 20, of whom 14 were convalescent, increasing thus the proportion of cured to 33.3 per cent. Of the deaths, 36 were under and 26 over fifty years of age. Of the recoveries, 27 were under and 7 over that age. Of the cases which terminated fatally, 27 had been bled—15 previously to their entrance in the hospital, and of course at an early stage of the attack; 29 had moxa applied to the abdomen; 50 were treated with opium, either in the form of Dover's powders, or by itself—in 44 cases it was given combined with calomel. In 3 cases emetics were employed.

In all cases treated in garrison, warm baths, repeated twice or thrice a day, were employed. Of the 20 cases which terminated favourably, 8 were bled; 2 children had leeches applied to the abdomen; to 7 were moxas applied; 3 were treated with small doses of

calomel and opium; 2 slight cases were cured by the warm bath and warm teas. To 23 individuals the oxyd of bismuth was administered, of these 7 died. In these 23 cases, however, other of the remedies already referred to were employed.

Hope's mixture of nitric acid and laudanum was pretty extensively employed by some of the Polish surgeons, but the slight manner in which it is noticed does not speak much in favour of its efficacy.

It is the general opinion of the Polish physicians, derived from the result of the cases treated in the general hospitals, that large doses of opium, or small doses repeated at short intervals, produced a decidedly injurious effect—paralysing the stomach, or by their effects upon the brain, hurrying on the stage of collapse.

Quarantine at Newport, Rhode Island.

Ample experience has shown that quarantine regulations have the same effect in preserving from cholera, that a bundle of straw would have in arresting the progress of fire. The latter affords fuel for the flame, the former, by the misery they entail, augment the number of favourable subjects for the disease.

The authorities of Newport, R. I. we perceive, have determined, however, to trust only to their own experience in this matter, and are enforcing rigid quarantine restrictions—refuse any passengers in the steamboats from New York permission to land—and have called out the militia to enforce their restrictions!

How much more wisely would they not act, were they to take advantage of their present exemption from the epidemic—throw open their doors to strangers, and encourage their visits. By such a course they would create a market for the fruits of their labour, give increased activity to business, immensely advance the prosperity of their city, and many of the inhabitants now labouring under want and favourable subjects for disease, would be rendered comfortable, and placed above the reach of the pestilence.

That they might do so with safety, we could adduce sufficient testimony. Many Russian families, flying from places where the cholera was prevailing, took refuge in a small town in the Palatinate of Kalisch, without conveying the disease with them. During the epidemic at Moscow, above 40,000 inhabitants quitted that city, and there is no case on record, Dr. Albers states, of the cholera having been transmitted by them from Moscow to other places. Several individuals from Riga died at Wenden, and other parts of Livonia,

without communicating the disease to a single person. The family of the Prince of Persia left Tabriz whilst the disease was prevailing there, and for the first ten days from four to six members of his suite were attacked daily wherever they went, and yet not a single inhabitant of the villages through which they passed, or where they slept, took the disease.

By pursuing an opposite course, the people of Newport have not only rendered themselves more liable to attacks of the epidemic—but must expect to be deprived of the sympathies of their neighbours, and have the restrictions forced against themselves which they have enforced against others, when they shall suffer from the epidemic. And that their turn will come, there is every reason to suppose, at least they will not owe their exemption to their quarantine regulations. The Russian sanitary cordons did not preserve Moscow or St. Petersburgh; nor the immense military force employed by Austria prevent the disease from breaking out in Vienna, and affecting the whole empire; the quarantine regulations of France and England have not preserved those countries—even the sanitary laws of Prussia which were executed with a punctuality and rigor elsewhere unknown, exerted no influence over the march of the disease.

We are much mistaken if the inhabitants of Newport do not find out to their cost, that it is cheaper to learn from the experience of others than from their own.

Health of Philadelphia.

It cannot have failed to strike every medical man, who has watched the progress of our diseases, that that condition of things, which has elsewhere been the prelude to the occurrence of cholera as an epidemic, has been gradually coming upon us—that there exists a very strong disposition to bowel complaints—that diarrhœas have become exceedingly frequent—and that within the last few days a more than usual number of cases of cholera morbus have occurred. These have, however, been quite as manageable as ordinary, and have not, except in a single isolated instance, presented any strongly-marked peculiar characters. The subject of this case was a labourer, the inhabitant of a damp, dirty, and ill-ventilated cellar, in Filbert street near the Schuylkill, who had been suffering for two or three weeks under diarrhœa, which he entirely neglected; upon which vomiting supervened on the 6th of July, followed by spasms, collapse, and death, after three days.

The following table, exhibiting the whole mortality for the first week of July during five years, also that from bowel complaints for the same period, will show that the condition of things just alluded to has not produced any apparent effect upon the mortality of our city.

1828.—1st week, ending July 5th. Whole mortality, 114; of which, the deaths from cholera morbus were, adults, 0; children, 37; Total, 37.—Diarrhœa, adults, 1; children, 1; Total, 2.—Dysentery, adults, 0; children, 1; Total, 1.—Total from bowel complaints, 40.

1829.—1st week, ending July 11th. Whole mortality, 82; of which, the deaths from cholera morbus were, adults, 2; children, 14; Total, 16.—Diarrhœa, adults, 1; children, 4; Total, 5.—Total from bowel complaints, 21.

1830.—1st week, ending July 10th. Whole mortality, 112; of which, the deaths from cholera morbus were, adults, 0; children, 25; Total, 25.—Diarrhœa, adults, 2; children, 1; Total, 3.—Dysentery, adults, 2; children, 3; Total, 5.—Total from bowel complaints, 33.

1831.—1st week, ending July 9th. Whole mortality, 117; of which, the deaths from cholera morbus were, adults, 0; children, 30; Total, 30.—Diarrhœa, adults, 1; children, 3; Total, 4.—Dysentery, adults, 0; children, 1; Total, 1.—Total mortality from bowel complaints, 34.

1832.—1st week, ending July 7th. Total mortality, 122; of which, the deaths from cholera morbus, were, adults, 0; children, 30; Total, 30.—Diarrhœa, adults, 2; children, 6; Total, 8.—Dysentery, adults, 0; children, 2; Total, 2.—Total from bowel complaints, 40.

That the cholera will, however, be epidemic here this summer, there appears little reason to doubt; but as ample time has been afforded for the correction, in a great measure, of those conditions which render certain localities most obnoxious to the disease, and for the preparation of hospitals for the reception and treatment of that class of society who are the principal subjects of its attacks, we may reasonably hope that it will not commit any extraordinary ravages in our city. Above all, there appears to us to be so much good sense in the community, and that they are so well prepared for a visitation, that we shall not have here that *panic* which has elsewhere so greatly augmented the victims of the disease and occasioned evils infinitely more deplorable than those of the pestilence itself.

Cholera at New York.

The unfortunate differences existing between many of the medical men of New York and the Board of Health of that city, render it impossible, up to the present moment, for any accurate details as to the actual ravages of the disease in that city to be obtained.

THE

CHOLERA GAZETTE.

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History of Cholera.

IN our last number we presented a very brief sketch of the early history of cholera, without, however, alluding to certain epidemics, supposed by different writers, to be identical with the one under consideration, inasmuch as the evidence of this identity does not appear to be sufficiently positive. Thus Mr. Bell thinks it probable that the tremendous pestilences, so frequently described by the native historians of India, were the cholera, and some writers consider the black plague, which in the fourteenth century, devastated Europe, and others again believe the malignant fevers of Torti, to be the same disease.

Be this as it may, it is, we believe, universally conceded, that the present epidemic commenced in 1817, and first attracted especial attention on its breaking out at Jessore, a large and populous town, about sixty-two miles east of Calcutta. It did not originate there, however, as is usually represented, but broke out simultaneously in various and distant parts of Bengal. As early as July, it appeared at Sunergong, and had even begun to prevail epidemically in the distant provinces of Behar and Dacca; on the 11th of the month it broke out in the city of Patna, three hundred miles north-west of Calcutta, and spread to the contiguous station of Dinapore, and to the adjacent villages, early in August, and by the middle of the month, it appeared in the remote province of Silhet. On the 23d of August it was raging at Chittagong, far round the eastern corner of the Bay of Bengal, at the same moment in Rajshaky, a central district lying east of the Ganges, and not a week afterwards in the high and distant tracts of Bhaugulpore and Monghyr.

On the 28th of August, it was reported to the government that a malignant species of cholera had appeared at Jessore, and was cutting off from twenty to thirty persons daily. It was stated in the report, that "the inhabitants astonished and terrified at the unaccountable and very destructive inroads of the pestilence, are flying in crowds to the country, as the only means of escaping impending death."* In the short space of a few weeks it destroyed upwards of six thousand persons.

The exact date of the appearance of the disease in Calcutta, has not been ascertained, but there appears no doubt that many cases occurred among the native population as early as the middle of August. At this time, however, the disease appears to have exhibited a mild type, but by the latter end of the month it assumed a malignant form, and during the first days of September it committed great havoc among the natives.

On the 5th of the month the disease appeared among the European inhabitants, and on the 15th, an official notification of the existence of cholera in Calcutta was forwarded to the government.

By the latter end of September the disease was prevailing throughout the whole province of Bengal, from the most easterly limits of Purnea, Dinagepore and Silhet, to the extreme borders of Balasore and Cuttack; and from the mouth of the Ganges nearly to the confluence of that river with the Jumna, a space of upwards of four hundred miles in length and breadth. In this area of several thousand miles, few places escaped the invasion, and the cities of Dacca and Patna, the towns of Balasore, Burrissaul, Rungpore, and Malda, suffered severely. The large and populous city of Mooshedabad, which, from extent and local position, was apparently favourably circumstanced for the attacks of the epidemic, it is remarkable, escaped with comparatively little loss, whilst all around was severely scourged.

During the autumn of 1817 the disease extended itself to Muzufferpore and beyond the precincts of Bengal, and appeared at Chuprah, and at the cantonment of Ghazeepore; its attacks in these places were, however, confined to the towns themselves, or villages in their immediate vicinity; the principal portion of the adjoining country, at this period, entirely escaping the disease. Early in November it attacked the grand army, then stationed at Bundlecund, a portion of the Allahabad province. This army had been assembled in anticipation of a war with the Pindarees, and the centre division consisting

* Bengal Report, p. 3.

of ten thousand fighting men, and eighty thousand camp followers, was encamped on the banks of the Sinde, under the immediate command of the Marquis of Hastings. Here the cholera exercised its most destructive power. It is uncertain whether it made its first approaches on the 6th, 7th, or 8th of the month. After creeping about, however, in its wonted insidious manner for several days among the camp followers, it seemed all at once to have gained vigour, and burst forth with irresistible violence in every direction, extending through the whole camp before the 14th of the month. Old and young, European and native, fighting men and camp followers, were alike subject to its attacks, and all equally sunk in a few hours under its pestilential influence. It was a common occurrence for sentries to be suddenly seized at their posts, and having been carried in to have two or three successors before the two hours duty was performed. Many of the sick died before reaching the hospitals; and even their comrades, whilst bearing them from out-posts to medical aid, sunk themselves suddenly seized with the disorder. The mortality at length became so great that there was neither time nor hands to carry off the bodies, which were thrown into the neighbouring ravines, or hastily committed to the earth on the spots were they had expired, and even round the walls of the officers tents. In the five days included between the 15th and 20th of November, the number of deaths amounted to five thousand. The natives thinking their only safety lay in flight, deserted in great numbers; and the highways and fields for many miles round were strewed with the bodies of those who had left the camp with the disease upon them, and speedily sank under its exhausting influence. The camp being now cumbered with the sick, the Marquis of Hastings determined to seek a purer air for the recovery of his sick. Although every means was put in requisition for their removal, a part was necessarily left behind. "And as many who left the carts, pressed by the sudden calls of the disease, were unable to rise again, and hundreds dropped down during every subsequent day's advance, and covered the roads with dead and dying, the ground of encampment, and line of march, presented the appearance of a field of battle, and of the track of an army retreating under every circumstance of discomfiture and distress."* The exact mortality could not be ascertained, but it appears that of the fighting men seven hundred and sixty-four fell victims, and it was estimated that about eight thousand camp followers, or one-tenth of the whole, were cut off. On arriving at the high and dry banks of the Betwah

* Bengal Report, p. 12–15.

at Erich, the army soon got rid of the pestilence, and met with returning health.

During December the disease appears to have every where abated, and in January of 1818, to have become nearly extinct. Towards the latter end of February it however revived with great force, and before the close of the year, the whole peninsula of India, from Silhet on the east to Bombay on the west, and from Deyrah on the north to Cape Comorin on the south, had suffered from its ravages.

Its subsequent progress will form the subject of another communication.

Summary of the Pathological Appearances observed in thirty-six cases of Cholera, in the Hospitals of Paris. By C. W. Pennock, M. D. and W. W. Gerhard, M. D.

The following summary of the pathological appearances in cholera, are deduced from the post mortem examination of thirty-six cases. About two-thirds of the autopsies were made by M. Louis and most of the others by M. Andral. All the organs were not observed in each of these cases, but with the exception of the brain and other parts, which sometimes required more time for their inspection than could at the moment be allotted to them, the cases not mentioned may be fairly regarded as free from appreciable changes of structure. The *brain* was examined in thirty-one instances; of these the veins of the dura mater were more or less distended twenty-four times; effusion of serum beneath the arachnoid occurred eighteen times; the pia mater was injected in fourteen, the medullary substance in twenty-four, and the cortical in thirteen; besides the medullary substance presented a peculiar lilac tint, irregularly scattered in bands, in twelve instances. The ventricles contained more or less serum in twenty-four subjects, but the consistence of the brain was only *once* diminished. The *spinal marrow* was examined eight times, and invariably found without appreciable lesion. In twenty-seven examitions of the semilunar ganglion, it was once softened and three times reddish, but merely partaking of the tint of other parts of the body; in the other cases it was normal. The cervical ganglia of twenty-three subjects were twice of the general livid tint, and once enlarged, (peculiar conformation.)

Thorax.—Serum was found in the pericardium sixteen times; the left ventricle of the heart was hypertrophied in eleven, (nearly a third;) the right in no case. In one-third of the subjects liquid blood

was found in the cavities of the heart; in the others there was also liquid blood, but more or less mixed with coagula. The lungs were examined thirty-four times, and in twenty-four were more or less emphysematous, and in five tuberculous; never, however, to a great extent. In seven they were more or less hepatized, besides evidence in a few other cases of a less degree of pneumonia.*

Abdomen.—The stomach was contracted in a third, and dilated in about the same proportion of subjects. The contents of thirty-six stomachs were, seven times merely green or dark mucus; eight times a green liquid with mucus; green fluid in only five; yellowish liquid seven; and whitish, with and without mucous flocculi, nine. In exactly one-half of the number there was a bright-red (pointillé) dotted injection of the mucous membrane; this injection seemed to occur most frequently in the cases of longest continuance; besides in one of these eighteen cases there was ulceration, and in another a multitude of little round depressions, not involving the whole membrane, as if made by a punch. In thirty-six cases the membrane was twice universally mammillated;† in the great tuberosity five times; the great curvature eight, and near the pylorus eleven; finally, in these thirty-six cases, the mammillation was entirely wanting but twelve times. The general colour of the membrane was very various, often pale or grayish, and sometimes of a delicate pink tinge, from the injection of the submucous tissue. The greater intensity of the lesions was generally thought to coïncide with the longer duration of the disease; we have not sufficient materials to justify an assertion, and prefer leaving the examination of this question until we shall be in possession of more ample facts. The external colour of the small intestine was usually of a grayish rose tint, but sometimes pale, or slightly marked with arborizations, and depending in the greater or less injection of the cellular tissue. The matter contained in the upper half of the intestine was noted in thirty-two subjects, and consisted in fifteen of a white liquid, homogeneous and milky in its appearance, or mixed with mucous flocculi; there was a yellow fluid in seven, and greenish in eight, mucus only in the two others. In the lower half the matter was in ten cases whitish, in four yellow, and in six greenish, but dark-red in twelve. The colour of the mucous mem-

* The frequency of emphysema may be explained by the advanced age of most of the patients; the same cause may have had some influence on the frequency of hypertrophy of the heart.

† Mammillation consists in the rounded elevations of the mucous membrane of the stomach, first described by M. Louis, in his work upon phthisis.

brane was observed in twenty-nine cases; in two it was gray or pale; in three greenish or yellow; in sixteen light-rose colour, more or less universally, and in eight bright-red. The glands of Brunner were developed in a notable manner in rather more than two-thirds of the cases; those of Peyer were more visible than usual in a rather less proportion, but rarely projected above their ordinary level. The consistence of the membrane was altered but fifteen times. The large intestine of thirty-three subjects contained in thirteen a white matter; a dark-red fluid in eleven, and greenish or brown fæcal matter in nine; (the latter especially amongst the deaths during convalescence.) The colour of the mucous membrane was deep-red in rather more than a third,* and partially gangrenous in two; the redness was most frequent in the cœcum. The bladder was contracted twenty-eight times in thirty-six; its contents were noted in twenty-nine; seventeen contained a white matter, eleven urine, and fourteen without urine. The kidneys contained a whitish substance in their calices in less than a third. The liver was rather engorged in eleven, pale in fourteen, and softened in seven of the whole number. The gall-bladder contained a dark green or blackish bile, twenty-three times in thirty-four; in nine a lighter green, or with a yellowish tinge; in one a glairy fluid, and in another a puriform matter. The spleen in twenty-eight instances was enlarged four times, softened three, and normal two.

Violent Cholera produced by Foul Effluvia.

One of the most striking instances, with which we are acquainted, of violent cholera being produced by foul effluvia, occurred at a school in Clapham, England, in August, 1831.

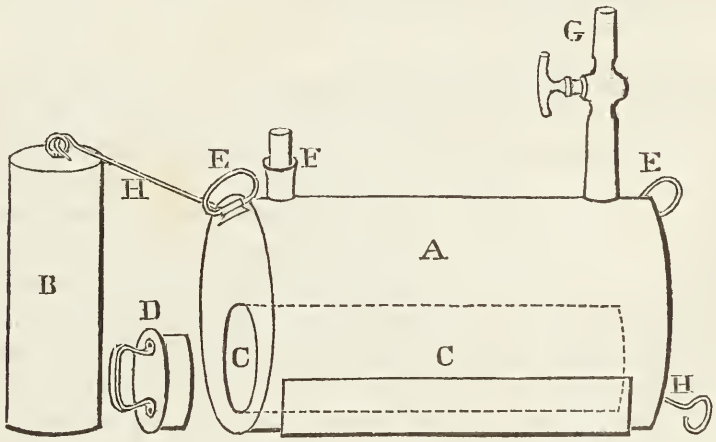
A very foul drain or cesspool behind the school-house, was accidentally opened in making some alterations about the grounds, and its contents were taken out and thrown into a garden adjoining the play-ground. The boys were freely exposed to the effluvia, and in a day or two almost every one of those who had been in the play-ground were most violently attacked with cholera. Two of the teacher's children died, one in twenty-five, the other in twenty-three hours illness. Of twenty-two boys remaining in the school on Satur-

* In another case dissected by M. Bouillaud, nearly the whole mucous membrane of the colon was of a dark-brown colour, and exhaled a strong gangrenous odour.

day, twenty were attacked, between three and nine o'clock on Sunday morning, with vomiting and purging of the most alarming character, attended with a degree of prostration, which threatened immediate death.

The details of this occurrence, and the post mortem examination of the children who died, will be found in the American Journal of the Medical Sciences, for February, 1832.

Description of a Portable Steamer and Cover. By J. K. Mitchell, M. D.



A.—A cylindrical tin vessel, eleven inches long and six inches in diameter.

C, C.—A cylindrical cavity for the reception of the iron heater B.—which weighs fourteen pounds; (a common iron clock-weight.)

D.—The door of C C.

E, E.—Handles.

F, G.—Apertures. F closed by a cork, G by a stop-cock.

H is a wire hook to convey and handle the heater B.

A tin foot on each side of the steamer gives its support, and obviates the expense and disadvantage of making the vessel flat at bottom.

At a red heat, the weight B, placed in C, and shut up there, will heat the water in A, and generate steam for a long time. Such a steamer may be placed under the bed-clothes with safety; or the steam may be conveyed by a tin tube from G to the patient's bed or chair. For expedition the water may be hot when placed in A.

The usual mode of sustaining the bed-clothes by hoops will do very

well where moist heat is desirable; but for the application of either dry or moist heat at pleasure, the following instrument is useful. It consists of two parallel tin plates of semicircular form, half an inch apart, and large enough to cover the whole body. It resembles in shape a common wagon-cover. By placing either steam or hot water in the interspace, dry heat is produced; or by throwing the steam into the cavity which holds the body of the patient, moist heat is obtained. As this can be laid over the patient in bed, it saves the trouble of moving and replacing him.

On Cholera Hospitals, and on the Removal of Patients to them. By T. M. Greenhow, Esq. of Newcastle upon Tyne.

"In selecting situations for Cholera Hospitals or Houses of Recovery, care should be taken to make choice of the most elevated and airy; they ought not, however, to be far removed from the centre of the district to which they are attached, for, without doubt, patients are liable to suffer seriously from being carried to a considerable distance from their own places of residence. It is of importance, too, that the method of conveyance should be of the easiest and least fatiguing description. For this purpose a litter, carried by means of poles, on men's shoulders, is found to answer best. The patient is laid into it in a horizontal position; he is entirely passive, both in being placed in and removed from it, and he escapes the shaking and fatigue that would necessarily attend any wheeled* conveyance. When placed in the litter, he should be enveloped in an ample supply of warm blankets, and it would be well to increase the heat about his person by the application of Mr. Wood's tin vessels of warm water.

"But, notwithstanding the best means that can be devised for the easy and comfortable conveyance of cholera patients to the hospitals, the removal must certainly be attended with unavoidable disadvantages, which always render it a question of importance, whether their chances of recovery shall be increased or diminished by such a measure? In deciding this question, no reference should be made to the hazard of contagion: unless I have greatly erred, such hazard has no existence; the welfare of the patient ought alone to engage our attention, and our decision must depend upon the following considerations.

"1. The stage of the disease. If the first stage only has shown itself, the patient may be removed with comparative safety; if the stage of collapse have set in, and especially if in an intense form, the danger of removal must necessarily be great, and ought not to be incurred, unless the danger of remaining in his own house should be yet greater; this must depend upon—2. How far the patient can be supplied with the necessary comforts and nuring, if permitted to

* "In confirmation of the importance of attending to this subject, I may adduce the opinion of Mr. Glenton, who has had the principal charge of the patients admitted into the hospital in Sandgate. It is given in a note to Mr. Fife, and refers to the case of the boy removed from the prison, who afterwards died in that hospital. "'If Mr. Fife has any power to prevent future cases from being removed in the *car*, Mr. Glenton will feel obliged by his doing so. The *conveyance is deadly*, and the boy himself, on reaching the hospital, said, *it had destroyed him.*'"

remain at home. If his house be comfortable, and well provided with proper supplies of blankets, &c., or if any deficiency in this respect can be readily supplied; and if his family are likely to prove attentive and efficient nurses, the idea of removing him to an hospital ought to be entirely abandoned; for, without doubt, his chances of recovery would be greatly diminished by such a step. If, however, from deficiency of accommodation, and the absence of comforts and of proper nursing, his residence appears unfit for the efficient employment of the requisite remedial measures, more especially if the deficiency will not admit of being immediately supplied, then, and then only, can his removal to an hospital be considered adviseable; and even then it becomes a choice of two evils, in which the relative force of each ought to be fully considered. If the hospital is distant, and the weather unfavourable, the danger of removal must be imminent, and nothing but an extreme case of domestic discomfort can render it justifiable. Many cases, however, may doubtless arise wherein the propriety of removal is indisputable.

"On the whole, it is well worthy the attention of Boards of Health, and Committees appointed to visit the houses of the poor, to aim rather at supplying the proper comforts and nursing at home, than to remove the sick to hospitals. If they are enabled to accomplish this with any degree of perfection, they will certainly contribute in a much greater degree to the preservation of life, than by the best hospital arrangements that can be devised. It is an undoubted fact, that the relative mortality in hospitals has been greater than in private houses, and I apprehend it distinctly arises from the disturbance, fatigue, and exposure attendant on the removal of patients, and the consequent delay in the use of remedies."

Sanitary Regulations adopted by the District of Southwark.

The district of Southwark have adopted the following sanitary measures and regulations:—

Every part of the district is visited daily by authorized agents, whose duty it is to inquire strictly into the existence of nuisances, whether public or private, and to take measures for their immediate removal.

The streets and alleys are thoroughly cleansed daily, and twice in the twenty-four hours the hose is used for removing stagnant water and filth from the gutters. The abundant supply of hydrant water throughout the district, and the judicious manner in which it is used, prevents the possibility of any accumulation of filth occurring either in the public streets, or in the courts and alleys inhabited by the poor.

Very considerable attention is paid to preserve the houses and neighbourhoods of the indigent perfectly clean, and as freely venti-

lated as possible. For these purposes no expense or trouble is spared.

An hospital and stations have been established for the reception of all such patients as may be attacked with the disease in situations or under circumstances which call for their removal. The organization and superintendance of the hospital have, we understand, been confided to medical gentlemen in all respects fully competent for these responsible and arduous duties.

For the removal of the sick a vehicle has been provided, which, while it effectually screens him from the impression of the external air, is so constructed as to communicate scarcely any motion to the patient's body.

As soon as the disease shall make its appearance in the district, the apothecaries residing in it are directed to supply all medicines that may be prescribed by any regular practitioner for the use of the poor, free of charge, and to send in their bills for the same to the sanitary committee. They are enjoined, at the same time, to sell no remedies as preventives of cholera, nor any active preparations, during the prevalence of the disease, exception on the prescription of a respectable physician.

The provisions of the several laws for preventing the introduction into the district of nuisances, and of whatever may be calculated to endanger the health of the inhabitants are rigidly enforced.

Other measures are, we understand, to be adopted should the disease make its appearance in the district, of a highly judicious character. The announcement of which at the present would be premature, and attended with no good effects.

The writer of this has had an opportunity within the last two weeks of visiting all the thickly inhabited parts of Southwark, and has inspected carefully those points within the district most exposed to disease, and he is prepared to say, that at the present moment, whether we regard the cleanliness of the streets, and the judicious manner in which all the extraordinary municipal regulations called for by the prevailing epidemic, have been carried into effect, the district will bear a comparison with any part of our city proper.

Treatment of Cholera.

Dr. Ewertz, in his account of the cholera as it appeared epidemically in Dünaburg, states, that from the first appearance of the disease on the 9th of June, 1831, up to the 7th of July of the same year,

out of a population of five thousand, seven hundred and forty-five were attacked, of whom only seventy-five died. Two-thirds of the latter were individuals who, from various causes, were not placed under any regular treatment until that period of the disease had gone by, when alone, according to Dr. E. there is certainty of a cure being effected. Nine-tenths of those attacked were of the lowest classes, and were treated at their own dwellings, or when attacked in the streets, were carried to the nearest house, and remedies applied without the least delay.

Our readers will no doubt be anxious to hear the plan of treatment that was generally pursued in those cases in which the patients recovered. The plan appears to us to be one well adapted to a large number of cases of cholera, and to be in general, if sufficiently early resorted to, better calculated to produce a favourable termination of the disease than can be expected from the profuse administration of calomel, opium, brandy and ether, so often resorted to by the East India physicians, and imitated by so many of the physicians on the continent of Europe.

It appears from the paper of Dr. E. that almost the only treatment pursued in Dünaburg was the following.

When an individual was attacked with cholera—when he experienced a giddiness, sunk exhausted, and his whole body, but particularly his extremities, became cold, and of a bluish colour, without loss of time the whole of the body was rubbed diligently with a liniment composed of nine parts of camphorated spirit and one of tincture of capsicum. The frictions were continued until the warmth of the skin was restored, and the patient became roused from the state of collapse into which he had fallen. In the meantime a vein was opened, and sixteen to twenty-four ounces of blood drawn off. When the state of collapse had gone off, and the pulse beat freely at the wrists, he was directed to drink copiously of a warm infusion of mint or some other aromatic herb, and being warmly covered in bed, hot bricks wet with vinegar were applied to different parts of his body, beneath the bedclothes, which were properly supported in order that the steam produced should be allowed to pass around him. A free perspiration was in this manner generally produced, the patient commonly fell asleep, and awoke free from disease.

When the attack commenced with a severe vomiting and purging, or with only the one or other, with a severe continued pain at the præcordia, great thirst, and cramps of the extremities, frictions with the spirit of camphor were not found to be so beneficial as the speedy production of perspiration by the means indicated above, the detrac-

tion of blood from the arm, and a blister over the epigastrium. In cases where the symptoms were less violent, a blister, sinapism, or even grated horse-raddish to the epigastrium, was sufficient of itself to remove them. The patient at the same time taking from ten to twenty drops of the laud. liq. Sydenh. in a draught of mint or other tea. In very slight cases a tea-spoonful every hour of a powder composed of one part bicarbonas sodæ vel potassæ and two of cremor tart. was found very beneficial. In all cases injections of flaxseed tea with a few drops of laudanum were administered, and it is believed, with good effects.

Dr. Ewertz urges the great importance of losing no time before the foregoing treatment is had recourse to—and denounces all the restrictive measures that have been adopted in the different cities on the supposition that the disease is contagious, as in the highest degree injurious—as calculated to augment rather than to abate the violence of the disease, and by preventing that prompt assistance from being given to those attacked which the rapid progress of the disease so loudly calls for, increases to a very great extent its mortality.

On the Inexpediency of Emigrating to avoid the Cholera.

There is perhaps no question more frequently asked of medical men at the present moment, than as to the expediency of leaving the city, to avoid the epidemic influence now prevailing here; and we have felt, in common with every member of the profession, the heavy responsibility reposed in us, and have diligently sought for facts upon which to base an answer.

The following considerations, which have influenced us in the advice we have given, may perhaps furnish some useful suggestions to our brethren.

That there is some risk in staying in the city is not to be concealed—but it is by no means sure, that still greater danger is not incurred by flying. Certainly nothing can be more natural than to leave a place where an epidemic is prevailing, and to seek elsewhere a purer air. But such is the character of the present pestilence, that it is impossible to know where to find a spot in which it may not surprise us. Travelling as it does by leaps and jumps, it is not easy to say who will be its first victims. Vienna, Breslau, Berlin, Paris, &c. whilst surrounded by sanitary cordons, or quarantines, with no disease in their vicinity, and reposing in supposed security, were apparently suddenly invaded by the pestilence. But the disease is not confined to cities. The

editor of the *Gazette Medicale de Paris*, states, that information is daily received from every quarter, of persons who flew from Paris to escape the disease, being among the first attacked. We learn from our friend, Dr. Jackson, that in Canada, the inhabitants of farm-houses, far out of the route of the emigrants, and who had little or no communication with Montreal or Quebec, were attacked by the disease.

Two persons flying from New York, are said to have been seized with the epidemic in the interior of Columbia county. Four members of the family, consisting of five persons, residing in the neighbourhood of Plainfield, a small village in New Jersey, are said to have all fallen victims to it. The fifth or sixth case that has occurred here, is a female, residing in an airy dwelling in the northern part of Kensington, and who had not been in the city for three weeks.

Travellers have also been always found to be particularly obnoxious to the disease. The fatigue and excitement of travelling, the change of water and of climate, the loss of accustomed conveniences and comforts, are very active exciting causes. In India it was found that it was troops in motion who were generally attacked, and we find that it has broken out at Detroit, &c. among the United States' troops proceeding against the hostile Indians. M. Chamberet states that not a single individual of a corps d'armée, whilst they were stationed at Warsaw, where they were quartered in good barracks or in the houses of the better classes, and where they received wholesome food, and did not perform very arduous duty, were attacked with cholera, though they were living in the very centre of infection, (the disease prevailing at Warsaw,) but not exposed to the exciting causes. This corps was ordered to Modlin; on the very second day's march, three soldiers were attacked with cholera; on the third day twelve, and by the time it reached Modlin, it was completely ravaged by the disease.

Those who possess country-seats, in elevated, dry, and airy situations, where they can command all the nameless conveniences of home, command prompt medical aid, and enjoy mental tranquillity, may perhaps incur less risk by removing to them than by remaining in the city; but it appears to us incomparably more prudent for those who must undergo the inconveniences of crowded dwellings, change of water and diet, the excitement of travelling and of company, and who, if attacked, will be remote from proper medical aid, and deprived of necessary nursing and attendance, to remain in town, and to trust to cleanliness, ventilation, and the avoidance of the exciting causes of the disease, for their safety.

In our next No. we shall enter particularly into the consideration of the proper hygienic precautions to be adopted for this purpose.

The Daily Press.

Our newspaper editors, who have meddled with medical subjects, have been peculiarly unfortunate; and if they have not become convinced by this time themselves, that the sources upon which they depended for information, relative to the health of our city, are unworthy of confidence, they have at least satisfied the public of the utter inaccuracy of the statements they have published.

An evening paper, after the Board of Health had reported the case of Andrew Musgrave, (the one alluded to in our last No. p. 7,) as one of malignant cholera, upon the authority of four physicians, who saw the patient during life, and made the post mortem examination, has had the boldness to assert, "that some of the gentlemen who inspected the body—including at least one familiar with the Asiatic cholera—have declared that no symptom of that disease was detected;" and again, "that no sign was found of any disease worse than lingering and obstinate diarrhœa."

Will the editor of the paper alluded to, favour us with the names of the physicians who have made the declaration he ascribes to them, and also what signs are found in those who die of malignant cholera, which were absent in the case of Andrew? With the assistance of his *accurate* informant, he might, no doubt, furnish us with precious information.

A morning paper too, is not behind its cotemporary in the accuracy of its information; and at the very moment, when at least half a dozen cases of malignant cholera had occurred, gravely assures its readers, that our city was entirely free from the disease.

Our object is not to create alarm, for we believe panic is more to be dreaded than the disease, but to detail facts. It is by concealing a portion of the truth, thus destroying confidence, and setting the imaginations of men to work, that alarm is produced—which disappears before the reality. We feel convinced, that before the disease has run one-fourth of its course, the fears that are now entertained of it, will have in a great measure subsided.

We commend the Board of Health in their judicious conduct, in publishing the cases reported to them, and we are pleased to learn, that they will enforce the law against any physician who may neglect to report his cases.

Health of Philadelphia.

During the past week, the epidemic constitution alluded to in our last number, has been gradually developing itself. The disposition to derangement of the digestive organs, and to cramps, has increased; cases of cholera morbus have become more frequent, and in several instances they have assumed malignant characters.

We have already noticed the first case of malignant cholera which occurred in our city; it will be remembered that the patient was attacked on the 6th of July, and that the result was fatal. The second case presented itself on the 8th of July—the patient recovered. The third case was a coloured man in the Northern Liberties, who was attacked July 10th, and died on the 13th. The fourth case was a female residing in Mead Alley, who was attacked July 14th, and died in eighteen hours. The fifth case was a female, living in the upper end of Kensington, attacked the same day, and died on the 16th. The next day, July 15th, two cases occurred, both in the same house, in Coates street, and within a few hours of one another—both were fatal. Except between the two last no possible communication could have taken place between the different patients.

Three other cases are reported by the Board of Health, all three as convalescent; one is said to have had the characteristic rice coloured dejections; we cannot learn that the other two presented any well-marked symptoms of malignant cholera.

The following table exhibits the whole mortality, and also that from bowel complaints, for the 2d week in July for five successive years.

1828.—2d week, ending July 12th. Whole mortality, 99; of which, the deaths from cholera morbus, were, adults, 0; children, 26; Total, 26.—Diarrhœa, adults, 2; children, 3; Total, 5.—Dysentery, adults, 1; children, 1; Total, 2.—Total from bowel complaints, 33.

1829.—2d week, ending July 18th. Whole mortality, 96; of which, the deaths from cholera morbus were, adults, 1; children, 15; Total, 16.—Diarrhœa, adults, 2; children, 4; Total, 6.—Total from bowel complaints, 22.

1830.—2d week, ending July 17th. Whole mortality, 85; of which, the deaths from cholera morbus were, adults, 0; children, 17; Total, 17.—Diarrhœa, adults, 1; children, 2; Total, 3.—Dysentery, adults, 1; children, 5; Total, 6.—Total from bowel complaints, 26.

1831.—2d week, ending July 16th. Whole mortality, 115; of which, the deaths from cholera morbus were, adults, 4; children, 31; Total, 35.—Diarrhœa, adults, 1; children, 5; Total, 6.—Total mortality from bowel complaints, 41.

1832.—2d week, ending July 14th. Total mortality, 152; of which, the deaths from cholera morbus were, adults, 3; children, 46; malignant cholera, adult, 1; Total, 50.—Diarrhœa, adults, 1; children, 4; Total, 5.—Dysentery, adults, 1; children, 1; Total, 2.—Total from bowel complaints, 57.

Cholera at New York.

The following table exhibits the whole number of cases received into the New York hospitals since the commencement of the epidemic, and those which have been reported to the Board as having occurred in private practice.

Hospitals.	Total received.	Total deaths.	Total cured.
Park Hospital	141	77	27
Greenwich Hospital	47	21	15
Crosby street Hospital	61	26	16
Rivington street Hospital	65	38	9
Bellevue Hospital	335	162	84
Total	650	324	151
Total in private houses, as nearly as can be ascertained, during the same period	400	136	
Grand Total	1050	460	

The whole number of deaths in New York, according to the report of the City Inspector, for the week, ending July 7th, was 191. The number for the week, ending July 14th, was 510, of which, 336 were malignant cholera, 18 cholera morbus, 3 cramp in stomach, 4 diarrhœa, 3 dysentery, 15 cholera infantum, and 8 inflammation of bowels.

Yesterday, July 17th, the cases reported were—

City private practice, new cases	60,	deaths 20
Hospitals	63	28
Bellevue	22	13
Total	145	61

Spread of Cholera.

Albany. On the 14th of July 27 new cases and 6 deaths were reported, and on the 15th, 17 new cases and 6 deaths.

We have accounts of cholera having broken out at *Newark,* N. J. on Friday, 6th inst.; up to Monday 16th, 11 cases had occurred.

At *New Brunswick* 2 cases are said to have occurred on Saturday last.

Seneca Falls, N. Y. 2 cases are reported.

At *Lyons,* N. Y. 3 cases have been reported.

Rochester. The Board of Health report a case on the 12th inst.

Detroit. The Board of Health announce 17 cases in that city.

THE

CHOLERA GAZETTE.

VOL. I. *WEDNESDAY, JULY 25th*, 1832. No. 3.

History of Cholera.

IT has been justly observed, that the language usually employed in describing the extension of cholera, is calculated to convey an erroneous idea of its mode of progression. It is usually represented as travelling from place to place with considerable regularity in a direct route, and when omitting to visit any district, to do so by making a circuit around it. Such is not, however, the case. It would, on the contrary, be more just to say, that its progress is by leaps and bounds, some of them of very great extent. Thus, after prevailing in a certain district, it is next found to have broken out in another at a considerable distance, the intermediate country for the time escaping, and it has often happened, that after the disease has left its previous haunts, that it would break out in those places which had formerly escaped it, and without reäppearing in those which it had previously ravaged. As, however, on a grand scale, the epidemic has been gradually extending, since 1817, the circle of its influence, it is convenient to use the metaphorical language usually employed; and as, with this explanation, it is not likely to mislead, we shall continue to use it in our subsequent remarks.

In our last No. we traced the progress of the disease from the province of Bengal in a southward direction as far as the Isle of Ceylon. Between this island and that of Mauritius an ocean of fifteen hundred miles intervenes, which did not prove an efficient safeguard from the epidemic. In November, 1819, it broke out at Mauritius, and two months later, in the Isle of Bourbon, a short distance from the former. Following it next, in an eastern direction from the province of Bengal, we find that in 1818 it appeared in Arracan; in

1819 at Penang, Bankok, Acheem in Sumatra, and at Samarang in Java; at Manilla, Canton, &c. in 1820, and in 1821 it broke out in Pekin, where it prevailed during that and the two following years. By the latter end of 1823, it had pervaded the Molucca or Spice Islands, including the Isle of Timor, near to New Holland, where it appears to have attained its south-eastern limits.

In its extension to the westward, the pestilence reached the Island of Bombay in August, 1818. In June, 1821, it appeared at Muscat, and subsequently visited the sea-port towns on either side of the Persian Gulf. Extending inland, it spread from Busheer through Persia, and from Bassora through Asiatic Turkey. In its latter route it reached Bagdad in 1821, Mosul, Tauris, &c. in 1822, and before the autumn of 1823, it had extended to Antioch, Diarbeck, Erzeroum, &c. threatening on the one hand to extend through Turkey into Europe, and on the other through Arabia into Egypt; it suddenly however stopped in its course, and at that time proceeded no further in those directions.

The first place of note that suffered in Persia was Shiraz, where it broke out about the middle of September, 1821. Skipping over Ispahan, the disease next appeared at Yezd, but in October it broke out in the former city, where its ravages were soon arrested by the cold season. The following spring, however, it revived with renewed force, and by the close of 1822, almost every place of note in Persia had been ravaged by the pestilence, and during the following year the few places that had hitherto escaped were visited. In August, 1823, the province of Shirvan was invaded, and subsequently Baku and other ports on the western border of the Caspian sea. Finally, in September it broke out at Astracan, near the mouth of the Volga, and threatened Europe also in this direction; but after prevailing until the rigour of winter, it here likewise died away, and relieved Europe for the time from the impending danger.

We have but little knowledge of the history of the pestilence during the succeeding six years. It is known to have reäppeared in different parts of Persia for several years in succession, as was usually the case where it had once prevailed; and it is also said to have ravaged for some years the interior of China, and to have passed to the north of the great wall and desolated several places in Mongolia, by 1827.

In the summer of 1829, the pestilence however appears all at once to have gained renewed force, prevailing with great violence in several parts of eastern Persia, more especially in the province of Khorazan, and in various districts of Bucharia, particularly in Chirza, a city in the province of Kharazm, situated on the Jihon, a stream

which falls from the south into the sea of Aral, and where some of the Bucharian caravans assemble previous to crossing the great Steppes of the Kirghis-Kaisaks. In August the disease appeared at Orenburg, the capital of the province of the same name, situated on the Tartar frontiers, four hundred miles north of the Caspian. From the official reports it appears that the first well-ascertained case of cholera at Orenburg, occurred on the 26th of August; a week afterwards a woman died suddenly, it was supposed from the same disease, and on the 8th of September, a joiner died after twelve hours illness. This last was unquestionably a case of cholera. On the 9th, two more cases occurred, on the 10th, two more, and after this it became rapidly prevalent. By the 20th of November it had entirely ceased. Out of a population of eleven thousand, eleven hundred were affected, of whom only two hundred died. No cases appeared to have occurred in any other part of the Orenburg government until the 23d of September, when it broke out at the fortress of Rasüpna, sixty miles west of Orenburg. On the 30th, cases occurred at Berdsk, a small station, twelve miles north of Orenburg, and by the middle of November, it had spread over a district of country of about two hundred miles square. From this period the disease abated, and by the latter part of February, 1830, was entirely extinct in the Russian dominions.

The following summer, however, it appeared in a different quarter of the empire: viz. on the Persian frontier of Georgia. It has been ascertained that the disease prevailed in June in various places in the Persian province of Ghilan, and among others at Reschd, a sea-port town on the southern shores of the Caspian. From this it extended itself northward, along the western border of the Caspian, to Baku, another port, two hundred miles from Reschd, which it reached early in July, and north-westerly along the river Kur to Tiflis, the capital of Georgia, four hundred miles from Reschd, where it arrived on the 27th of July. In this latter city it attacked in ten days five hundred and seventy-nine persons, of whom two hundred and thirty-seven perished. From Baku the disease proceeded along the Caspian, attacking various ports and adjacent towns, and on the 19th of July reached Astrachan, a town situated on an island in the principal mouth of the Volga, about thirty miles from the northern shore of the Caspian, and three hundred and fifty from Baku. Here in ten days twelve hundred and twenty-nine persons were seized, of whom four hundred and thirty-three died. From Astrachan it is represented as having spread along the Volga, reaching Taritzin, two hundred and twenty miles above Astrachan, by the fourth of August, and Saratov,

two hundred miles further north on the 6th of the same month. Spreading west between Taritzin and Saratov, it invaded the country of the Don Kossacks, and extended to the government of Kiev, five hundred miles west of the Volga. In its progress north it spread across the country to Perza, one hundred and forty miles from Saratov, where it arrived on the 17th of August; on the 27th, it appeared at Samarov, a town on the Volga, two hundred miles north-east of Saratov; and by the latter end of the month it reached Nischnei-Novogorod. On the 9th of September it broke out at Kasan, two hundred miles *down* the Volga, and east of Nischnei-Novogorod, and about the same time at Kostroma, one hundred and fifty miles *up* the river, and north-west of Nischnei-Novogorod; about the middle of September it broke out in Moscow, two hundred and sixty miles from and a little to the south of Nischnei-Novogorod, and about the same time reached Twer and Vologda, not far from the sources of the Volga, thus traversing a distance from the Caspian of at least fifteen hundred miles in three months and a half.

Case of Spasm and Severe Pain relieved by Ligature. Reported by J. K. Mitchell, M. D.

E. A. a female, aged seventeen, of good constitution and regular habits, resident in Sixth below Spruce, was attacked in the afternoon of the 15th of July, 1832, with slight cramp in the lower extremities, affecting chiefly the calves of the legs. These cramps increased in force as the day advanced, and in the evening a profuse alvine evacuation of a very liquid character, was followed by nausea and pain in the abdomen. After going to bed she vomited copiously, for about half an hour, frothy, yellowish flocculent matter of a bitter taste. At eleven P. M. the pain in the abdomen became very severe, and the intervals between the spasmodic attacks very short. The family administered laudanum freely, applied injections, sinapisms, heat, and castor oil, without effect, and finally at half past 12 A. M. of the 16th, sent for me.

I found her hands and feet cold and clammy, her pulse nearly natural, her countenance irregularly coloured, or flushed in ill-defined spots. Incessant motion and mournful cries expressed the severity of her pain. No evacuation of any kind had occurred after eleven o'clock, nor had there been any cessation of pain.

Bled her thirty six ounces, administered laudanum and castor oil, ordered enemata, sinapisms, and dry heat with frictions. At half past one, no abatement of symptoms. Applied a tourniquet round the middle of the forearm so tightly as to demand nearly all my strength in turning the key. An immediate removal of pain and nausea ensued; the patient lost the irregular flush—the extremities became warmer, and every morbid symptom disappeared. To try the effect, the tourniquet was loosened, and the pain immediately recurred. It was then

kept tight for an hour, when it was relaxed without inconvenience. Soon after I left the patient the pain and nausea returned, and the nurse endeavoured in vain to check them by the tourniquet. At half past 5 A. M. I found the case as at 11 P. M. and on tightening the tourniquet *which was badly screwed up*, I again succeeded in suppressing the symptoms. At this visit I sent for my late pupil Dr. Smiley, and after relaxing and tightening it; the tourniquet, demonstrated the perfect controul in which the pain and nausea were held.

Ordered a pill of ol. croton, gtt. j., tart. emet. gr. 1-6th; calomel, grs. ij.; rhei pulv. grs. iv. To be repeated every hour until effective. At 10 A. M. found that five pills had been taken, and an alvine evacuation of black fetid matter of the consistency of tar had been passed.

At 12 o'clock Dr. T. Harris saw the case with me. At this visit the nausea returning, it was instantly checked by tightening the tourniquet.

Once in the course of the day the pain returned slightly, and the vomiting recurred twice. In every instance the symptoms were removed by the tourniquet.

17*th*, 4 *P. M.*—The case is apparently convalescent.

Remarks.—The remarkable effect of the tourniquet in so severe a case, where ordinary measures for cure vigorously applied, totally failed to abate a single symptom or to allay a single pang, renders this remedy worthy of further trial. Hitherto experiments with it have not been made extensively enough to fix its relative value. The objections of the patient have commonly prevented the physician from making it tight enough, and the practitioner has been deterred by the dread of sphacelation. Neither should be regarded, because the patient approves when he observes the beneficial result, and the circulation cannot be entirely checked in the interosseous vessels of the *forearm*. The beneficial effect is only complete, when the hand is brought to a close resemblance to that of a patient under *cholera asphyxia*.

In the present case the tourniquet remained tight for four successive hours without the slightest subsequent disadvantage. In cases of great severity, the screw should be turned until the good effect is obtained, for it is almost certain to follow an adequate application.

This remedy, originally Japanese, travelled through China to the Russians, and was brought with the cholera into Europe, where it was occasionally approved in practice.

It is to be observed, that for a cure, ordinary medical means must be employed, for the tourniquet only holds pain and spasm in temporary check.

Summary of the Pathological Appearances observed in twenty dissections of Cholera Patients at Edinburgh. By John Lizars, Esq.

Brain.—This organ was examined in twelve subjects, and, in all, the arteries and veins of the integuments and muscles covering the cranium were distended with the dark blood, which, in some, flowed like tar.

In ten, the blood-vessels of the dura mater were turgid with this blood; and in three, there were fibrinous coagula.

In seven, there was serous effusion under the arachnoid membrane.

In four, the pia mater was congested with blood-vessels.

In seven, the cerebrum was highly vascular; and in one, slightly softened.

In seven, the cerebellum was very vascular; and in three, its substance was slightly softened.

Spine examined in ten.—In six, serous effusion between the theca vertebralis and arachnoid membrane; and, in one of these, the fluid was bloody.

In two, serous effusion between arachnoid and pia-mater.

In six, blood-vessels of spinal chord highly injected with the dark blood; and one with evidence of inflammation between dorsal and lumbar regions.

In six, the spinal or rachidian veins turgid with dark blood.

Ganglionic system examined in seventeen.—In ten, the neurilema of pneumogastric nerves was injected with blood-vessels; in one, the nerve was enlarged; in another, it was thickened; and in a third, the neurilema was inflamed with ecchymosed patches.

In six, the neurilema of splanchnic nerves was vascular; in two, the ganglia at their origins were vividly injected; and one ganglion was ecchymosed.

In sixteen, one or both of the semilunar ganglia were vascular; in one, it was inflamed; in three, it was enlarged and infiltrated with blood or serum; and, in two, softened.

In eight, the solar plexus highly vascular throughout; in three, the ganglia and nerves enlarged, and one infiltrated.

In four, the renal plexus was very vascular.

In four, the œsophageal plexuses were vascular.

In one, the recurrent of the pneumogastric nerve was vascular.

In five, the cardiac plexus was enlarged, and very vascular.

Thorax.—*Heart.* In three, the heart was flabby and pale; in two, collapsed; and many of them had the left ventricle so contracted and firm, as to contain only a drachm of blood. In thirteen, the right side was full of the dark gory blood, part of which was generally in the state of a fibrinous coagulum.

In three, the left side was full of the same blood with coagula.

In three, the right auricle full of dark blood and coagula.

In six, the left auricle full of dark blood and coagula.

In four, left ventricle was moderately filled with blood and coagula, and one affected with softening; in two, coagulum extended into aorta.

In five, right ventricle full of blood and coagula. In one, coagulum extended into pulmonary artery. In two, the parietes were softened.

Pericardium.—In one, this sac was distended with gas; in two it was dry, like paper, and vascular; and, in a third, dry, vascular, and diaphanous. In four it was vascular. In all, the coronary vessels more or less injected with dark blood.

Venæ Cavæ.—In all, more or less of the dark blood was found.

Pulmonary Veins.—In six, these veins were turgid with the dark blood.

Lungs.—In four, these organs were congested with the dark blood.

Pulmonary Artery.—In one, a large coagulum, which extended into its two large branches. In three, it was full of the dark blood, and in three others the vasa vasorum were highly injected.

Pleura.—In five, highly injected; and in two, there was effusion of lymph.

Aorta.—In all, it contained more or less dark blood, with fibrinous coagula; in six, the vasa vasorum were highly injected—the dark blood, and occasionally coagula, extended into the carotid, brachial, femoral, tibial, ulnar, and radial arteries.

Abdomen.—*Peritoneum.* In nine, this membrane was highly injected; in six, evidently inflamed; and in three, there was albuminous effusion, with some turbid serum. In one, the omentum was very vascular, and in another it was inflamed.

Stomach.—Generally of a white colour, both on its peritoneal and mucous tunics, and containing more or less of the rice-water fluid. In seven, there were distinct vascular patches on the mucous coat, with several ecchymosed spots, varying in size from that of a sixpence to that of a half-crown, and in all there was manifest softening. In one, the mucous tunic was eroded.

Small Intestines.—In twelve, there were evident marks of high inflammation, and vivid and extensive injection; in nine, ecchymosed patches; in four, mucous tunic softened in many points; and in one, incipient ulceration. Contents of a viscid white mucous, or greenish colour, and in two they were bloody.

Large Intestines.—Transverse arch and sigmoid flexure of colon, commonly spasmodically contracted. In five, vascularity, with ecchymosis. Two inflamed, with softening, and one with ulceration. Two with dark venous congestion, similar to intestine in strangulated hernia. Contents generally rice-watery, or gruelly and flocculent, occasionally greenish and viscid. In many the colon, with the exception of the caput cæcum, was empty.

Liver.—Very various in colour; two with Bright's yellow deposit. In some the vena portæ were moderately congested, and in one the biliary ducts full of bile.

Gall-bladder.—Generally two-thirds full of rather inspissated olive-green bile. In the twenty cases ten were full of this fluid; the others varied from a little bile to two-thirds.

Pancreas.—Generally healthy.

Kidneys.—Commonly healthy, but varying like the liver, according to the habits of the individuals. Three were slightly congested, one gorged with the dark blood, and another presented a livid appearance.

Urinary Bladder.—In all contracted, and almost empty. When any fluid was present, it was about a drachm of muco-purulent. One however was contracted horizontally, and contained five ounces of limpid urine.

Report on the Origin of the Malignant Cholera in the Alms-house at Bellevue, New York.

To WALTER BROWN, Esq.
President of the Board of Health.

Sir—I have the honour to transmit to you a report in part, of a committee appointed by the Special Medical Council, in accordance

with a resolution of your Honourable Board, of July 13th, to inquire into the origin of the malignant cholera now prevalent in the Alms-house at Bellevue.

In behalf of the Special Medical Council,
ALEX. H. STEVENS, M. D. President.

New York, July 16th, 1832.

The Committee appointed by the Special Medical Council, in conformity with the request of the Board of Health, to inquire into the origin of the malignant cholera, in the Bellevue Alms-house, report in part that—

The first person who died of malignant cholera, within the precints of the Bellevue establishment, was a pauper in the main building, named Mary Bloomfield. She occupied a bed in the closet corner of No. 19, in the main building.—She sickened on the 1st of July, and died on the 2d. She had not been in New York for several years, and no person from town had became an inmate of this room for three weeks or more. It is not ascertained whether she had intercourse with visitors from the city. Fifty-four persons were received into the Alms-house from the 24th of June, to the 1st of July, inclusive. After her death, two other women, inmates of this room, and occupying adjoining beds, who had been in town, also sickened and died; as did the nurse, who, so far as we can learn, had not been in town.

No. 19 is a room on the basement floor of the main building, nearly level with the ground. It is fifty-two feet long, twenty feet broad, and nine feet high.

The room has four windows on the north-west side, opening into a yard—this yard is surrounded by a fence thirteen feet high, which encloses various buildings, in which are lodged paupers, sick criminals, and persons detained for trial. Each window is four feet four inches, by three feet one inch, with two windows sliding up and down.

There is one door only to the room No. 19; its dimensions are about three feet three inches, by seven feet six inches—it opens on the north-east end of the room, into an entry which communicates with the yard on the north-west, and with the front of the building towards the river in the S. E. by one door of three feet eight inches, on each side seven feet six inches, with five other crowded wards.

There is an open chimney in the room and a fire, by which some cooking is done. The door which opens into the entry, we understand, was usually kept open, but the windows opening into the yard, were kept closed at night; the heads of some of the inmates, while in bed, being close to the windows, it appeared probable enough, that no one would allow her window to be open.

The number of inmates in No. 19 is usually twenty—often more; we counted twenty-eight bedsteads. The inmates remain in the room during the most part of day and night; their diet is tea and molasses, (without any milk,) and bread for breakfast—mush and molasses for dinner, every alternate day—fresh beef and soup for dinner every alternate day.

They also further report, that they visited the general hospital at Bellevue, for the purpose of conferring with Dr. Wood, the physician to that establish-

ment. In his absence they obtained the following information from Dr. Morrel, the assistant physician:—That on the 30th of June, one hundred and forty-five patients, and ninety-seven maniacs were in that place, (separated from, and two hundred yards distant from the Alms-house.) The first man with malignant cholera, Daniel Ryan, aged forty-eight, was admitted into the hospital 3d of July, and he died the next morning. George Elliott, aged seventy, was the second. He was sent from the Alms-house, July 3d, and died the next day. George Riley, aged fifty-one, the third case, had been frolicking about the city the day previous, came from the Alms-house July 5th. He was convalescent, and walking about the ward on the evening of the 8th; died that night, very soon after drinking a copious draught of cold water. No more persons with malignant cholera were admitted after this patient. The first patient on the male side of the hospital, who was taken ill with malignant cholera, was Joseph Herring, aged sixty. He had been there since the 9th of April, with chronic diarrhœa, and was improving, when on the 7th of July he was attacked with malignant cholera, and died the same day. He was in an intermediate ward between Ryan and Elliott; but all those wards may be strictly considered as one, for the partition walls do not extend to the ceilings, since which time thirty-four men patients have been taken with that disease.

Catharine O'Neal, aged thirty, the first female with malignant cholera, was sent from the Alms-house July 3d, and died the next day. She had been a few days in the city, and returned June 30th. Ann Barnes, aged fifty-two, was the second case, also sent from the Alms-house July 4th, and died the 5th; no more were admitted with that disease after this time. Judy Wadock, aged forty-eight, a hospital patient since the 25th of April, was the first female resident, taken with malignant cholera on the night of the 6th of July, and died the next day, since which time several female patients have had that disease.

The maniacs are separated from the other patients, and do not communicate with them except sent on duty, and the first case of malignant cholera among them, was a man who attended as an orderly on the woman's apartment, in which twenty-five of them were, and had been sick with that disease. He was taken ill on the 8th, and died the 9th of July. Since then, two more maniacs have had the same disease.

From the above facts, it appears that no cases of malignant cholera occurred among the one hundred and forty-five patients in the hospital, and the ninety-seven maniacs before the evening of the 6th of July, six days after its first existence in the Alms-house, and not until three days after, five persons with that disease were admitted into general hospital.

We were also informed, that at the eye infirmary, situated at a little distance from the general hospital and Alms-house, there were about one hundred and twenty patients, mostly children, and that not a single case of malignant cholera had taken place. No children had been received from the Alms-house since that disease had occurred there, and only two from the Long Island farms, and two from the city.

Respectfully submitted,

JOS. BAYLEY.

New York, July 14th, 1832.

Cholera at Paris.

The cholera is usually represented as having broken out unexpected and suddenly at Paris on the 26th of April last. This is not altogether correct. "Of those physicians," says the editor of the *Gazette Médicale*, "who unprejudicedly observed the development of the reigning constitution, there is not one who did not foresee and almost determine the precise period of the appearance of the cholera. It is especially permitted for us to say so, since, in June last, we pointed out the prevailing constitution as one of the forerunners of the epidemic. This disease was regarded by us as a necessary and inevitable consequence of the elements which we indicated. We will go further; we have had in our possession for at least three months accounts, of several unquestionable cases of cholera, occurring under the observation of men of education and of unimpeachable veracity; but the fear of alarming a population already exceedingly uneasy, induced us to preserve silence until the disease has become more completely developed. This development it has attained with great rapidity. Since Monday, March 26th, the period at which the first well-attested cases are said to have occurred, the disease has been going on increasing by tenfold."

Between the 26th of March and the 20th of April, 10,476 perons died in Paris of cholera; and it is said that upwards of 30,000 persons were affected with the disease, not including those who suffered from slight symptoms, evidently depending upon the epidemic constitution; as diarrhœa, borborygmi, cramps of the stomach, pains in the legs, followed by debility, &c.

The disease first appeared in the most crowded and filthy part of Paris, though eventually few or no parts of the city appear to have escaped its ravages, and its earliest and most numerous victims were the wretched inhabitants of narrow, filthy alleys, worn down by misery, debauchery, and privations of every description.

The following summary of the symptoms and treatment of the disease, which we translate from the *Archives Générales* for May last, is said to be the result of the examination of 6,094 patients admitted into the various hospitals of Paris between the 1st and 18th of April. Of the number just mentioned, 3,673 died; 1,594 were discharged cured or perfectly convalescent, and 837 remained under treatment.

"Symptoms. *First stage.*—The individual, if at the time in good health, is seized with diarrhœa; this occurs in some instances very suddenly, the discharges being copious; in other cases the diarrhœa creeps on slowly. There is little griping, and no tenesmus. Soon after the liquid discharges from the bowels take place, a sense of weakness is experienced in the lower extremities, which is sometimes scarcely apparent, while at others it is so great that the patient cannot account for the feeling of exhaustion, so inexplicable by the symptoms under which he labours. Syncope is threatened on every movement of the body. In some cases there is an intense pain of the forehead, the peculiar character of which, the head appearing as it were constricted, and which causes to the patient great inquietude. By degrees anorexia comes on; nevertheless, in many cases, the individual is yet capable of following his customary occupations—frequently, also, the above symptoms, in persons of an energetic or careless disposition, attract little attention, and this leading to a false security, causes serious injury to the patients. This first stage of the disease continues

one or two days, and frequently longer, extending sometimes beyond a week, and causing the utmost debility. It is very generally present, and is easily treated.

"*Second stage.*—This is marked by cramps in the limbs and vomiting. The stomach discharges, first the food contained in it, bilious matters are then thrown up, afterwards those of a serous character, which become mixed with whitish flocculi, giving to the discharges the appearances of rice water, or of gruel. The discharges per anum present similar appearances—at first solid, they quickly become fluid, bilious, serous, and finally are composed entirely of a sero-mucous liquid of a whitish colour. So similar are the stools in appearance to the discharges from the stomach, that it is impossible, at first sight, to distinguish one from the other. They have always a peculiar smell, which is acid, but at the same time sickening, and readily recognised when once perceived. It has some analogy to that of the vapour of iodine, or of chlorine. The sweat of the patient seems to present the same odour, and which in the absence of other symptoms, is sufficient of itself to establish the diagnostic. The discharges from the stomach are more or less constant and abundant. To these succeed cramps, affecting successively the feet, hands, legs, and arms—they invade even the trunk, simulating pleurodynia, partial peritonitis, and more frequently lumbago. The more violent and general they become, the greater is the danger of the patient—the exceptions to this statement are extremely few. The pulse increases in frequency, being from one hundred and twenty to one hundred and thirty in the minute; the extremities become cold, and the arteries lose their normal tension—the blood which flows through them scarcely distending their parietes. The secretions are suppressed, or at least they are suspended; the respiration is laborious, sometimes more frequent and at others slower; but there is constantly a sensation of suffocation, produced by the constriction of the base of the thorax. The patient is restless, agitated, frequently prognosticating his speedy dissolution. The intellectual functions are unimpaired. The features of the face become sharpened, their ordinary expression is entirely destroyed; the eyes are bright, and the tongue pasty.

"*Third stage.*—This is the stage to which the term *blue* has been applied, from the circumstance of the face and extremities assuming a bluish venous and very peculiar tint. To the phenomena of the preceding period, succeed now an extreme exhaustion; the skin becomes of a violet hue, the pulse extremely weak, frequently even entirely ceasing in the radial arteries. The respiration is deep and interrupted; the breath is cold, and has the peculiar odour already alluded to. The voice which had exhibited some degree of alteration during the preceding stage, becomes now extremely feeble, frequently inaudible. The intellectual faculties still remain, nevertheless the patient exhibits a carelessness or an apathy almost complete. The force and frequency of the cramps diminish; the evacuations from the stomach and bowels are less frequently repeated; the skin is bathed with a clammy sweat, and completely cold; the tongue itself is cold; the eyes half opened, present a bluish colour, an ecchymosis as it were of the inferior part of the cornea and conjunctiva; the pupil becomes dilated; the nose contracted; the face assumes a cadaveric appearance, and the limbs become stiff like those of a corpse. The skin is dry, and no longer presents its usual elasticity, so that a fold made in the skin of the neck or chest, remains permanent. During this period the patient dies without convulsions, or any

apparent pain, and more frequently without the knowledge of those who surround him, so insensible is the transition from life to death, and so strongly does the living patient resemble the corpse.

"*Fourth stage.*—Reäction sometimes occurs spontaneously, as we are informed by physicians who have seen it in patients left entirely without medical aid. To produce reäction should be the aim of the practitioner, for it indicates a tendency to a favourable termination. The pulse gains an increase of strength, and reäppears in the extremities; the coldness of the surface is diminished; the skin loses its violet hue; the conjunctiva become injected; the voice becomes more sonorous; the tongue and breath acquire their usual warmth; the respiration is more frequent and easy. A hiccough sometimes occurs, as though the diaphragm, in resuming its functions, experienced a difficulty in their proper execution. There is no longer either diarrhœa, vomiting, or cramp. Frequently also, as the circulation becomes more free and vigorous, congestions of the brain take place; the head becomes red, and the patient may then sink rapidly. In other cases the degree of reäction is of a more natural character, and the recovery of the patient is speedily accomplished.

"Such is the general progress of the cholera morbus, as it presented itself in Paris. Many varieties, however, were observed in its phenomena, referable to the particular condition of the patient's system. Thus, in children, females, and very irritable persons, a form of cholera was observed in which the nervous symptoms predominated; the cramps were attended with true convulsions; symptoms were even observed which simulated tetanus; during the paroxysms of which the patient expired. In plethoric subjects, with large and robust bodies, the inflammatory form of the disease manifested itself more frequently; the tongue was red and irritated; the epigastrium was the seat of acute pain; there was violent fever; very copious vomiting; insatiable thirst, and other symptoms demanding evidently an antiphlogistic treatment. In other instances the asphyxial type predominated—the blueness of the skin occurred from nearly the commencement of the attack, and the death of the patient took place often very promptly.

"Treatment.—Notwithstanding all that has been said upon the existence in cholera of a gastro-enteritis or gastro-cephalitis, it is certain that in many cases, even of the most violent character, not the least morbid appearance is discoverable throughout the whole digestive tube. Sometimes we find in the small intestine, a number of either isolated and tolerably prominent follicles or of cellulated patches, having the same appearance as those found at a certain stage of ordinary typhoid affections. In some cases, but more rarely, we find traces of gangrene in the mucous membrane, or black spots which exhale a decidedly gangrenous smell. MM. Renauldin, Martin Solon, Andral and Louis, have met with these morbid appearances in several instances. They are nevertheless exceptions, and cannot serve as a basis, upon which to found a correct idea of the etiology of the disease. What seems more evident, is the alteration of the blood. The proportion of free carbon being double, and that of the colouring quadruple, to what they are in a state of health. The aqueous, albuminous, and fibrinous portions of the blood are almost entirely wanting—in consequence of which it assumes the pitchy consistency so frequently mentioned. If this, which is evidently the essential morbid change, be made the basis of the

etiology of the disease, and consequently of its treatment, it may be demanded what relation does there exist between the affection to be removed, and the remedies employed to that end?

"In the first period, when the digestive tube appears to be the principal point of fluxion, it is all important to oppose this congestion. Of course, local bleeding and soothing injections are indicated. Some practitioners have employed other means; they have given ipecacuanha, and produced, in this manner, a sudden impression upon the whole intestinal tube. This shock has been salutary in a great number of cases; but it should not be concealed, that in other instances, it has appeared to have had an injurious effect.

"In the second period, the internal congestion is more extensive; it already impedes the play of many of the functions, and the necessity of directing our efforts to its removal increases rapidly. We may yet bleed if the pulse continues, and the patient is robust. Antispasmodics and hypnotic remedies, capable of arresting the progress of the nervous affection, which is now added to the first symptoms should likewise be administered. Iced drinks, even ice itself, are a very excellent means for arresting the vomiting. Injections, decidedly astringent, will succeed also in arresting the diarrhœa, and preventing that exhaustion which so rapidly follows the discharges from the stomach and bowels. The administration of ipecacuanha even in this stage of the disease, has appeared to be attended with good effects, in bringing back the natural secretions to take the place of those produced by the morbid stimulus. Under the effects of an emetic of this substance, the bile has been known to be copiously discharged; the white matter of the dejections to be diminished, and shortly to disappear; the bladder to become filled with urine, and the cramps to cease.

"With respect to the third period, a new order of phenomena predominate. The coldness of the extremities, the feebleness of the respiration, the diminished action of the heart, all indicate a complete perversion of the functions of the organs. Even supposing, that during the two first stages of the disease, some portions of the mucous membrane of the digestive tube should become the seat of a slight phlogosis, it does not follow, that this should demand the entire attention of the practitioner, now when life itself is on the point of ceasing, and the actions of all the principal organs arrested. Under such circumstances, the subtraction of a small quantity of blood, is to say the least, useless; the impulsive power of the heart being almost destroyed, and the quantity of the circulating fluids greatly diminished. Our efforts should, therefore, be directed, to the organs which are still capable of feeling the influence of the impressions we desire to make upon them—the stomach, in this case, is one of the points the most accessable to our remedies. The most diffusible stimulants, as ether, ammonia, &c. will now be found to produce salutary effects, and give to the patient some chance of recovery. Even at this period vomits have been administered, and the spinal marrow has also been strongly stimulated. These two means have had the effect of rousing the nervous influence on the point of disappearing—of calling back the powers of life, and of producing reäction. It will readily be perceived that a crowd of analogous measures are all equally calculated to produce these important results. We must say, however, that in this stage the chances of success are but trifling.

"Reäction once obtained, we have to watch its progress and obviate any morbid effects it may occasion when not maintained within due limits. The

convalescence from cholera is long, and painful. It requires a constant watchfulness on the part of the practitioner, and the utmost docility on the part of the patient. It is unhappily too true, that a great number of patients recovered from an attack of cholera, but too soon abandoned to themselves, have from the errors in regimen they have committed, been suddenly destroyed. The extreme debility which succeeds to the enormous discharges that take place in this singular disease, predisposes to serious organic affections—the most trifling pneumonia will in an instant become mortal—the slightest irritation of the stomach, will be at once accompanied with all the symptoms which characterize the typhoid diseases, and the patients sink, the more quickly as the plan of treatment proper in the latter affections cannot be put in practice in persons so completely exhausted."

Cholera at Sea.

The following letter from the surgeon of the British barque Brutus, to the President of the Board of Health of Liverpool, conveys the melancholy intelligence of the cholera having broken out among the passengers, *eight days after* leaving the river Mersey, and which induced the captain to put back. It appears from a statement subjoined to the letter, that between the 27th of May, the period when the first person was attacked, and the 13th of June, the day on which the vessel arrived at Liverpool, 117 cases had occurred, 81 died, and 20 had recovered.

Sir—With the deepest feelings of regret, I have the painful duty to perform of transmitting you one of the most melancholy and distressing accounts of cholera, which occurred on board the British barque Brutus, bound for Quebec, from Liverpool, with three hundred and thirty passengers. The first case presented itself on the 25th of May, (being the eighth day after we left the river,) in a strong, healthy man, thirty-five years of age; the symptoms were all well-marked, the spasms particularly severe; under the usual means of treatment he recovered. The next case was an old woman of sixty, who died in ten hours after the commencement of the attack. The disease continued gradually to increase, (notwithstanding every means having been employed to arrest its progress,) until the night of Saturday, the 2d of June, when we were a good deal tossed about by a heavy sea, and dark hazy weather; it spread to such an alarming extent that, on Sunday, most of the ship's crew being attacked, and having lost some of them the week before, we were obliged to bear up again for Liverpool. It is impossible to describe the scene of misery on the third, fourth and fifth; people dying in every direction,—the greater number of them destitute of the common articles of bed covering. On the sixth, the weather became more favourable, the disease less severe, and the number of new cases diminished, which has since been on the decline.

I have the honour to be, sir, your obedient humble servant,

W. W. THOMPSON, M. R. C. S. in London.

Health of Philadelphia.

During the past week no marked change has occurred in the health of our city. The disposition to bowel complaints appears rather to have diminished than increased, and these diseases have been quite as manageable as ordinary, and recovery has been remarkably prompt. From the occurrence of the cases of a malignant type, noticed in our last No., a week elapsed without the appearance of another. On Monday last, however, a labourer in the Lehigh Company's coal yard at Kensington, was attacked after exposure on board a raft to the sun for two hours with cholera, said to be of a malignant character; he died in a short period. It is evident that all these cases are sporadic, and that the disease does not exist here as an epidemic.

The following table exhibits the whole mortality, and also that from bowel complaints, for the 3d week in July for five successive years. It will be perceived that the mortality from bowel complaints is nine less this week than last.

1828.—3d week, ending July 19th. Whole mortality, 103; of which, the deaths from cholera morbus were, adults, 0; children, 32; Total, 32.—Diarrhœa, adults, 0; children, 5; Total, 5.—Dysentery, adults, 1; children, 1; Total, 2.—Total from bowel complaints, 39.

1829.—3d week, ending July 25th. Whole mortality, 88; of which, the deaths from cholera morbus were, adults, 1; children, 13; Total, 14.—Diarrhœa, adults, 1; children, 2; Total, 3.—Dysentery, adults, 2; children, 2; Total, 4.—Total from bowel complaints, 21.

1830.—3d week, ending July 24th. Whole mortality, 196; of which, the deaths from cholera morbus were, adults, 2; children, 32; Total, 34.—Diarrhœa, adults, 1; children, 7; Total, 8.—Total from bowel complaints, 42.

1831.—3d week, ending July 23d. Whole mortality, 136; of which, the deaths from cholera morbus were, adults, 1; children, 34; Total, 35.—Diarrhœa, adults, 2; children, 3; Total, 5.—Total mortality from bowel complaints, 40.

1832.—3d week, ending July 21st. Total mortality, 143; of which, the deaths from cholera morbus were, adults, 0; children, 31; malignant cholera, adults, 3; Total, 34.—Diarrhœa, adults, 4; children, 7; Total, 11.—Dysentery, adults, 2; children, 2; Total, 4.—Total from bowel complaints, 49.

Cholera at New York.

It appears from the report of the city Inspector, that the number of interments during the week, ending Saturday, (21st July,) was 887, of whom 716 were from malignant cholera; 6 ordinary cholera; cramp in the stomach, 1; diarrhœa, 6; dysentery, 2; cholera infantum, 11; inflammation of the bowels, 8; total from bowel complaints, 750.

The report for the twenty-four hours, ending Tuesday at 12 o'clock, were—

In private practice, new cases 188, deaths 57.

Hospitals,	51	22
Bellevue,	22	7
Harlaem,	30	9
Yorkville,	5	1
	296	96

Cholera among the North Western Indians.

The following paragraph from the Montreal Canadian is, especially worthy of attention:—

The Canadian of Tuesday last contains a statement made by a voyageur recently arrived from the King's Posts, of the prevalence of a disease among the Indians of the North, one hundred leagues from the sea, during the early part of May last, which, in many particulars, such as cramps, diarrhœa and vomiting, resembles the prevailing epidemic. The Indians, however, cured themselves by a decoction of barks. This story would prove that the introduction of the disease here is not attributable to the shipping, or the arrival of emigrants, since it has reached a place totally unconnected with either, previous to its appearing in Quebec.

Progress of Cholera in Great Britain.

London.—Total number of cases in this city from the commencement of the epidemic, 2,606; deaths, 1,371.

Liverpool.—The cholera continues to make considerable progress in this city; on the 15th of July 19 new cases were reported. The whole number since the commencement of the epidemic, May 12th, has been 200; of whom, 85 had died, and 75 were remaining.

At the last advices the epidemic was prevailing at Northwich, Leeds, York, Doncaster and Hull.

Ireland.—It appears from the official reports, that the total number of cases of cholera in Ireland, from the commencement of the disease, is 7,959, and of deaths, 2,303. At Dublin there have been 3,248 cases, and 895 deaths; at Cork, 2,836 cases, and 672 deaths, being much more than one-half of the total number in that part of the United Kingdom.

Hungary.

The number of persons attacked with cholera in Hungary is officially estimated at 538,339, and the deaths at 237,408. The disease has at length ceased in that country.—*Lond. Med. Gaz.*

PHILADELPHIA—CAREY & LEA—CHESNUT STREET.

THE

CHOLERA GAZETTE.

VOL. I. *WEDNESDAY, AUGUST* 1*st*, 1832. No. 4.

Injection of Saline Solutions into the Veins.

The following documents relative to the treatment of cholera by the copious injection of a saline solution into the veins, communicated to the Central Board of Health of Great Britain, are of so interesting a character that we hasten to lay them before our readers; though we are far from participating in the sanguine estimate of the curative powers of the remedy, entertained by Drs. Lewins, Latta and others. The measure has been resorted to in New York, and on the whole, with but slender success, and the results of trials of it, in this city, so far as we have been able to obtain authentic information, have not been very encouraging. Some of the symptoms have been relieved, but we know as yet of no cure effected by it.

No. 1.

SIR,—I conceive it to be my duty to let you know, for the information of the Central Board of Health, that the great desideratum of restoring the natural current in the veins and arteries, of improving the colour of the blood, and recovering the functions of the lungs, in cholera asphyxia, may be accomplished by injecting a weak saline solution into the veins of the patient. To Dr. Thomas Latta, of this place, is due the merit of first having recourse to this practice. He has tried it in six cases, three of which I have seen, and assisted to treat. The most wonderful and satisfactory effect is the immediate consequence of the injection. To produce the effect referred to, a large quantity must be injected—from *five to ten pounds* in an adult—and repeated at longer or shorter intervals, as the state of the pulse, and other symptoms, may indicate. Whenever the pulse fails, more fluid ought to be thrown in, to produce an effect upon it, without regard to quantity. In one of the cases I have referred to, 120 *ounces* were injected at once, and repeated to the amount of 330 ounces in twelve hours. In another, 376 ounces were thrown into the veins between Sunday, at 11 o'clock, A. M., and this day (Tuesday) at 4 P. M.; that is, in the course of 53 hours, upwards of 31 pounds!

The solution that was used consisted of two drachms of muriate, and two scruples of carbonate, of soda, to sixty ounces of water. It was at the temperature of 108 or 110 degrees.

The apparatus employed in injecting was merely one of Reid's common syringes, (the fluid being put into a vessel rather deep and narrow,) with a small pipe fitted, that it might easily be introduced into an incision in the veins of the usual size that is made in bleeding. It may, however, be well to keep in mind, that, in the event of the operation being frequently repeated, it may be adviseable to inject by different veins.

I forbear at present to enter further into the particulars; nor have we had sufficient experience to speak decisively on the subject. I may, however, mention, that the idea of having recourse to this remedy in cholera, occurred to Dr. Latta, from being convinced, (which I am also,) that the evacuations upwards and downwards are in reality the serum of the blood; that it is the duty of the physician to replace it, as speedily as possible, by injecting a fluid, as similar to the serum as can be formed artificially, directly into the veins, which has been done here with wonderful, and, so far as we can yet judge, excellent effect. An immediate return of the pulse, an improvement in the respiration and in the voice, an evolution of heat, an improvement in the appearance of the patient, with a feeling of comfort, are the immediate effects. The quantity necessary to be injected will probably be found to depend upon the quantity of serum lost—the object of the practice being to place the patient in nearly his ordinary state, as to the quantity of blood circulating in the vessels.—I have, &c.

(Signed) ROBERT LEWINS, M. D.

To W. Maclean, Esq.

Secretary to the Central Board of Health.

No. 2.

Sir,—I did myself the honour to address a letter to you lately, on the effects of injecting a saline solution into the veins of a patient labouring under cholera. We have not frequent opportunities of trying this, which I denominate, admirable remedy, as the disease is decidedly less frequent here; but I have seen it employed in two other cases, in the course of the last two days, with the same excellent effect. Sixty ounces are generally thrown in at once, and repeated at the end of three or four hours. In a case to-day, where I saw fifty-eight ounces injected, (being the third time of performing the operation,) the patient's pulse, at the commencement, was 180, very small, and very feeble. She was excessively restless, with a feeling of great weakness and tormenting thirst. Before twelve ounces were injected, the pulse began to improve; it became fuller and slower, and it continued to improve until, after 58 ounces had been injected, it was down to 110. Before I left the patient, (a woman,) her condition was altogether amazingly amended. There was a fine glow and a slight perspiration on her face; the veins on the back of her head were well filled; the restlessness was removed, the feeling of excessive weakness gone, and the thirst ceased. The pulse was under 100, free, full, and soft! Verily, sir, this is an astonishing method of medication, and I predict will lead to wonderful changes and improvements in the practice of medicine! I have addressed you upon the subject, as the organ, from your high official station, of disseminating a knowledge

of the extraordinary facts referred to. It will, of course, give me great pleasure to enter further into particulars upon any particular point on which you may require information, in reference to the cases that have come under my observation.—I have, &c.

(Signed) ROBERT LEWINS, M. D.

To W. Maclean, Esq. &c. &c.

In the hands of a man of ordinary dexterity, the common injecting apparatus alluded to in my last will be found to answer the purpose perfectly well; but if the practice I recommend is, as I hope it will be, generally adopted, it will, I conceive, be expedient to advise that a regular and perfect transfusion apparatus be used; at all events, to warn those who inject to beware of allowing air to get into the vein. The tubes, of course, must be filled with fluid, as well as the pipe in the vein, before commencing, and considerably more fluid than it is intended to use ought to be in the vessel from which it is pumped.

R. L.

No. 3.

Leith, May 23d, 1832.

Sir,—My friend, Dr. Lewins, has communicated to me your wish for a detailed account of my method of treating cholera by saline injection into the veins, with which I now most willingly comply. My scope for observation, since I commenced this treatment, has been too limited to allow me to be very copious on the subject, but I think I can adduce sufficient proof to the unprejudiced, not only of its safety, but of its unquestionable utility. I have never yet seen one bad symptom attributable to it, and I have no doubt that it will be found, when judiciously applied, to be one of the most powerful, and one of the safest remedies yet used in the second stage of cholera, or that hopeless state of collapse to which the system is reduced.

Before entering into particulars, I beg leave to premise, that the plan which I have put in practice was suggested to me on reading in The Lancet, the review of Dr. O'Shaughnessy's report on the chemical pathology of malignant cholera, by which it appears that in that disease there is a very great deficiency both of the water and saline matter of the blood. On which deficiency, the thick, black, cold state of the vital fluid depends, which evidently produces most of the distressing symptoms of that very fearful complaint, and is, doubtless, often the cause of death. In this opinion I am abundantly borne out by the phenomena produced on repletion by venous injection.

So soon as I learnt the result of Dr. O'Shaughnessy's analysis, I attempted to restore the blood to its natural state, by injecting copiously into the larger intestines, warm water, holding in solution the requisite salts, and also administered quantities from time to time by the mouth, trusting that the power of absorption might not be altogether lost; but by these means I produced, in no case, any permanent benefit; but, on the contrary, I thought the tormina, vomiting, and purging, were much aggravated thereby, to the further reduction of the little remaining strength of the patient; finding thus, that such, in common with all the ordinary means in use, was either useless or hurtful, I at length resolved to throw the fluid immediately into the circulation. In this, having no precedent to direct me, I proceeded with much caution. The first subject of experiment was an aged female, on whom all the usual remedies had been fully

tried, without producing one good symptom; the disease, uninterrupted, holding steadily on its course. She had apparently reached the last moments of her earthly existence, and now nothing could injure her—indeed, so entirely was she reduced, that I feared I should be unable to get my apparatus ready ere she expired. Having inserted a tube into the basilic vein, cautiously—anxiously I watched the effects; ounce after ounce was injected, but no visible change was produced. Still persevering, I thought she began to breathe less laboriously; soon the sharpened features, and sunken eye, and fallen jaw, pale and cold, bearing the manifest impress of death's signet, began to glow with returning animation; the pulse, which had long ceased, returned to the wrist; at first small and quick, by degrees it became more and more distinct, fuller, slower, and firmer, and in the short space of half an hour, when six pints had been injected, she expressed in a firm voice that she was free from all uneasiness, actually became jocular, and fancied all she needed was a little sleep; her extremities were warm, and every feature bore the aspect of comfort and health. This being my first case, I fancied my patient secure, and from my great need of a little repose, left her in charge of the hospital surgeon; but I had not been long gone, ere the vomiting and purging recurring, soon reduced her to her former state of debility. I was not apprised of the event, and she sunk in five and a half hours after I left her. As she had previously been of a sound constitution, I have no doubt the case would have issued in complete reäction, had the remedy, which had already produced such effect, been repeated.

Not having by me the number of The Lancet containing Dr. O'Shaughnessy's analyses, I adopted that of Dr. Marcet, only allowing a smaller proportion of saline ingredients. This I now find to be considerably less than natural, according to the more recent analyses. I dissolved from two to three drachms of muriate of soda, and two scruples of the sub-carbonate of soda in six pints of water, and injected it at temperature 112° Fah. If the temperature is so low as a hundred, it produces an extreme sense of cold, with rigors; and if it reaches 115°, it suddenly excites the heart, the countenance becomes flushed, and the patient complains of great weakness. At first there is but little felt by the patient, and symptoms continue unaltered, until the blood, mingled with the injected liquid, becomes warm and fluid; the improvement in the pulse and countenance is almost simultaneous; the cadaverous expression gradually gives place to appearances of returning animation, the horrid oppression at the præcordia goes off, the sunken turned up eye, half covered by the palpebræ, becomes gradually fuller, till it sparkles with the brilliancy of health, the livid hue disappears, the warmth of the body returns, and it regains its natural colour—words are no more uttered in whispers, the voice first acquires its true cholera tone, and ultimately its wonted energy, and the poor patient, who but a few minutes before was oppressed with sickness, vomiting, and burning thirst, is suddenly relieved from every distressing symptom; blood now drawn exhibits on exposure to air its natural florid hue.

Such symptoms, so gratifying both to the sick and the physician, must never allow the latter to relax in his care—the utmost vigilance is still necessary. At first the change is so great, that he may fancy all is accomplished, and leave his post for a while. The diarrhœa recurring, he may find his patient, after the lapse of two or three hours, as low as ever. As soon as reäction by the first in-

jection is produced, mild warm stimulants, such as weak gin toddy, mixed with some astringent, should be freely and assiduously administered. An attempt should be made to fill the colon with some astringent fluid. That such is requisite, is evident from the watery diarrhœa returning with violence, and if not restrained, death will ultimately make sure of his victim, therefore, so soon as the pulse fails, and the features again shrink, the venous injection must be repeated, taking care that the fluid in use retains its proper temperature. The injection should be carried on very slowly, unless the patient is much exhausted, when it may be used more rapidly at first, until a little excitement is produced, after which it should not exceed two or three ounces per minute, and now is the time for the exhibition of astringents by the mouth, which will be retained; for in general the sickness entirely leaves during the operation.

Such remedies must be persisted in; and repeated as symptoms demand, or until reäction is permanently established. I have witnessed no violent symptoms accompanying the rapid injection of the fluid; but I have thought that the hasty repletion of the system was followed by great increase of the evacuations, and, consequently, a more sudden depression of the powers of life. The quantity to be injected depends on the effect produced, and the repetition on the demands of the system, which generally vary according to the violence of the diarrhœa; the greater the degree of collapse, the greater will be the quantity needed, though not uniformly, for a very slight loss produces much depression in some systems; hence there is often great collapse, without much vomiting, purging, or cutaneous discharge.

Although in every case, even the most desperate, the cholera symptoms were removed, some of my cases failed, which I attributed to one or other of the following causes—either the quantity injected was too small, or its effects were rendered abortive by extensive organic disease, or its application was too late.

I have already given an instance where deficiency in quantity was the cause of failure, which I will now contrast with one in which it was used freely. A female, aged fifty, very destitute, but previously in good health, was on the 13th instant, at four A. M., seized with cholera in its most violent form, and by half-past nine was reduced to a most hopeless state. The pulse was quite gone, even in the axilla, and strength so much exhausted, that I had resolved not to try the effects of the injection, conceiving the poor woman's case to be hopeless, and that the failure of the experiment might afford the prejudiced and the illiberal an opportunity to stigmatize the practice; however, I at length thought I would give her a chance, and in the presence of Drs. Lewins and Craigie, and Messrs. Sibson and Paterson, I injected one hundred and twenty ounces, when, like the effects of magic, instead of the pallid aspect of one whom death had sealed as his own, the vital tide was restored, and life and vivacity returned; but diarrhœa recurred, and in three hours she again sunk. One hundred and twenty ounces more were injected with the same good effect. In this case three hundred and thirty ounces were so used in twelve hours, when reäction was completely reëstablished; and in forty-eight hours she smoked her pipe free from distemper. She was then, for better accommodation, carried to the hospital, where probably, from contagion, slight typhoid symptoms were produced. She is now, however, convalescent.

The second cause of want of success is the presence of organic disease; this,

probably, renders the possessor very liable to attacks of cholera; and the latent evil, which previously gave but little uneasiness, suffers aggravation in all its symptoms, more especially after reäction has been produced, and has evidently, in many cases, been the cause of death. A delicate young female, of strumous habits, who had been for some years subject to pectoral complaints, was rescued from a state of collapse by the injection of sixty ounces of the saline fluid, administered in separate portions, within the space of twelve hours. After lingering for ten days she died; the heart was found in a state of atrophy, covered with strong evidence of the existence of ancient disease, and floating in eight ounces of pus. In another case every internal organ was diseased; some of them so much so, that it was astonishing the individual lived so long.

The third case of the occasional want of success, is the late application of the remedy. Hitherto I have had opportunity of injecting only in extreme cases, after every other means had entirely failed, cases which apparently soon would have proved fatal. Here the obstacles to be overcome have been of no ordinary kind, notwithstanding the result of the practice is of the most encouraging nature, and the number of cases now convalescent or doing well highly gratifying. In every fatal case we have had an opportunity of examining, independent of organic disease, I have found a large quantity of fibrine in the cavities of the heart, especially on the right side, where it had extended from the auricle through the ventricle in the pulmonary artery. Such deposition must have formed a certain obstacle to recovery, and is, no doubt, from the interruption it gives to the pulmonary circulation, the cause of the heavings of the chest, and the inordinate action perceptible in the centre of circulation many hours before death. Now surely it is reasonable to suppose, that if this, the most simple of all remedies, were applied early, before the blood drained of its water has collected in the larger vessels, in fact before such fibrinous depositions have taken place in the cavities of the heart, is it not reasonable to suppose that such would be entirely prevented?

But not only is early injection adviseable on this account, not only is stagnation of the blood prevented by it, and the laborious breathing, and the præcordial oppression, the intense sickness, the burning thirst, the extreme depression of the vital powers, and the chances of aggravating chronic disease, or of producing new organic lesion, in a great measure avoided: but it is rational to suppose that the consecutive fever will be rendered much milder, and that this is the case, is supported by my own experience, even though the remedy has not been applied earlier, indeed the fact is very evident. In an ordinary attack of cholera, much fluid is lost; and if the individual is so fortunate as to get out of the stage of collapse, if consecutive fever of typhoid type comes on, the system, left to its own resources to replace the lost serum, must be but ill fitted for the task, for the debility is extreme, absorption goes on slowly, the fever will be much aggravated by the irritation of internal congestion; local inflammation will thereby be produced, and the chance of recovery will be but small. Much of this evil is to be mitigated or entirely avoided by injection into the veins, of which circumstance I can adduce living instances; and where the patient, who had been injected, has sunk under organic disease, the usual marks of congestion are not perceptible.

The apparatus I have used, is Reid's patent syringe, having a small silver

tube attached to the extremity of the flexible injecting tube. The syringe must be quite perfect, so as to avoid the risk of injecting air; the saline fluid should never be injected oftener than *once* into the same orifice, and the vein should be treated with much delicacy to avoid phlebitis. The wound should be poulticed and carefully watched, if it does not heal by the first intention.

I am, sir, your most obedient servant,

THOMAS LATTA, M. D.

(To be continued.)

Origin and Progress of Cholera at Albany.

The following report made by the medical staff of Albany to the Board of Health, furnishes some interesting information relative to the origin of the epidemic, and the character of the diseases which preceded its appearance in that city.

"In presenting to the Board of Health the following tables, showing the bills of mortality of this city from the 22d ult., when the board directed the deaths to be recorded, up to this day, we deem it our duty to make some remarks relative to the health of the city during the above period, and likewise in relation to our future prospects, and the measures we consider useful to accelerate the departure of the pestilence from among us.

"We stated in our last report to the board, that immediately prior to the breaking out of the epidemic, our city was unusually healthy. Until about the 20th of June, few diseases prevailed, and the mortality was less than common. From the 22d of June to the 3d of July, only eleven deaths occurred—of those, six were children. In a population of twenty-six thousand, an average of less than one death a day for near two weeks, indicates a degree of health almost without a parallel. From the 30th of June to the 3d of July, *not one single death was reported.* It was, however, but the calm which precedes the storm. All other diseases gave way to the silent but the irresistible march of the epidemic.

"Although but few deaths took place from the 20th of June to the 3d of July, there was considerable sickness; and experienced physicians foresaw the coming danger, in the usual prevalence of diarrhœa, and common cholera morbus—hence it was that your board was urged to make all ready—to be prepared with hospitals, physicians, nurses, &c. and to this timely warning, and the preparations made in consequence, we may, under Providence, attribute the limited ravages of this fell pestilence.

"On the 3d day of July, the epidemic assumed its malignant and characteristic form. From that time until now, it has maintained its residence among us. For the first week it gradually extended, and during the second it has been rather stationary, the number attacked varying a little from day to day and but little.

"It is now a fortnight since the first deaths took place. The number of cases reported within that period is two hundred and forty-five, and the deaths seventy-two—or a little over one-quarter of the whole. It must however be

recollected, that during the same time hundreds had been attacked with *Cholerine*, or the slightest influences of the epidemic. None of these have been reported, *because by timely aid, the disease, in its more formidable shape, was prevented.* We can, we believe, say with truth, that few have entirely escaped the influence of the disease.

"From a consideration of all the circumstances connected with the visitation of Providence, we think our citizens have great cause for thankfulness, that we thus far suffered so little. Compared to our neighbours of Canada, we have suffered less than we had cause to anticipate. The disease has been among us for a fortnight; has passed all over the city, and in one form or other has affected more or less persons of all classes, and yet the deaths have not much exceeded five in a day, whilst at Quebec and Montreal, in a population not much exceeding ours, the deaths some days exceeded one hundred, when the disease had not been so long among them as it has been with us. From the history of the disease in other countries, and the circumstances connected with its progress in this city, we would fain indulge the hope, that it has already spent its venom, and that we shall ere long be free from it entirely. For the last two days, notwithstanding the number of cases reported and the high state of mortality, we are inclined to believe that we see, in the character of the prevailing disease, indications of returning health.

"We have as yet, had no cause to change our opinion respecting the nature of the prevailing disease—we consider it essentially epidemic. It continues to attack people in different parts of the city, and had not been traced from one person to another, as might have been done were its progress dependent on contagion. It is true, in some houses, several persons have been attacked and died; but this only shows that similar causes produce similar effects in individuals placed in like circumstances—all were equally exposed to the local and general causes which engender this disease. The disease *may*, under certain circumstances, be contagious, but no very striking instances of the kind has yet come to our knowledge in this city.

"We cannot reprehend in too strong language, the cold-hearted and inhuman conduct of many of our people, to the unfortunate victims of cholera. They are too often abandoned to their fate, even their friends being afraid to do to them the ordinary offices of charity. Were they labouring under the plague of the Levant they would not be looked upon with more dread. All this is folly. The risk of taking the disease from the sick is little or nothing; much more is to be dreaded from foul air by which the disease is engendered. The first care of friends should be, not to run away, but to take the sick into more healthy and airy lodgings.

"We would also protest against the indecent haste with which the scarcely cold remains of the dead are hurried to their last abode, without a neighbour to follow, or a friend to mourn. Such conduct is discreditable to the character of a Christian people. We trust that we shall not again have to complain of similar indifference to the performance of the duties of charity and humanity.

"To the members of the medical profession, and particularly its younger members, we willingly award due credit for their attention and diligence, under circumstances of no usual difficulty.

"We would again most earnestly entreat our citizens not to neglect to apply

for medical aid the moment diarrhœa, or sick stomach and head-ache take place. We have not yet known one instance in which the disease in its malignant form, was not preceded by one or more of these symptoms, for some hours, if not days; and we have not seen or heard of a single instance where these premonitory symptoms were properly attended to, an attack was not prevented. It cannot be too strongly or too often impressed upon the minds of our citizens, that cholera, in its early stages, is easily cured; but that when neglected, in a majority of cases, no human aid will avail. Almost all the deaths have occurred in persons of intemperate habits, and of broken constitutions. A few estimable citizens have fallen victims to it, but these were either aged and infirm, or had neglected the premonitory symptoms, or had tampered with medicines, without proper advice.

"To our constituted authorities we would recommend the most assiduous attention to cleanliness in our streets, along our wharves and docks; to our citizens, strict attention to cleanliness in their houses and persons, to pay due attention to dress, avoid exposure to the night air, and observe strict temperance, not only in *drink*, but in *food*. We would caution them against the free use of *fruit, ripe* or *unripe*, and the employment of Glauber or Epsom salts as medicines. Several cases of cholera have been brought on by their operation. If due attention be paid to all these precautions, we have every reason to hope that the epidemic will soon cease to prevail among us.

"JONA. EIGHTS, Chairman."

Bill of Mortality from 22d June to the 17th July, 1832.

June 22, 2—1 poison,
1 small-pox.
23, ——
24, 1 pneumonia,
25, 1 convulsions,
26, 2—1 convulsions,
1 marasmus,
27, 2—1 convulsions,
1 consumption,
28, 1 scarlatina,
29, 2—1 consumption,
1 unknown,
30, ——
—
11 deaths from 22 June to July 3.
July, 3, 2 cholera,
4, ——
5, 4 cholera,
6, 2 cholera,
7, 3 cholera,
8, 4—3 cholera,
1 intemperance,
9, 5 cholera,
10, 8—1 apoplexy,
7 cholera,
11, 9 cholera,
12, 4—1 consumption,
3 cholera,
13, 8—6 cholera,
1 congestion of the brain, after cholera,
1 typhus fever,
14, 7—1 hydrocephalus,
6 cholera,
15, 7—1 debility,
6 cholera,
16, 7 cholera,
17, 8 cholera,
—
78

Cholera - - - 72
Other diseases - - 6

CHOLERA REPORTS.

July 3,	Cases 2	Deaths 2
4,	1	0
5,	7	4
Carried over,	10	6

		Cases	Deaths
	Brought over,	10	6
July	6,	12	2
	7,	10	3
	8,	11	3
	9,	18	5
	10,	22	7
	11,	28	9
	12,	10	3
	13,	28	7
	14,	27	6
	15,	17	6
	16,	29	7
	17,	23	8
	Total,	245	Deaths, 72

Board of Health, New York, July 20th, 1832.

To Walter Bowne, Esq. President, &c.

Sir—I have the honour to transmit to your Board of Health, an additional report of the Committee appointed to inquire into the history and origin of the disease at the Bellevue Alms-house, &c.

ALEX. H. STEVENS, M. D. President.

The committee consisting of Drs. Bailey, Macneven, and A. L. Anderson, to whom was referred the inquiry into the origin of the malignant cholera in the Alms-house and the different institutions connected with it, further report: the Penitentiary, situated about five hundred feet from the Alms-house, and containing three classes of criminals, have no communication with one another; but the Bridewell and Penitentiary prisoners have a common stairway to their apartments; and the yards of the Female State and Female Penitentiary prisoners are separated by a high open picket fence, near to which the Penitentiary prisoners pass to and from their work-house, and on the opposite side of the Female State prisoners yard, and at a little distance is situated the Cholera Hospital, first opened on the 5th or 6th of July. In this building were confined, on the 1st of July, fifty-four Female State, about one hundred and twenty Female Penitentiary, and about fifty Bridewell prisoners; and the first person who had malignant cholera in that prison was Ann Smith, taken up at the Five Points, and sent there July 2d—she sickened on the 5th, and died the next day, and on the 7th, four more Female Penitentiary prisoners had the disease. On the 8th of July, all the remaining prisoners of this class were sent to Blackwell's Island, and put into a fresh white-washed building prepared for them. The removal of those persons to a healthy residence, and an unrestrained exercise in the open country air, appear to have checked the development of that disease among them, for not until the 10th did any of them sicken, when four of them were taken with that disease, and since then seven more. Dr. Spring,

the physician stationed there, informed us that the disease had become milder since their removal to the Island, two only having died of thirteen patients, and the remaining eleven, visited by us, were doing well, except one.

The first State prisoner had that disease on the 9th of July, and eight more on the 12th and 13th, four each day; and since that time five more, the greater part of whom have died. They are all in one very large apartment, having three tier of windows on one side only, but the three stories are one open space from the top to the bottom of the building.

The first two cases occurred in the Bridewell class also on the 9th, the next on the 11th instant; since then, six more have had the disease.

When at Blackwell's Island yesterday afternoon, pursuing our inquiries respecting the Female Penitentiary prisoners, sent there from Bellevue, we considered it appertaining to the duty assigned to us, to extend our inquiry to the occurrences relating to the same subject, which happened on that Island, the institution there being a part of the Bellevue establishment. We were informed by Dr. Spring, the physician stationed there, that the first case of malignant cholera which occurred on the Island, was an Alms-house pauper, who slept there, but worked on the Long Island farms; he was permitted to go as far as Brooklyn, July 1st, but he frolicked in the city all the next day, returned at night to Blackwell's Island, and slept out of doors all night, and sickened and died July 3d—no other case took place there until the 11th, (three days after the Female Penitentiary prisoners were removed from Bellevue,) when three persons sickened and died the same day; one, a very feeble black man, aged sixty-five; another, a black lad, who had been much reduced by medical treatment for rheumatism—both patients in the hospital, and able to take exercise out of doors. Their building is about one hundred yards from that occupied by the Female Penitentiary prisoners. The third, a white pauper, aged sixty-five, who worked on the Long Island farms, but slept on Blackwell's Island, formerly in the shanty now occupied by the sick blacks; but some days before he sickened, he slept in a small building at a considerable distance from his former lodging place; but he not being under confinement, would go to any part of the Island when unobserved, and without hindrance to the outside of the Black Hospital.—Since then, three blacks have had that disease.

We were also informed by Dr. Spring, that no case of malignant cholera had occurred among the two hundred and eight male Penitentiary prisoners—that a lad, aged sixteen, who frequently complained of being unwell, died on the 13th inst., after three or four hours sickness of common cholera. Those men are employed in the open air, and their prison is in the most perfect order; the air within was as free from any impure smell as the atmosphere without. We were informed by Col. Woodruff, the superintendent, that it was in contemplation to remove the Bridewell prisoners from Bellevue to this prison—and asked our opinion as to the propriety of the measure; we give it as our opinion, that as there was already a large number of men now confined there, and room only for about thirty more, that the crowding of the prison at this time, and especially from places where the malignant cholera existed, would be exposing the health of the prisoners to some hazard.

We were also informed by John Targee, Esq., one of the Commissioners of

the Alms-house, that a boy, whose parents had both died in Laurens street with the malignant cholera, was sent from there in the beginning of July, to the house on Long Island Farms, where there are a large number of pauper boys; he sickened and died of that disease the day after, and no case of that disease has since occurred.

The foregoing being all the facts which have come to our knowledge after a strict examination, are respectfully submitted.

JOS. BAYLEY.

Magendie's Treatment of Cholera.

M. Magendie's success in the treatment of cholera has been vaunted in many of the journals, and we have been repeatedly applied to for information respecting the remedies prescribed by him. His treatment consisted in the administration during the cold stage of the following:—

1st. For common drink—℞. Infus. chamomil. ℔iv.; acet. ammon. ℥ij.; sacch. alb. ℔j. M.

2d. Half a glass every hour of the following punch—℞. Infus. flor. Tiliæ Europeæ, ℔iv.; limon. iv.; alcohol, ℔j.; sacch. alb. ℔j. M.

3d. From time to time he give half a glass of the following—℞. Vinum calefac. ℔ij.; tinct. cannel. ℥ij.; sacch. alb. ℥xij. M.

By these stimulants, reäction was sometimes induced, and it was at once concluded that the patient was cured. But violent reäction is not less dangerous than collapse, and M. Magendie's patients relieved from the latter condition by internal stimulants, soon exhibited evidences of congestion of the brain or digestive organs, which resisted, for the most part, general and local bleeding, cold to the head, and the most active revulsives to the feet. The patient became delirious, coma supervened, and death closed the scene.

It is shown by authentic documents in our possession, that the result of M. Magendie's treatment was not less unfortunate than that of his colleagues; he lost more than one-half of his patients.

A careful examination of the results of the various modes of treatment adopted in India, Russia, Poland, Germany, Great Britain and France, has satisfied us that the internal administration of powerful stimulants in large doses, in the collapsed stage of cholera, has been eminently injurious, and such appears to have been ultimately the conviction of nearly all the practitioners who resorted to them. Panic struck, with the utter state of prostration of patients in the collapse of cholera, physicians appear every where to have at first

been led to administer the most powerful stimulants in large and repeated doses, to rouse the action of the heart. Recovered from their first surprise, and admonished by their ill success, and by the violent and uncontrollable reäction sometimes induced, these remedies were subsequently abandoned, or only applied externally, and with incomparably better results.

Health of Philadelphia.

Bowel complaints continue to be the prevailing diseases, and within a few days several cases of cholera have assumed malignant characters.

July 27th the Board of Health reported 2 cases of malignant cholera.

28th	- - - - -	6
29th	- - - - -	6
30th	- - - - -	15
31st	- - - - -	19

The whole number of cases, as near as can be ascertained, is 52, of which, 30 have occurred in the districts, 6 in the Alms-house, 1 in the Arch street prison, and the remaining 15, in the outskirts and dirtiest parts of the city.

Report of the Board of Health for the twenty-four hours, ending August 1st, noon:—

PRIVATE PRACTICE.

CASES.	RESIDENCE.	DEATHS.
1	No. 94 Dillwyn street, N. L.	1
1	No. 1 Clymer street, Moyamensing.	
1	No. 3 do. do. do.	
1	No. 16 Vine street, City.	1
1	Between Race and Vine and Tenth and Eleventh streets, City.	
1	Corner of Bedford and Twelfth streets, Moyamensing.	
1	South side of Cedar above Twelfth street, Moyamensing.	1
1	Peach between Green and Coates's, N. L.	
1	Parham's Alley, Southwark.	
1	Queen near Passyunk Road, do.	
1	Second below Carpenter st. do.	
1	Frankford Road above Bedford street, Kensington.	
1	St. John above Poplar Lane, N. L.	
1	Shirker's Alley, Moyamensing.	1
1	Third st. above Globe Mills, Kensington.	
1	Otter st. near William street, do.	
16		5

Hospitals.	Physicians.	New cases.	Died.	Cured.	Remaining.
Alms-house,	H. L. Hodge,	1	1	1	0
Jones' Alley,	Parrish,	1	0	0	2
Locust st.*	Chapman,	2	1	0	1
Moyamensing,	Thomson,	1	1	0	1
		5	3	1	4

	New Cases.	Deaths.
Private practice,	16	5
Hospitals,	5	3
Alms-house,	1	1
	22	9

By order, WM. A. MARTIN, *Clerk.*

The following table exhibits the whole mortality, and also that from bowel complaints, for the 4th week in July for five successive years.

1828.—4th week, ending July 26th. Whole mortality, 127; of which, the deaths from cholera morbus, were, adults, 3; children, 26; Total, 29.—Diarrhœa, adults, 0; children, 3; Total, 3.—Dysentery, adults, 0; children, 3; Total, 3.—Total from bowel complaints, 32.

1829.—4th week, ending August 1st. Whole mortality, 100; of which, the deaths from cholera morbus were, adults, 1; children, 23; Total, 24.—Diarrhœa, adults, 0; children, 4; Total, 4.—Dysentery, adults, 1; children, 3; Total, 4.—Total from bowel complaints, 32.

1830.—4th week, ending July 31st. Whole mortality, 183; of which, the deaths from cholera morbus were, adults, 0; children, 38; Total, 38.—Diarrhœa, adults, 0; children, 2; Total, 2.—Dysentery, adults, 2; children, 2; Total, 4.—Total from bowel complaints, 44.

1831.—4th week, ending July 30th. Whole mortality, 123; of which, the deaths from cholera morbus were, adults, 0; children, 32; Total, 32.—Diarrhœa, adults, 0; children, 6; Total, 6.—Dysentery, adults, 1; children 3; Total, 4.—Total mortality from bowel complaints, 42.

1832.—4th week, ending July 28th. Total mortality, 147; of which, the deaths from cholera morbus were, adults, 5; children, 27; malignant cholera, adults, 8; Total, 40.—Diarrhœa, adults, 3; children, 4; Total, 7.—Dysentery, adults, 2; children, 5; Total, 7.—Total from bowel complaints, 54.

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* A white woman was brought from the Alms-house in a dying state, and expired soon after admission.

Liability of Negroes to Cholera.

An impression appears somehow or other to have got abroad that negroes are not liable to be attacked with cholera; such a notion, however, has no foundation. In New York, it has been observed that they have enjoyed no greater immunity than the whites, and the natives of India, whose constitution much resembles that of the negro, were more liable to cholera than Europeans. There is ample grounds for fearing that the disease will be productive of terrible mortality among the slaves of the southern states, and proper measures of hygiene should be promptly adopted; and on the very first symptoms of derangement of the digestive organs, remedial measures immediately resorted to.

Cholera at New York.

It affords us pleasure to notice that the cholera is abating in our sister city. During the last few days, the number of cases have considerably diminished, and though accidental causes may occasionally interrupt their constant decrease, it is manifest that the epidemic has reached its height and is on the decline.

The report for the twenty-four hours, ending Tuesday, July 31st, at 12 o'clock, announces—

In private practice, new cases,	59, deaths,	23
Hospitals - - -	52 - -	20
Bellevue - - - -	1 - -	3
Harlaem and Yorkville -	9 - -	2
Total - - -	121	48

The number of interments during the week, ending Saturday, July 28th, were 879; of which, there were from cholera morbus, 10; malignant cholera, 689; cramp in the stomach, 1; diarrhœa, 3; dysentery, 4; cholera infantum, 18; inflammation of the bowels, 4; inflammation of the stomach, 2.

Montreal.

The following is a statement of the cases and deaths from the commencement of the epidemic to the 14th of July inclusive:—

		Daily cases.	Daily burials.	Total cases.	Total deaths.
June 10th to	15	- - - - - - - - - - - - - -		1328	175
	16	381	86	1709	261
	17	474	102	2183	363
	18	261	128	2444	491
	19	337	149	2781	640
	20	165	94	2946	734
	21	151	76	3097	810
	22	109	52	3206	862
	23	83	31	3289	893
	24	51	21	3340	914
	25	44	33	3384	947
	26	27	23	3411	970
	27	21	26	3432	996
	28	22	20	3454	1016
	29	37	21	3491	1037
	30	32	22	3523	1059
July	1	23	17	3546	1076
	2	13	20	3559	1096
	3	11	14	3670	1110
	4	23	17	3593	1127
	5	22	13	3615	1140
	6	19	4	3634	1144
	7	13	9	3647	1153
	8	14	11	3661	1164
	9	10	9	3671	1175
	10	7	6	3678	1184
	11	14	10	3692	1190
	12	15	10	3707	1200
	13	9	10	3716	1210
	14	8	10	3724	1220

NOTICE.

The American Journal of the Medical Sciences.

The August No. of this Journal will be delayed a few days in consequence of the illness of the Editor. The No. will contain copious details of the cholera of Paris by two American physicians who were in that city during the prevalence of the epidemic, a review of the principal works on cholera, and the Periscope will be enriched with various documents relative to that disease.

PHILADELPHIA—CAREY & LEA—CHESNUT STREET.

THE

CHOLERA GAZETTE.

VOL. I. *WEDNESDAY, AUGUST 8th*, 1832. No. 5.

M. Petit's Treatment of Cholera.

The principal indication which M. Petit, one of the physicians of the Hôtel-Dieu de Paris, proposes to himself to fulfil, in the treatment of cholera, is to keep up a constant impression upon the spinal marrow, and to change the phenomena of innervation. To effect this he places over the whole length of the spine a strip of flannel, wet with a liniment composed of an ounce of the essence of turpentine and a drachm of aqua ammonia, and passes slowly over it a very hot flat-iron. An instantaneous evaporation of a great part of the liniment results, which acts powerfully on the skin over the spine, and induces very speedily vesication. The heat returns to the skin, the cramps and vomitings disappear, the circulation is reëstablished, and the patient feels much better. The effects of this remedy are assisted by hot bricks to the limbs; by frictions to the body with a decoction of mustard, to which some aq. ammonia is added, and the patient is also made to drink copiously of balm and mint tea. A table-spoonful of the following potion is likewise given every hour:—℞. Aq. distil. Tilleæ Europeæ; aq. distil. melissæ, āā. ℥ij.; tinct. opii, gtt. xx.; syrup. ether. ℥j. M. Finally, the patient is rubbed all over with a liniment composed of camphorated oil of chamomile, ℥ij.; laudanum, ʒij.; liquid ammonia, ʒj.

M. Petit is said to have been more successful than most of his colleagues in the treatment of cholera. In a communication to the Academy of Medicine he states that under the above treatment two-thirds of his patients have recovered.

On Density of Population.

Density of population in cities becomes a matter of extreme importance connected with the visitations of pestilential diseases. A

too crowded population may of itself engender a pestilence, and must inevitably aggravate one should it prevail from other causes. Hence the necessity which occasionally arises of thinning the inhabitants of certain districts—an exigency which, like that of war, often subverts civil authority, and demands the exercise of the most arbitrary power. We have recently seen our New York neighbours compelled to thin the population in some parts of their city, and we may yet be forced to have recourse to a similar measure. Upon this subject there are some interesting calculations furnished in Hazzard's Register, (Vol. VIII. No. 5,) where may be found an interesting table, exhibiting the number of square feet in each ward of our city, together with the population at each census from 1790 to 1830, and the number of square feet to each inhabitant. From this table it appears that the increase in density of population throughout the city plot, has been in the following proportion during the forty years embraced in the estimate.

In 1790 there was	1	person to	1755	square feet.
1800	"	1	"	1216
1810	"	1	"	933
1820	"	1	"	986
1830	"	1	"	623

Viewing the wards separately, we find that, in 1830, there was one inhabitant to every 313 square feet of superficies in the eastern division, and one to 979 of the western.

Eastern Wards.	New Market ward had	1 to	236
	Lower Delaware	1	243
	Pine - - -	1	248
	Upper Delaware	1	318
	Chesnut - -	1	341
	Walnut - -	1	398
	High - - -	1	402
	Dock - - -	1	416
	Average		313

In the western wards, where there is a large proportion of unoccupied ground, the density varies from 840 to 1354 square feet to each inhabitant—the average being 979.

The propriety of legislative enactments limiting the maximum density of population, and the space allowed to be occupied by buildings, so as to ensure sufficient ventilation, &c. seems to us to be manifest. We shall take a future opportunity of offering some further remarks on this subject.

Injection of Saline Solutions into the Veins.

(Continued from page 55.)

No. 4.

Letter from Dr. Lewins, to the Secretary of the Central Board of Health.

Results of the Injection Practice in the Drummond-street Cholera Hospital, Edinburgh.

Sir,—You will receive from Dr. Latta, the details of two or three cases treated by saline injections. We have both been so much occupied to-day, that we have not had leisure to get our communications ready to be sent in the same envelope. We steal an hour from the time usually allotted for rest to write to you. In case Dr. Latta should omit to mention the circumstance, I beg to mention that his patient, Cousins, the woman who was injected to the amount of three hundred and seventy-six ounces, and who promised to do well, for a considerable time, was a person of very dissipated habits.

In the Drummond-street hospital six patients have been injected, and three recovered, or are recovering. In the three that died, extensive organic disease was found on dissection; disease that had existed previously to the attack of cholera.

I send herewith the report of two cases, treated by Dr. Craigie of this place, which, at my request, he furnished me to-day for the perusal of the Board.

I intended to have sent an account of an interesting fatal case, the only one in which the venous injection may be said to have fairly failed where it was fairly used; that I shall do to-morrow.

I have the honour to be, sir, your most obedient servant.

ROBERT LEWINS, M. D.

Leith, May 27th.

No. 5.

Details of Two Cases of Malignant Cholera treated by Venous Injection, by Dr. Craigie, of Leith.

No. 1. Case successful. 15lbs. injected at intervals in nine hours.—Martha Smith, aged thirty-eight, a noted drunkard, thin and debilitated, in sixth month of pregnancy, admitted into the hospital at 8 P. M. May 16th, 1832.

It appears she had had vomiting and purging since Sunday morning, 12th inst. Cramps came on about four hours ago in both legs; great evacuations both upwards and downwards like dirty water. The countenance is now collapsed; eyes sunk; tongue cold; pulse imperceptible at wrists; very small in brachial artery; 124.

℞. Muriat sodæ, ʒiij; Carbon sodæ, ʒi; Aq. calid. ℔vj. solve. Ft. Enema statim injiciend. Sinapisms to spine and epigastrium; let her be placed on heated tin mattress.

Nine A. M. Has a good deal of vomiting; is getting warmer; pulse now per-

ceptible in right wrist; tongue warmer; she allows the enema to come away without giving notice to nurse. Saline enema as above, with the addition of white of eggs, to be repeated every half hour.

Ten. Vomiting and purging of watery fluid, with slimy matter in it.

Half-past ten. Cramps have returned severe in left leg; pulse again imperceptible; urgent thirst, and constant vomiting. *Rep. enema et pulveres effervescentes.*

Half-past eleven. Breathing becoming much affected; extreme restlessness; cramps severe in legs, and every symptom of sinking. Let the following saline solution be injected into one of the veins of the arm.

℞. Muriat sodæ, ʒi; Carbon sodæ, gr. x; Aq. calid. ℔iij, solve temp. 105° Fahr.

Noon. When about ℔i. had been thrown in, the pulse was perceived to flutter at the wrist, and gradually strengthened as the injection was proceeded with. By the same ℔iiiss. had been injected, the countenance, which was before quite death-like, now beamed with the appearance of health, and she began to converse freely. Pulse 96, moderate. To have ʒi. gin in warm water with sugar.

Half-past one. The gin was immediately rejected. Pulse has again gradually become imperceptible, and respiration quick and laborious.

Two. Let the venous injection be repeated to ℔vij.

The effect of the injection, as formerly, was very striking. To see an individual who seemed *in articulo mortis* brought back, as it were, in so short a space of time to an apparently tolerable state of health, could not but astonish the beholder. Before the injection was finished the pulse had returned to a nealthy fulness and firmness. Expresses herself much relieved; no purging, but vomits much serous matter.

℞. Muriat sodæ, ʒij; Carbon sodæ, ʒi; Alcohol. dilut. ʒi; Aq. calid. ℔iij. M. ft. enema statim injiciend.

Four. Enema retained about an hour and a half; surface of body now comfortably warm; she has not passed more fluid by stool than was thrown into the rectum.

Six. Has slept softly for an hour; the first sleep she has had for many days.

℞. Subm. hydrarg. gr. v; Pulv. opii, gr. ss. M. sumat stat. et rep. 3tia quaque hora.

Nine. Complains much of vomiting and sense of weakness; countenance rather collapsed; breathing rather difficult.

Let ʒlxxx. be injected into the veins again gradually.

After the first few ounces were thrown in she complained of an acute pain at the epigastrium, and faintness, probably arising from the fluid being thrown in too fast upon the heart, or from the passing of a bubble or two of air, which may have got in from the inaccuracy of the injecting apparatus used. Be that as it may, the circulating system was so much affected, that the pulse, from being distinct though feeble, became quite imperceptible, but on stopping the injection for a few minutes the pulse gradually returned, and the pain abated. She expresses herself as always getting relief from the operation.

Eleven. Vomiting continues urgent.

App. emp. cantharid. epigast. Effervescing draughts occasionally.

May 17th. Has passed about ℔j. of urine, of natural appearance; this is the first she has made since she was brought in.

From this time she went on gradually to improve, but stomach continued very irritable, and the matter vomited was bilious.

21st. Labour pains came on, and she was delivered of a still-born female child.

22d. Symptoms of phlebitis in right arm came on, proceeding from the wound upwards, but this yielded to the ordinary treatment, and she may now be considered out of all danger, though she is not yet reported cured.

THOMAS CRAIGIE, M. D.

Leith, May 26th, 1832.

No. 2. *Case fatal—appearances on dissection.*—George Cousins, aged ten, was brought into quarantine at nine, A. M. 13th May, on account of his mother being ill of cholera. About an hour after admission began to vomit and purge, and it appears he has had diarrhœa severely all the morning. Pulse 102, extremely weak; complains much of sickness; countenance collapsed; areolæ rather dark under the eyes; voice very weak.

He had hot air-bath immediately, and got the following dose:—

℞. Ol. ricini, ℥ss; Tinct. opii, gtt. xv; Aq. menth. pip. ℥iss. M. ft. haust.

Half-past eleven, A. M. Draught retained; sickness has gone off; complains of heat of bath; let it be removed.

Noon. Has vomited some watery matter, with undigested potatoes in it, and again a rice-watery fluid with flocculi. He has now a considerable degree of jactitation; countenance more sunk, and great desire for cold water. These symptoms went on increasing in severity in spite of sinapisms to spine, effervescing draughts, calomel, and Dover's powder, warm water, enemeta, &c., and head symptoms were now making their appearance.

Half-past two P. M. Pulse quite imperceptible, and has been so for an hour and a half; he lies quiet and drowsy, with eyes turned upwards; face bedewed with cold perspiration; hands and feet cold and very blue.

My colleagues, Drs. Combe and Lewins, saw him with me at this time, and concurred with me in thinking him not only beyond all hope of recovery, but likely to die *within an hour or two.*

From what I had seen of the resuscitating powers of Dr. Latta's treatment on the boy's mother this morning, by venous injection, I determined on giving it a trial, though this was a case rather likely to bring discredit on the remedy than otherwise. The following solution, at temperature 102° F. was slowly injected into the median basilic by means of a common silver blow-pipe attached to Reid's enema syringe:—

℞. Muriat sodæ, ℥i; Carbon sodæ, gr. x; Aq. calid. ℔vj. solve. T. 102.

Three P. M. A few minutes after the injection was commenced the pulse returned to the wrists, the blueness and coldness of the extremities gradually wore off; the countenance was much improved; and the whole fluid was injected within twenty minutes.

Half-past three P. M. He has now a healthy, blooming appearance; is sitting up in bed, and looking about him as if awoke out of a dream. Pulse 110, natural; extremities of good colour and warm; voice much stronger.

Half-past four P. M. Pulse has been gradually falling off since last report; is getting listless, and dislikes to be troubled with questions, breathing becoming laborious, and head symptoms more marked, with squinting to a slight degree superadded.

Seven P. M. Pulse again imperceptible; respiration quick and laboured; countenance collapsed; tongue and breath cold; says he is dying.

Let the venous injection be repeated to ℔iij.

Half-past seven P. M. Pulse immediately returned, of natural strength and fulness, and continues so.

Nine P. M. Lies very quiet; pulse good; breathing more natural; surface of body covered with warm perspiration.

Ten P. M. Large watery evacuations from the bowels came on soon after last injection; the quantity cannot easily be guessed, but must have been considerable, as it is running through the mattress on the floor. Pulse scarcely perceptible; screams loudly like a child in hydrocephalus.

Eleven P. M. Pulse quite imperceptible; is sinking fast; venous injections attempted a third time, but desisted from as it was not productive of the first good effects. Both pupils much dilated. Died at two A. M. 14th.

Dissection fifteen hours after death.—On exposing the brain and spinal marrow, but before opening their investing membranes, the least pressure with the fingers on the middle of the hemispheres of the brain caused a remarkable undulating down to the middle of the back, showing the existence of a fluid beneath the membranes, and on opening them about two drachms of pure serum flowed out.

The surface of the brain was rather vascular, and the blood in the most minute vessels particularly bright. A few ecchymosed spots on its surface. All the other viscera were found healthy. The urinary bladder contained about half an ounce of urine.

THOMAS CRAIGIE, M. D.

Leith, 26th May, 1832.

No. 6.

List of Queries addressed to Drs. Lewins and Latta, by the Central Board of Health, London, relative to the preceding cases, &c.

QUERIES BY THE CENTRAL BOARD.

1. Were any of your patients bled previously to, or after the saline injections into their veins?

2. Were the evacuations by purging, vomiting, or perspiration, increased by the injections?

3. Did any of the patients submitted to the saline injection plan die; and if examined after death, what were the appearances.

4. Had the pulse at the wrist absolutely ceased, and for how long; or had blueness of the surface taken place, and to what extent, in any of your patients before the injection of the saline fluids; and how many of such patients recovered under that treatment?

5. Had suppression of urine been *perfectly* established, and for how long, in

any of your cases previously to the saline injection, and what effect did that practice appear to produce on the urinary secretions?

6. What effect did the injections appear to have on the temperature of the patient?

7. Were the blood and evacuations analysed before and after the injections.

8. Did consecutive fever occur in any, and if so, in how many of your cases, whether successful or otherwise?

9. Was the quantity of the evacuations noted before and after the injections in any of your cases?

10. Please to give the details of two or three cases treated by saline injections, with age, condition of life, temperament, habits, &c., and particulars of such other treatment as may have been adopted in addition to the saline injections.

ANSWERS BY DR. LEWINS.

1. None before. One to the amount of twelve ounces immediately after the first injection.

2. The evacuations by purging and vomiting, in most of the cases continued. In some of them the purging, the discharge from the bowels at least, was increased. Perspiration was increased in all.

3. Yes; no less than ten of the fifteen that have been injected up to the present day; but under such circumstances as do not detract from the general merits of the practice: this will be made evident by the history of the cases that will be sent by to-morrow's post.

4. Yes; even at the axilla in some of the cases, blueness of the surface had taken place to a considerable extent. Five of these patients recovered.

5. Complete suppression, I think, in all except two, and for hours. In all the successful, and in some of the unsuccessful cases, the effects of the injection in restoring the secretion of urine were most evident.

6. The injections raised the temperature of the body; but in all the successful cases, where the veins were injected, the patients complained of cold soon after the injection.

7. Neither the blood nor the evacuations were analysed, but I sent some of the blood of a patient that had been injected by the veins, to Dr. Reed for analysis to-day.

8. The consecutive fever in all the patients who were injected, has been slight.

9. No; but they were excessive in most of the cases.

10. Question ten shall be fully answered by to-morrow's post.

ROBERT LEWINS, M. D.

6 *Quality Street, May 26th, 2 o'clock, A. M.*

No. 7.

Latest Communication from Dr. Lewins to the Secretary of the Central Board of Health.

Sir—The urgency of my present private and public duties prevents me from

communicating more to you to-night than the following brief particulars of a case that occurred at the Leith Cholera Hospital yesterday:—

A woman of about forty years of age, was admitted on Sunday evening at 7 o'clock. She was *pulseless*, even at the axilla, *sightless*, *cold*, and *blue*, over almost the whole body. *Respiration* very slow and irregular—in a word, she was all but lifeless. It was feared she would be dead before the operation of injecting could be commenced. Between 7 at night and 2 o'clock next morning, there were thrown in two hundred and eighty-four ounces, upwards of twenty-three pounds. The report of her situation at 2 on Monday morning, in the hospital book, is as follows:—"A change for the better, that appears almost miraculous, has taken place. The action of the heart is greatly improved; respiration not in the least laborious, but quicker than natural; pulse 120, small, but distinct. She can articulate distinctly; countenance natural; lips red; tongue moist and warm; she perspires freely; heat over the whole body natural."

A full report of this wonderful case shall be forwarded soon.

I remain, Sir, &c.

ROBERT LEWINS.

P. S.—In one, the pulse had ceased at the wrist eight hours before the injection. Dr. Alison had seen the patient eight hours before the operation, and the pulse was then imperceptible.

Quality Street, Leith, May 29th, 1832, 1 *o'clock, A. M.*

Origin of the Cholera at Quebec.

Board of Health, Quebec, June 25th, 1832.

The undersigned, appointed by the Board of Health to investigate and report upon the introduction and treatment of the cholera, now existing in this country, have agreed to the following Report, which they respectfully submit.

The disease, on its first appearance in this city, exhibited all the characters of that commonly called the Asiatic or Spasmodic Cholera. It commenced about the 8th instant, in boarding houses and taverns in the Cul-de-Sac—a low, uncleanly, and ill-ventilated part of the city—crowded with emigrants of the lowest description, with sailors and other persons of irregular habits.

About the fourth day of the disease, (the 12th,) it showed itself in the more elevated parts of the city, among the wealthier classes of society, and persons of sober and regular habits, who could have had but little, if any, direct communication with the people among whom the disease had first appeared.

About the same date, (the 12th,) the disease was observed in various parts of the city, and in several neighbouring parishes, some few miles distant, having a constant intercourse with it.

The cases continued to increase in number until about the 16th or 18th, (being the 8th or 10th day of the disease,) when they began to subside, both in number and in violence—the disease still prevailing more extensively in the ill-ventilated parts of the city above mentioned. About the period of its greatest prevalence, (the 8th or 10th day of the disease,) the number of cases was estimated to be between 250 and 300, in the course of twenty-four hours.

The undersigned have not as yet been able to discover that any case of cholera has been landed from any vessel in the harbour, before nor until several days after its first appearance in the city.

They deem it necessary to add, that some parishes in the neighbourhood of Quebec have continued free from the disease until lately, and that no case appears to have yet occurred at Three Rivers, an intermediate and populous town between Montreal and Quebec, where the steamboats with emigrants from Quebec, generally arrive.

Since the appearance of this malady, only two soldiers have been attacked in Quebec, and those while on duty—the rest being closely confined to their quarters.

The symptoms were the most violent at the commencement, and continued so until about the 16th or 18th, when they began to mitigate in severity, as the cases diminished in number.

In the treatment of this disease, recourse has been had to almost every remedy favourably reported of by European practitioners, and they all have had, for a time, their advocates—some preferring stimulants, others opiates, while others satisfied themselves with an intermediate plan of treatment—the whole of the medical practitioners with one accord agreeing, however, in the application of external stimulants, such as oil of turpentine, mustard, warm applications and frictions; calomel and opium have been much relied on by many. Practitioners speak with confidence of blood-letting at the onset of the disease, and before an approach to collapse has been recognised. Sweating has been much practised, and decidedly with advantage, when it is not allowed to run into that state of collapse indicated by a pulseless wrist, dejected countenance, blue extremities, tongue and breath cold, and a sunken voice, feeling as if it passed through the ears.

Some instances have been noticed, and also observed by our intelligent clergy, as well as by ourselves, where, in some mild forms of the disease, nature effected a cure by copious perspiration, encouraged by warm drinks and extra clothing.

The undersigned, with one accord, have found purgatives injurious, if used before perspiration or blood-letting had been resorted to, to allay the irritable state of the stomach and bowels; and then only the milder purgatives should be employed, such as calomel or blue pills, guarded with minute doses of opium, and carried off, after a few hours, with rhubarb, combined with soda and carbonate of ammonia.

Signed, Jos. Morrin, Health Commissioner; W. A. Hall, Resident Physician; F. X. Tessier, Health Officer; Wm. Lyons, Superintendent of the Emigrant Hospital.

Origin of the Cholera at Sunderland. By T. M. Greenhow, Esq. of Newcastle.

The assumed capability of Cholera being conveyed by shipping from one country to another, on which our system of quarantine is founded, very naturally gave rise to the suspicion, when it first appeared in the port of Sunderland, of its having been imported from some place on the Continent, where it was known to prevail; and several stories were in circulation descriptive of the

manner in which it had thus been introduced. I shall not here repeat any of these tales, suffice it to say that none of them have been in any degree authenticated. That the ships which were blamed for having committed the mischief, were found to have been from uninfected ports, their bills of health clean, and their crews healthy; in point of fact they were fairly acquitted of the charge; and I believe the conviction is now almost universally entertained by the inhabitants of Sunderland, medical and non-medical, that the disease did not reach that place from any foreign source whatever. It may be further stated that the first case of cholera which took place in this part of the country, was at a considerable distance from Sunderland, having been at a small village called Team, about two miles south-west of Newcastle. This case occurred to Dr. Alexander, of Newcastle, on the 4th of August, 1831. The details are given in the Appendix, No. I.; other cases occurred at Newcastle simultaneously, if not before the regular appearance of the disease at Sunderland; although want of experience of its true characteristics, and unwillingness to believe in the fact, induced medical gentlemen to endeavour to prove that these were not cases of the new disease; yet subsequent observation has sufficiently proved their identity, and, I believe, it is now generally admitted. Such were the cases of Oswald Reay, which occurred in October, of William Armstrong in the beginning, and of Robert Jordan towards the end of November. On the 7th December the next case occurred, that of Maria Mills, with which commenced the official reports of the Board of Health of this place. The strictest inquiries respecting the origin of these cases have failed to obtain the slightest evidence of their having arisen from any infected source, and seem to prove, in the most satisfactory manner, that, however the disease may have since extended itself, its commencement in the country was spontaneous, upon whatever causes it may have depended.

On Asiatic Cholera Morbus. By Paul M. Eve, M. D. of Augusta, *Georgia.*

Believing it criminal to withhold from the medical profession any thing on the Cholera Morbus at this moment, and conceiving it a duty to comply with the request of the editor of the American Journal of the Medical Sciences, I send the following observations which were made last summer while I was in Europe. I had felt a reluctance to make a further communication to the public on this engrossing subject, which was warranted and justified from my late situation in the Polish army; my time and attention having been almost exclusively devoted to surgical cases, and opportunities of investigating this disease having been comparatively limited. If it is thought, however, that my observations, imperfect as they are, and that my opinion, humble as it is, can in any way serve my fellow-labourers in the treatment of this modern plague, I most willingly and cheerfully present them my views on the subject.

As I have neither time nor inclination to write a long article, I will briefly state the principal symptoms of the Asiatic Cholera Morbus, the appearances on dissection, and then deduce from them the treatment. An attack is usually preceded by diarrhœa or by uneasiness in the stomach and bowels for some days, or is suddenly announced by vomiting and purging, commencing about three o'clock in the morning, when the temperature is lowest of the twenty-four hours; and is followed and accompanied by cramps or spasmodic contrac-

tions of the abdomen. There is great prostration of the animal powers; shrinking of the external parts, particularly of the features, which assume in many places as well as the fingers and toes, a leaden or purple appearance; a cold and moist or even a wet skin, conveying when felt, the sensation of touching a frog; great thirst; the tongue is blue and cold, or moist and partly covered with a white fur; the pulse is either imperceptible at the wrist or is quick, frequent, feeble and intermitting; respiration is slow and very difficult; the voice is much altered, questions and answers being made in a low whisper; the secretions, particularly of the kidneys, are diminished, except into the alimentary canal, where they are altered and augmented, without however any bile; purging and vomiting, sometimes one only, but generally both; first the contents of the stomach and intestines are discharged, and then a peculiar whitish fluid resembling rice-gruel or sero-albuminous matter; and lastly, cramps of the extremities, most frequently of the legs, and which may be compared to a bayonet piercing the calf or most muscular part.

The appearances after death, were almost constantly the same. The external parts were very much diminished in size; the extremities, the nose, lips, eyelids, cheeks, &c. were of a bluish or livid colour, and the skin was wrinkled upon the hands and feet. The vessels of the brain in some subjects contained black blood, but generally there was nothing peculiar in the contents of the cranium. There was more blood in the spine, probably arising from position. The heart, lungs and large vessels were filled with a fluid resembling tar in colour and consistency. Two hours after death it was liquid and appeared like venous blood; but at twenty-four hours it seemed deprived of serosity and of the property of coagulation, and albuminous concretions were found in the heart. The stomach and intestines were either empty or contained matter similar to the vomitings and purgings; their coats were contracted and paler than in a natural state, or as was most frequently the case, presented all the varieties from congestion to sub-inflammation. The liver and vena portæ were distended with black blood, and the gall-bladder with tenacious, dark yellow, or green bile. In almost every case the bladder was found empty and contracted.

From the above symptoms and results of post mortem examinations, it would seem that the pathology of the cholera morbus may be explained by a want of oxegenation of the blood, which becoming surcharged with carbon is unfit to stimulate the heart to contraction, and hence the congestion upon the internal and vital organs at the expense of the surface and extremities. With this pathological view of the disease, and from the positive fact of there being a centripetal action of the blood, is easily deduced the principle of conducting its treatment—the equilibrium of the circulation must be restored or death will ensue. Now, mechanically speaking, there are two ways of affecting this object, either by introducing a power which will give the blood a centrifugal direction, or calling it back to the surface, by direct external applications. But the animal economy is governed by other as well as mechanical laws; the vital properties of the heart are oppressed, its energy is diminished, and its power of reäction impaired by an accumulation of blood, and this is peculiarly the case when the blood is black or not oxegenated; the stimuli or powers introduced to rouse its action would therefore be worse than useless; besides, we usually address the heart through the stomach, which is in such an irritable state as to reject even the mildest article. Upon the surface, on the contrary, there is a want of action, and stimuli are called for to excite the skin; to restore

its lost or increase its feeble circulation, and thus draw the blood and heat from the internal parts of the extremities.

The plan of treatment which I have found most successful, consisted in varying the following means according to circumstances. Within the first four hours after an attack, bleeding will generally be necessary; but when prostration has ensued and when the surface is covered with cold sweat, leeches to the epigastric region, or cupping followed by warm fomentations or mustard plaster or blister, together with frictions and heat to the extremities, will afford the greatest and most speedy relief. Notwithstanding the various and multiplied articles of the materia medica which have been recommended, as opium, calomel, oxide of bismuth, cajuput oil, spirits, &c. to allay vomiting and purging and calm spasms, I must give my decided preference to dermoid applications, which invite the blood from the heart, lungs, liver, stomach, &c. the congestion of which produces these symptoms. I do not deny that there are cases which can be, and are relieved by medicines; but, since we possess no remedy which can drive the blood from the centre to the surface—since all internal medicines are apt to excite vomiting, one of the most painful, distressing and fatal symptoms of cholera—and moreover, since we possess means which can be easily managed and varied to suit circumstances, and whose action is plain and evident to the senses—I cannot forsake them to launch upon the sea of experiment and conjecture, in the treatment of this rapid disease. The language of those who advocate the administration of internal remedies, is to give so much of a mixture or so many pills, and if they produce *vomiting*, repeat the dose; but if a cure is to be effected by relieving the symptoms, why give those medicines which excite or aggravate them? An infusion of peppermint, or the oil or essence of this plant, with a few drops of laudanum, in a little warm brandy and water, is what I have found best adapted for internal use; and even this should be prohibited when it produces vomiting. This symptom is often so distressing and so easily excited, that the stomach will reject whatever is presented to it. In such cases, I rely upon the horizontal position, perfect rest, and heat and frictions to the abdomen and extremities, without administering any thing internally. The warm bath I have known to be of great service, but the time necessary to prepare it and the exposure of the body to the air, are serious objections to its general employment. The same will not hold good in relation to the vapour bath, where the patient can be kept continually warm. Excessive thirst is best relieved by cold gum water, or by a piece of ice dissolved in the mouth.

Having enjoyed an opportunity of comparing the practice of the English, French, German and Poles, while stationed at Warsaw, in the months of May, June, July, and August, of the past year, and having experienced personally the disease, I feel some confidence in recommending the above treatment of the Cholera, to the American practitioner of medicine: and in support of its correctness and superiority, I will state that at Wisnia, a town of Gallacia, out of two hundred and forty persons attacked with it who were subjected to cutaneous frictions, and to the internal use of only an infusion of chamomile and peppermint *two alone died.*

To prevent an attack of cholera, cleanliness and sobriety ought to be most rigidly observed. All sudden or great impressions upon the system, as changes in the temperature of the air, cold and moisture, or emotions of the mind, excessive joy, fear, and the depressing passions, should be carefully avoided. The body to be kept moderately warm, a belt of flannel is recommended to be

worn; and the mind calm, and confiding in a protecting Providence. The diet should be regular, and without any material change in the accustomed repasts. Emetics and purgatives are to be avoided, and certain articles of nourishment which are known to predispose to colic, or cholera affections; these are bad beer, sour-crout, cabbage, salad, beans or peas, spinage, cucumbers, pickles, unripe sour fruit, musk and water melons, cold meats, sour milk, &c. Good soups, beef, mutton, veal, fowls, eggs, Irish potatoes, bread, and tea in preference to coffee, should constitute the principal food of those who inhabit an infected district.

After all that has happened to admonish us, we can still hope that the cholera may not reach the Southern States. Its general course has been northwestwardly; from Calcutta it reached the Russian Empire; from Constantinople it passed to Great Britain. Although it existed in Hungary and in Vienna, still Lombardy, Switzerland, and Italy, have escaped; and the same thing is applicable to France and Paris, in relation to Spain and Portugal. It has not even existed in cities of the South of France, and Quebec and Montreal are nearly in the latitude of Paris; besides, these two Canadian cities are remarkable as being the most filthy and ill-ventilated of America. If it has progressed in a north westwardly direction, and if it has avoided a southern latitude in Europe, why may we not escape its dreadful ravages? Let us, however, be prepared to meet it, that if it ever does come, we may be ready to cure the distressed, to relieve the afflicted, and to lessen the sufferings of the dying victim.

Augusta, June 30th, 1832.

Non-Purgative Salts in Cholera.

The following statement, relative to the treatment of cholera in the prison at Cold Bath Fields, are interesting, and are said by the editor of the London Medical Gazette, to be entitled to entire confidence as to its accuracy.

"The first twelve cases occurred in the vagrant's ward, and the patients were attacked soon after some prisoners had been admitted from St. Giles's, and other infected districts. The first case that was reported as cholera, occurred on the 5th of April. This man was suddenly attacked, and died after a very short illness with all the symptoms of the prevailing epidemic.

"When the first cases occurred, there were in all about twelve hundred persons in the prison; but, up to the beginning of this month, they were not afflicted with bowel complaints, nor, in fact, with any other epidemic disease, being as healthy as they generally are at that season of the year.

"The first four cases were treated in the common way, with brandy and opium, an ammoniated mixture, ginger, sinapisms to the region of the stomach, the hot air-bath, &c. &c.; and all of them died after a short illness.

"Since the 4th of April, up to this date, (April 17,) forty cases in all have been under treatment. Of this number, nineteen were admitted into the Observation ward with the premonitory symptoms of cholera. All of these had bowel complaints and suspicious ejections; some of them complained of severe pain in the abdomen, sickness of the stomach, and in several cases these symp-

toms were attended with cramps, chiefly in the lower extremities. The whole of them were immediately treated by Mr. Wakefield with non-purgative saline remedies, recommended by Dr. Stevens, and in general they were convalescent in one, two, or three days, from the commencement of this practice. From this we may infer, that where the disease is attended to early, and *properly treated*, the state of collapse may be prevented in nineteen cases out of twenty.

"We must state, however, that as the numbers increased, it became necessary to dismiss those that appeared to be least ill, on purpose to make room for others. Of those that were dismissed as convalescent, two were reädmitted soon after in a state of collapse, and though every attempt was made to save them, yet they both died after a very short illness, with the symptoms of cholera in its most virulent form. With the exception, however, of the two that died, none of the cases, (seventeen in number,) were reported to the Central Board, partly, we believe, from a wish to avoid spreading alarm with respect to the prison, and partly because the disease was checked in the beginning; consequently, the patients had not *all* the symptoms of cholera, such as occur in the worst cases, or in the last stage.

"In addition to the above seventeen which were not reported, there were twenty-one cases where the symptoms of cholera were very distinctly marked. Of this number, four of the early cases were treated in the common way, with diffusible stimuli, &c. &c., and all of them died after a short illness. These, with the two cases of relapse from the Observation ward, make in all six deaths. Mr. Wakefield, however, having lost all faith in the common treatment, changed the practice:—at the request of Dr. Stevens, the other fifteen cases were put under the saline treatment, and all of them recovered.

"When the patients were first admitted, the following powder was immediately given, either in half a tumbler of tepid water, or occasionally in a little thin, clear, beef-tea:—

"Supercarbonate of Soda, ʒss. Muriate of Soda, ℈j. Chlorate of Potass, grs. vii.

"The above was given every hour, and continued until the patients were recovering from the state of collapse; after which it was diminished in frequency, in proportion as the reäction increased.

"In all these cases, the outline of the practice was nearly the same; but in several instances the treatment was varied according to circumstances. When the stomach, for example, was extremely irritable, it was found that the carbonate of soda, given by itself, or the tartrate of soda, in a state of effervescence, were the most effective remedies that could be used on purpose to allay the irritation, so as to enable the stomach to retain the stronger salts.

"During the progress of the disease, an enema, with a large table-spoonful of muriate of soda, dissolved in warm water, was administered with or without sugar, starch, &c. every three or four hours, at as high a temperature as the patients could well bear it. Sinapisms were also applied as early as possible to the region of the stomach, betwixt the shoulders, &c.; and in the cold stage, frictions were also frequently used with warm towels. Of the seventeen cases that were treated in this way, two died, (namely, the two patients who were reädmitted in a state of complete collapse,) making in seventeen cases, two deaths, and fifteen recoveries. But including the whole of those that were under the saline treatment, the total amount is, in thirty-six cases, two deaths, and thirty-four recoveries.

"The cases in question were under the care of Mr. Wakefield, the medical attendant of the establishment, and during his absence they were attended to by Mr. J. Wm. Crooke, who kept notes of the cases, and saw that the medicines were properly administered. We may add, also, that Mr. Wakefield, with a degree of fairness which does him great credit, invited Dr. Stevens to attend along with him to witness the effect of the saline treatment, which has here, we may say, for the first time, been fairly tried in this disease.

"We can also state, that the cholera made its appearance about the same period amongst a small colony of Italians, who live in a narrow lane within a few hundred yards of the prison. Of these, eleven were attacked. The three first cases were treated by bleeding, brandy, and opium, all used at the same time, and they all died. The other eight cases were attended by Mr. Whitmore, a surgeon in the neighbourhood, who, having witnessed the effects of the saline treatment in the prison, adopted it. All his patients speedily and completely recovered, except one, who, on the 13th, was so ill that he was not expected to live many hours; even he, however, is now in a state of convalescence. *Thus there have been in all fifty-three cases, seven of which were treated in the common way, with diffusible stimuli; and out of this number seven died; while, of the forty-six that were under the saline treatment, there were two deaths and forty-four recoveries.*"

Cholera at New York.

The decrease of cholera at New York during the past week has been exceedingly slow; nevertheless, there can be no doubt that the disease has passed its zenith in that city.

	No. of cases,	deaths*
August 1st,	92	53
2d,	81	56
3d,	90	38
4th,	88	54
5th,	96	39
6th,	101	51
7th,	89	28
Totals,	637	319

Whole number of deaths in New York during the week ending 4th August, according to the city inspector's report, 580, of which 383 were from malignant cholera, 1 cholera morbus, 5 diarrhœa, 8 dysentery, 30 cholera infantum, 2 inflammation of the bowels, and 10 unknown.

The whole number of cases of malignant cholera from the 1st July to 7th August inclusive, reported by the Board of Health, 4497; number of deaths as reported by the same, 1799. The report of the City Inspector, which is manifestly the more accurate, gives the number as 2295.

* These are taken from the city inspector's reports of burials.

Health of Philadelphia.

The epidemic whose approach we confidently announced a month since, is now prevailing among us, and appears as yet scarcely to have attained its maximum. The public mind having been prepared to expect its visitation, and quieted, to a considerable extent, by the preparations made for its reception, there has been little excitement, and certainly none of that panic which has elsewhere been so favourable to its ravages.

Number of cases reported August	2d,	40
	3d,	35
	4th,	45
	5th,	105*
	6th,	136
	7th,	136
	8th,	114
	Total for the week,	611

We hope in our next No. to be able to present a tabular view of the cases, showing the number each day from the commencement of the epidemic, the situations in which they have occurred, &c.

The following table exhibits the whole mortality, and also that from bowel complaints for the 1st week in August for five successive years.

1828.—1st week, ending August 2d. Whole mortality, 129; of which, the deaths from cholera morbus were, adults, 3; children, 32; Total, 35.—Diarrhœa, adults, 2; children, 1; Total, 3.—Dysentery, adults, 0; children, 5; Total, 5.—Total from bowel complaints, 43.

1829.—1st week, ending August 8th. Whole mortality, 89; of which, the deaths from cholera morbus were, adults, 2; children, 18; Total, 20.—Diarrhœa, adults, 2; children, 2; Total, 4.—Dysentery, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 27.

1830.—1st week, ending August 7th. Whole mortality, 80; of which, the deaths from cholera morbus were, adults, 0; children, 21; Total, 21.—Diarrhœa, adults, 1; children, 0; Total, 1.—Dysentery, adults, 1; children, 1; Total, 2.—Total from bowel complaints, 24.

1831.—1st week, ending August 6th. Whole mortality, 111; of which, the deaths from cholera morbus were, adults, 0; children, 23; Total, 23.—Diarrhœa, adults, 1; children, 5; Total, 6.—Dysentery, adults, 1; children, 3; Total, 4.—Total from bowel complaints, 33.

1832.—1st week, ending August 4th. Total mortality, 243; of which, the deaths from cholera morbus were, adults, 1; children, 30; Total, 31.—Malignant cholera, adults, 81; children, 3; Total, 84.—Diarrhœa, adults, 5; children, 4; Total, 9.—Dysentery, adults, 3; children, 2; Total, 5.—Total from bowel complaints, 129.

* Forty of these cases were in the Arch St. Prison, and not being reported until the next day, the number of cases appears from the report of the Board of Health to be, August 5th, 65, and on the 6th of August, 176.

PHILADELPHIA—CAREY & LEA—CHESNUT STREET.

THE

CHOLERA GAZETTE.

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Mustard Emetics in the Treatment of Cholera.

Mustard emetics were introduced into the treatment of cholera by Dr. Smith of Newcastle. He had tried it in his own person when resident in the West Indies, and, being aware that it was a popular remedy among the pitmen, for asphyxia from choke-damp, he was led to suppose that it might be of service in rousing patients in the collapsed stage of cholera. His suggestion was acted upon at Sunderland through Dr. Gibson, it is said with beneficial results, and it has been since used there, at Newcastle and elsewhere. Mr. Greenhow says, that "in the cold, blue, pulseless stage of the intense type of the disease, I believe it to be a very valuable remedy in relieving the irritation of the stomach, and exciting reäction, but when full vomiting can be excited by milder means, especially when it can be done by copious draughts of warm water only, I consider it safer to avoid the irritating effects of the mustard."

The remedy is given in doses of two drachms in a cup of warm water, and repeated every ten minutes till full vomiting ensues.

On the Symptoms of Cholera in New York, with some Remarks on the Management of the Disease. Read before the Boston Medical Society, July 23d, 1832, by JOHN WARE, M. D., and communicated for the Boston Medical and Surgical Journal by the publishing committee.

The object of this communication is to give some notice of the symptoms of cholera, as they were presented to the writer during a short visit to the city of New York, since its prevalence there, and some suggestions with regard to the management of the disease.

A few days' opportunity only of observing so formidable a malady, may be thought hardly sufficient to justify an individual in offering any thing concerning it to his medical brethren or to the public. But it is to be recollected, that in the case of a new disease, we are all obliged to approach it in a state of at least partial ignorance; he, therefore, who knows but little from actual experience, may be able to impart something. His labours are still more likely to be useful in preparing others for its attack, if it present a variety in its aspect, as it appears in different places; if for instance it differ in Canada and New York, from the description we have had given of it in Asia and in Europe.

This appeared to be the case. At least the impression made by the inspection of patients labouring under cholera, was different from what the usual descriptions given of it had prepared me to expect. Not that there was any variation in the symptoms or course of the disease, which could for a moment throw any doubt on its identity; but there was a very considerable variation in the relative prominence of the phenomena.

So familiar have we become with accounts of cholera, that, instead of describing the disease, as it presented itself in detail, it will be only necessary to refer to those symptoms concerning which some particular remark occurs. The most universal of the symptoms, were the deadly coldness of the whole surface of the body, and the soaked, sodden and shrivelled appearance of the hands and feet. Generally, also, there was a bluish or livid tinge of the skin of these parts, particularly of the extremities of the fingers beneath the nails. The hand in some instances resembled that of a person who had been working in a black dye. The blue or dark colour of the face and of the rest of the body was not very common; much less so, according to the information of those who had visited Montreal, than it had been there. Still, a few patients were seen so dark, as not to be readily distinguished, across the ward in which they laid, from mulattoes. The cold tongue, which has been described as so strikingly characteristic in some places, was noticed in but a small proportion of cases. It had generally a slight white fur. The pulse, though commonly very small and obscure, was not so frequently extinct at an early period of the stage of collapse as was expected; and in some cases it was found quite distinct and of good volume, at not a very long period before death.

The vomiting and purging were less violent and frequent than had been expected. It was rare to witness more than one or two patients suffering from either, during a visit to a hospital containing twenty or thirty. They seemed to take place chiefly in the earliest period of the case, and in some, never existed in any violent degree. One patient was seen at 11 A. M. whose bowels, according to his report, had been in a regular state the day before, and who had only had, in the course of the morning, three or four discharges in the privy. He had not vomited at all; yet he had scarcely any pulse—his skin and tongue were cold, and his hands and feet were affected by cramps. He had regarded himself as being well on rising in the morning.

Nearly all the subjects of the disease complained of cramps, or said that they had been afflicted by them when first seized. Still, very few were seen labouring under them so severely as to occasion any marked external demonstration of suffering. In nothing, indeed, did the cholera of New York differ more from the most common descriptions, than in the absence of any *indications* of great

distress. It is true that a few seemed in much agony when vomiting, or undergoing spasm; others complained bitterly of thirst and oppression, and burning at the stomach; but in general there was little complaint, and little disposition to notice external objects at all. The aspect of the patients was almost that of indifference, and unconcern as to the event in themselves and in others. They seemed like persons totally absorbed in their own sensations, although in sensations which were not of a very acute or distressing character. They appeared often as if in a benumbed or stupefied state; yet were without difficulty roused, and were at once perfectly sensible. Neither was there the sulkiness or irritability which has been said to appertain to patients with cholera. They answered questions readily and pleasantly. Though surrounded by medical men, and undergoing frequent examinations, I saw no instance of the manifestation of ill-humour. Often, as soon as a physician approached the bed-side, the tongue would be protruded and the arm stretched out.

In some cases the peculiar hollowness of the countenance, and the shrinking of the body and limbs were strongly marked; and in these, the aspect of the dying person was almost terrific. But these appearances were frequently wanting even in bad cases, and I am not aware that the countenance could have been always distinguished with certainty from that which is exhibited in many other severe and exhausting diseases. Neither did the voice vary essentially from that of patients with such diseases. The shrieks and cries of pain, which accompanied the vomiting and spasm, were perhaps a little more characteristic.

The respiration was not always accelerated; but generally at least was performed without much action of the diaphragm, and was consequently attended by considerable heaving of the chest, and some labour. The chest seemed also as if imperfectly distended. In the act of death, this mode of respiration was continued; it simply became less and less full, till it ceased altogether. Only one individual was noticed, in whom death took place with a kind of breathing like that so commonly witnessed, viz. that accompanied by the rattling of mucus in the throat.

The excretion of urine was almost universally wanting during life; and but little was found in the bodies of those who were examined, except, as was observed by a gentleman who had made many dissections, where the vomiting and purging had ceased for a long time before death.

From the dissections which were witnessed, and from the accounts of gentlemen* who had made a large number, it was inferred that the heart and large vessels did not generally contain any large quantity of blood. The heart was found sometimes empty, and sometimes all its cavities were moderately filled with blood. The arteries always contained black blood. On comparing blood found in the descending aorta with that contained in the corresponding part of the vena cava, that in the aorta resembled common venous blood, whilst that in the vein was still darker, thick, and imperfectly coagulated, being nearly of the consistence and colour of tar. In the cranium, there was an effusion of serum into the ventricles and at the base of the brain. The blood-vessels were quite full, but not usually so. No morbid appearance was observed in the spi-

* Dr. Morell, of the Bellevue Hospital, informed us, that of the first twenty fatal cases all were examined after death.

nal nerve. The lungs were considerably congested. The stomach and small intestines exhibited a slight reddish tinge when held up to the light, but showed no signs of inflammation. The large intestines had a whiter or bleached appearance. There was no unusual dryness of the peritoneum. The whole canal was filled with the peculiar liquid matter which constitutes the evacuations in this disease. This was generally in large quantities, of a dirty grayish-white colour, though in one case tinged with green, and of a flocculent appearance; sometimes quite thin, sometimes as thick as thin hasty pudding. It resembled gruel which has not been sufficiently boiled, or coagulated milk, the curd of which has been very finely broken up. Similar evacuations are occasionally witnessed in severe cases of common bowel complaints. Not a particle of fecal matter, or matter coloured by bile, was noticed in any case, unless indeed the green colour just mentioned was occasioned by the presence of bile. The gall-bladder always contained bile, and its duct was pervious.

It is a matter of some interest and importance to determine whether we have any reason for believing, as some have done, that the spasmodic or malignant cholera is merely a more intense form of common cholera morbus, and is produced by an accumulation and concentration of the ordinary causes of the latter disease. That they have many symptoms in common, is not to be denied. It is quite certain that the common exciting causes of cholera morbus, such as irregularity and excess in eating or drinking, great fatigue and exposure, may also operate as exciting causes of spasmodic cholera. But, on the other hand, the course which the complaint takes, and the character of the symptoms in which it terminates, render it probable that there is, previous to these exciting causes, some peculiar predisposition of an unknown nature existing in the constitutions of the whole population where it prevails. Our common cholera, in some cases, reduces a patient to a state of great and irrecoverable exhaustion. It is accompanied by severe cramp, cold extremities, weak and fluttering pulse, ending in death. Yet, in a parallel state of exhaustion, is the aspect of the subject the same? Do the peculiarities of complexion, the state of the extremities, and the character of the evacuations, correspond? In common cholera, also, the exhaustion seems to be commensurate with, and to be produced by, the vomiting, purging, and spasms; in the spasmodic, on the contrary, there is no such correspondence. The most rapidly fatal cases are not always those in which the vomiting, purging and spasms have been the most violent. Some individuals fall into the state of collapse almost at once, after but a short continuance of the symptoms which usually precede it.

It is desirable also to determine whether it be possible, in the earlier stage of spasmodic cholera, to distinguish it with certainty from an attack of the ordinary disease; to determine, for instance, in a place where cholera was not prevailing, that a case attended by vomiting, purging and spasms, was or was not the commencement of the epidemic. I fear the practitioner must wait for the symptoms attending the stage of collapse, before he can feel authorized to pronounce with certainty. In forming our judgment in such a case, we are to be chiefly governed by the state of the skin and pulse, and by the character of the evacuations. When the skin continues full of red blood, after considerable vomiting and purging; when the pulse remains full and of tolerable volume, and the extremities warm; when also the evacuations have a fecal or bilious appearance,

one could hardly be mistaken in regarding the case as one of common cholera. Where, on the contrary, the pulse becomes quickly small and weak, with a dirty, dingy and bloodless skin, cool extremities and dejections of a light flocculent character, one would readily suspect spasmodic cholera; yet we surely see many such cases which the event, in ordinary seasons, proves to be nothing more than the common disease. Still, in such a case, if the malignant disease were either prevailing or expected, a physician could give no other than a doubtful opinion as to its character.

It did not appear, from such observation as was made of the effect of remedies, that any material variation was produced in the rate of mortality in cholera by the measures employed. This indeed seemed to be the general impression of those engaged in the management of the disease. And, it may be asked, has not this been the result, wherever it has prevailed, so far as we can judge from the reports of cases and deaths which we find in various publications? We have had, it is true, many flattering recommendations of peculiar plans of treatment, and general statements of their efficacy; but does not the general uniformity of the returns of dead and convalescent, in different places, satisfactorily show, that the good effects of remedies have chiefly existed in the imaginations of those who have employed them? The probability is, that this epidemic, like all others, varies in severity in different places. This accounts for the apparently greater success of that method of treatment which happens to have been employed where the disease has been mild. So, too, when it first makes its appearance in a new spot, it seizes on the worst constitutions, and on persons most strongly predisposed; and hence its great and appalling mortality. After a while it attacks individuals of better constitutions, and who are less strongly predisposed; these make a more determined resistance to the disease, and recover perhaps in a greater proportion. Hence, towards the close of the epidemic, the cases seem to be more tractable, and to be more under the influence of remedies.

How can we, except by means of some such explanation as this, account for the apparent success which has attended modes of management the most opposite in their character, unless we believe the statements which are made to be wholly without real foundation, and to have had their origin in the want of accurate observation, the self-deception, or the wilful misstatement of their authors? Many physicians are loose observers, many are loose reporters, and some are both. I know not in what other manner we can account for the assertion of Broussais, that he loses but one patient out of thirty, while all his medical brethren are losing half, or very near it. One might expect, if his statement were actually true, that public opinion would soon force the whole faculty to the adoption of a method of management so successful; and that a Paris mob might imagine the physicians of all the hospitals, except that of the Val-de-Grace, engaged in the combination to poison the people—since in the latter the patients all came out alive, and in the former all dead.

It is unquestionably a humiliating confession to the medical art, that fifteen years' experience has not taught us any mode of arresting the destroying progress of this disease. Yet, if it be true, it is better that we should know and acknowledge it; since then, instead of being distracted by the claims of opposite and contradictory statements, we shall direct our attention to the devising

of new methods of treatment, or at least to means of prevention. The plague, which was once the scourge of Europe, is no more within the controul of medicine, than it was centuries ago; but it has been banished from countries which it once visited, by preventive measures. The same is true of yellow fever, and the same may be found true of cholera.

According to this view of the subject, the treatment of cholera cannot yet be reduced to any fixed rules, but must be, in the main, tentative or experimental. It is not the intention of the writer, in speaking of means of treatment, to offer any opinion as to their probable efficacy, but merely to direct the attention to such as appear worthy of a *very thorough* trial; for it is obvious that only the *very thorough* trial of a remedy gives it any fair chance of success in a disease like this.

We may also remark, that the rapid course taken by this disease does not allow us to place dependence on remedies which require time to produce their effect. Our whole range is confined to a very few hours. Except, therefore, in the premonitory stage, we must confine ourselves to means which operate almost immediately.

We should also bear it in mind, in treating cholera, that, in all cases of violent action or of extreme want of action, the susceptibility of organs to the influence of remedies is either very much exalted, or very much diminished; generally the latter. Thus in fainting from excessive hæmorrhage, great quantities of stimulus are required to produce an effect, and they must be frequently repeated in order to keep up the effect. Large doses of laudanum are also borne without the production of its usual operation. The same is true of any violent pain, and of excessive secretions. The power of the medicine given, is neutralized by the disease. Thus a man with diabetes will bear twenty or thirty grains of opium in a day; and one with severe colic, two or three hundred drops of laudanum in a few hours.

It should also be premised, that the remarks made with regard to treatment refer to the confirmed state of the disease, that, viz. in which its peculiar character is fully developed. There is a premonitory or preparatory stage, in which the state of the system and the symptoms of disease are different, and require different management. It is not, however, in this stage that patients are generally seen in hospitals, nor usually in private practice; but it is in this stage that many physicians are so sanguine with regard to the effects of remedies.

Whatever be the variety of internal means recommended by different practitioners, they almost uniformly agree in the propriety of external warmth and stimulus; and in all diseases attended by coldness and want of action in the surface and extremities, the restoration of warmth and circulation is one of the first objects which suggests itself. In cholera, this is very strongly called for, since not only are the external parts cold and inactive, but, as some assert, the internal also. More proof, however, is required of the coldness of the internal organs than has yet been given: there are circumstances which render it doubtful, and it is a point which should be carefully investigated. Still, no doubt can exist of the coldness of a considerable part of the mass of the body.

Now it is very true, that this coldness is one of the consequences of the morbid condition on which the disease depends, and not the morbid condition itself, and that removing this effect will not prove a remedy for its cause. Yet

it is also true, that many of the secondary effects produced by disease, are an obstacle to the removal of the disease, and obstruct the salutary efforts of nature or the influence of remedies. We often assist nature, and art also, in the struggle with the primary cause of disease, if we can artificially remove or suspend these secondary effects. Thus we assist the cure of dyspepsia by neutralizing the acid generated in the stomach as a consequence of this disease. So, too, where the system is sinking from a poison which operates by a suspension of that influence of the brain, which is necessary to respiration, if artificial respiration be kept up for a sufficient time, the effect of the poison ceases, and life is preserved. Something like this may be true with regard to the power of maintaining the animal heat in cholera. The reduction of the temperature of a large portion of the body and circulating fluids, for several hours, would alone be sufficient to cause death, were the system otherwise capable of struggling with and overcoming that internal state in which the disease consists. If a man, with the ordinary power of maintaining animal heat, were exposed to a degree of cold which should reduce his temperature to seventy-five degrees, this reduction alone would soon destroy life. This often happens in cases of shipwreck and exposure at sea, where persons are chilled to death by immersion for a long time in water at a low temperature. The patient with cholera is placed in circumstances somewhat similar. His power of resisting cold being lost, he is cooled down by an ordinary atmosphere as much as a healthy man by the low temperature of the ocean.

A resemblance has been supposed to exist between the patient with cholera and an individual frozen by exposure, and it has been recommended to employ in the former the same treatment as in the latter case. But the resemblance is not so close as that which has been already suggested. In persons frost-bitten, the external parts are actually frozen; or at any rate reduced to a much lower temperature than those cholera patients, whilst the internal parts retain their powers of resistance. This at least is true of recoverable cases. Although the temperature to which the surface is reduced is much lower, yet the whole body has not been equally cooled, and the heat providing powers not equally exhausted. No one would think of dashing cold water, or rubbing melting snow, over the body of a man chilled by immersion in cold water, to restore his animal heat; neither is it probable that this measure would be attended by any beneficial result in cholera.

We may regard it, then, as an essential part of the treatment of cholera, whatever means we may otherwise employ, that warmth of the body should be restored by external heat, and its activity promoted by external stimulants. It is by no means a matter of small importance by what agents we effect this. Let us recollect what we are to accomplish, viz. to warm through a solid mass of flesh. In order to impart heat, we must in the first place surround the body with bad conductors, which will retain the heat which is communicated to it, viz. with blankets, rugs, or comforters. We must, in the next place, apply, within these, substances which contain a good deal of heat, and which will give it out readily to the body; such as bottles of hot water, hot bricks, billets of wood, bags of sand, &c. &c. We may see at once how insufficient air-baths must be, as indeed they have been found. Air is a slow conductor, and contains but little heat. How long would it take to raise the temperature of a dead body twenty

degrees in an air-bath? I suspect many hours. Hot air may warm the skin readily; but in cholera we must go deeper than this—we cannot rely on the heat-making power of the system to aid us in our endeavours—we must use means which shall extend as far as the coldness extends. Neither can we expect any amount of external covering alone to raise the temperature of the body. Blankets assist in the accumulation of heat, when the body is capable of generating it; but they in no degree tend to warm it, when it has not this power. They could never warm a drowned man who had ceased to breathe.

The consideration that the heat-producing power is suspended in the cholera patient, should lead us to be cautious in relaxing the application of external warmth. It is not sufficient that the patient feels warm; the means should be persevered in, till a decided reäction has taken place, indicated by the state of the pulse, countenance and respiration, and should even then be cautiously relaxed. Neither should these measures be delayed till the patient is actually cold, when the stage of collapse is coming on. The loss of heat should, as much as possible, be prevented, by a great abundance at least of external covering, if not the application of absolute heat.

At the same time that the external warmth is thus provided for, it is important that the means used should not in some measure defeat their own object, by depriving the patient of fresh and cool air. Any imperfection of respiration, essentially impedes the keeping up of the animal temperature; and both foul air and warm air, are productive of such imperfection. We should be cautious, therefore, that the rooms of cholera patients be not unduly heated, and that an abundance of fresh air should always have access to them.

External stimulation seems indicated, as next in importance to external warmth. This might be effected in various ways; but none seems more speedy and certain in its operation, than the poultice, or plaster of flour of mustard and vinegar. How extensively it might be proper to apply this, experience only can teach us. Few, even of cholera patients, are for any long time insensible to its effects.

A powerful, and, it is believed, a new method of exciting reäction by external application, has been adopted by Drs. Lee and Roe, at one of the New York Hospitals, and, as has been stated, with remarkable success. It consists in the friction of the whole surface of the body, when in the state of collapse, with an ointment, composed of mercurial ointment, camphor, and capsicum. Very little else is done, and nothing but a small quantity of drink, or of ice, given internally. We shall no doubt derive, ere long, a full account of the particulars of this mode of practice, and of the success which has attended it, from these enterprising physicians themselves; and it would be premature to give, at the present time, any thing more than this general statement. It is certainly, however, one of the measures which deserve a thorough trial from those engaged in the treatment of cholera.

But little can be said of internal remedies. The general impression seems to be, both at New York and in Canada, that in the comfirmed disease, nothing has as yet produced any very decidedly favourable effect, although all methods of practice have been tried; the calomel practice, the bleeding practice, the ultra-stimulating practice of spotted fever, the moderately stimulating practice, the camphor practice and the ice practice. Still, we are hardly ready to give

up in despair, and may inquire, whether it may not still be worth while to go over the ground again with some of these measures, unless we should be so happy as to escape a visit from this disease. The measures to which it might be desirable to give this trial, would be,—

1. The highly stimulating practice of Drs. Miner and North, by means of immense quantities of opium, brandy, capsicum and essential oils. So far as tried, this course has been said to be attended with unfavourable effects. Might it not bear a fairer chance of success, if combined with the injection of a saline solution into the veins? It may be, that these stimuli fail of their accustomed effect, from the want of a sufficient amount of circulating fluid.

2. The mercurial practice, carried to the greatest possible extent, both internally and externally. Dr. Chisholm administered immense quantities of mercury to his yellow fever patients; one patient having used over five thousand grains, and many having actually taken more than a thousand grains by the mouth. We might do the same in bad cases of cholera, at least without danger; and besides the administration of calomel by the mouth, and frictions, we might also make use of mercurial fumigations continued for a great length of time, a whole day for instance, which would not only act mercurially, but would also assist in raising, or at least in maintaining when raised, the animal heat.

3. The administration of ice internally, according to the method of Broussais. Though not placing unqualified reliance on the accounts given by this teacher of his practice, and believing him to be much wanting either in accuracy or in sincerity and good faith, the peculiar circumstances in which we are placed with regard to the management of cholera, renders it our duty to employ all those means for which very decided success has been claimed.

4. Bleeding from the general circulation. It is remarkable that no remedy has been more strongly recommended than this, in works on cholera as it has elsewhere prevailed; and yet that no decided success has followed its employment in this country, so far as we have any evidence. Still we are led to believe, such is the authority on which it has been recommended, that there may be states of the disease in which it will be followed with advantage.

5. Injection of large quantities of warm water, or of a warm saline solution, into the veins. So far as we have been informed, the immediate effect of this measure has been to restore the circulation and warmth of the patient; in fact, to rouse him from the state of collapse. Of its final success, we know less. It is remarkable that, of all the cases mentioned in a late communication in an English Journal, and republished in the Boston Medical and Surgical Journal, we are not told of the result of a single case. It was employed in the case of a patient at the Bellevue Alms-house, at New York, by Drs. Morell and Baker, and twenty-four ounces of warm water were introduced into the veins. The immediate effect was highly promising, but relapse and death ultimately took place. We have been since informed that an instance of complete recovery has followed the saline injection, in the Crosby street Hospital, under the care of Drs. Rhinelander and Dekay. Measures which afford even a temporary revival should, in this disease be seized on with eagerness. If therefore the injection into the veins proves to be as effectual in the promotion of a temporary reaction as has been asserted, it may answer a valuable purpose by prolonging life, and thus affording time for the operation of other remedies, even if it

should not be sufficient for the preservation of the patient. Like external heat, therefore, its employment should be cautiously combined with that of all the other remedies in different cases; since we may, perhaps, arrive at that success from the judicious combination of means, which we seek in vain from perseverance in any single course.

Influence of Foul Air in the Production of Cholera.

We related in a former number a circumstance showing the influence of foul air in the production of cholera; the following statement, taken from the Albany Argus, is illustrative of the same fact.

We learn from one of the physicians who have devoted their services to the children of the Orphan Asylum, that the proximate cause of the introduction of the cholera there, was the opening of a drain, and the letting off of a quantity of stagnant water from the cellar of an adjacent lot and building. Previous to that time, the children had been free from disease. The smell from the water was highly offensive; and on the next day, or two days afterwards, three of the inmates were seized, with great virulence and fatality, several others quickly followed, and, upon examination, it was found that nearly every one of them required a medical prescription. Not a case has occurred since their removal to the rooms in the capitol; but of the sick which remain in the asylum, (now a hospital for that purpose,) two died yesterday, besides the four fatal cases previously announced, and the residue are scarcely convalescent. We allude to this subject chiefly for the purpose of pointing to the cause of the disease, or the sources of its extension and virulence, and to the importance of *preventing the accumulation of stagnant water*, and *if accumulated, the utmost care in draining it.*

Another fact clearly illustrates the importance of location, free air and ventilation, and of temperance and regularity in relation to this, or indeed to any epidemic. In the temporary buildings erected by the corporation, upon the high grounds and more elevated parts of the city, there are now upwards of four hundred persons. These were all removed from buildings, low, unventilated and exposed, in which fatal and highly virulent cases had occurred. Not one of them, however, is now sick of the disease, and there is scarcely one, including the children, who is suffering from indisposition of any sort. Such families as have healthy and able-bodied males among them are required to provide for themselves. The widows and destitute are maintained at the public expense. Their diet consists of soups and wholesome meats. Spirituous liquors are studiously excluded; any approach to intemperance punished.

Letter from Dr. C. A. Lee, of Greenwich Hospital, on the Treatment of Cholera.

My Dear Doctor—Your letter of the 20th came yesterday.—I am excessively hurried, and cannot write you as I would wish. As to our treatment, I trust we

have at length hit upon a plan which leaves nothing more to be expected in the way of therapeutics. In the early stages, our practice is not peculiar; we have employed the usual means, and our treatment has been uniformly successful. It is only in the stage of collapse, in which most of our patients are brought in, that we have experienced any difficulty. At first we relied on powerful internal stimulants and external revulsives; but our success was small, no permanent reäction could be produced. Inhaling the nitrous oxyde and oxygen gases had no better effect. At length I concluded that there was no absorption from the mucous membrane; that from the violent action it had undergone, its functions were lost, and brought into the same condition as that of the skin. The coldness of the tongue, and the fact that hot injections were returned cold, gave great probability to the correctness of this pathological view. The only thing then left, was to undertake to introduce medicines into the circulation, mechanically through the skin. The indications were to restore the circulation, relieve spasm, promote the action of the absorbents, and unlock the secretions. To effect these objects, we prepared the following mixture.

℞. Strong mercurial ointment, 1℔.; powdered camphor, ½℔.; powdered Cayenne pepper, ¼℔. Mix well together, and have the patient rubbed all over for half an hour at a time, and repeat the operation accordingly, till the mouth is affected. The success of this plan is perfectly astonishing. Without administering a particle of medicine internally, reäction is sure to follow in from one to three hours, even in the most perfect collapse; the secretions begin to return, the evacuations become bilious, and the patient expresses himself perfectly relieved. Since we began this plan, more than two-thirds of our patients have been cured—a large proportion of the rest were in a dying state when brought in. I believe the mercury is rubbed mechanically into the pores of the capillary vessels, and thus taken into the circulation. We invariably affect the mouth in from four to ten hours—then the patient is generally safe. We have lost but two where the gums were affected. In the course of my professional life, I have never been so gratified in the effect of remedial agents. The greatest sceptic in the usefulness of our science, would yield to the demonstration of such facts as our reports present. CHARLES A. LEE.

To Dr. L. A. Smith, Newark, N. J.

Effects of a belief in Contagion.

When we related in a former number, some of the evils experienced in Europe from the belief in the contagiousness of cholera, we hardly expected that similar evils would occur in this country, and that we should have to record a transaction so disgraceful to humanity, and disreputable to the intelligence of Americans as the following, which we copy from the Boston Gazette.

"Mr. David Ballou, aged eighty-five years, was on a journey from Ohio to

Cumberland, R. I. his native town. From New York, where he tarried one night, he took passage in a steam-boat for New Haven. After leaving the boat, he took a seat in a stage for Providence. During this ride he was taken sick. The stage passengers were alarmed, and attempts were made to leave him at some house, but nobody would receive him, for fear of the cholera. In this critical situation he was denied a seat inside the stage—was taken out and *lashed on the top*, and in this way was brought into Providence. But the old man's cup of calamity and suffering was not yet full. No person there would grant him even a shelter, and the next morning he was found on the market-house steps. At length he prevailed on a person, for the sum of five dollars, to carry him to his brother's, in Cumberland. By this time he had become so exhausted, that he was unable to sit up, and was supported by the driver. His brother's family were no less alarmed than his former companions. He was refused admittance into the house, but was conveyed to the barn to be nursed, while a messenger was despatched to Woonsecket Falls for a physician, who had just returned from New York. Before he arrived, Mr. B. was dead."

Cholera in Great Britain.

There had not yet been up to the 6th of July any decrease in the number of cases of cholera at Liverpool, the number of new cases reported on that day was 44. Total from the commencement, 12th of May, cases, 1126; died, 327; recovered, 590.

In Manchester it had made but little progress: the last date there was no new case. In Warrington the disease had nearly disappeared. The accounts from Leeds were not so favourable. The deaths were 59. At York, the number of deaths amounted to 77—47 cases remained under treatment. At Hull, 162 deaths—100 cases remained. At Edinburgh it had broken out anew, there had been 50 new cases and 13 deaths during the last four days. In Dublin on the 3d of July, new cases, 153; deaths, 40—remaining, 539. Total cases, 4875; deaths, 1430. Cork, July 3d, 19 new cases, 9 deaths. From the commencement, cases, 3305; deaths, 843. Limerick, new cases, 25; dead, 9; recovered, 52; remaining, 127. From the commencement, cases, 1653; deaths, 638. Belfast, new cases, 28; dead, 1; recovering, 17; remaining, 92. From the commencement, cases, 423; deaths, 101. Drogheda, new cases, 2; dead, 2; recovered, 2; remaining 10. From the commencement, cases, 830; deaths, 372. Twenty-three places in Ireland, including those already mentioned, new cases, 328; dead, 116; recovered, 218; remaining, 993. Total from the commencement, cases, 12,847; deaths, 4,280.

Cholera at Vienna.

In the account of the malignant cholera as it prevailed in Vienna, from the 12th of August, 1831, to the 15th of February, 1832, drawn up by John Freeland Fergus, Esq. Surgeon, and published in the London Lancet of June, 1832, we find the following among other interesting observations.

On the 10th, 13th, and 14th of August, respectively, three cases occurred in the same neighbourhood, after which single cases occurred all over the town, and in the course of a week or two, in the most distant parts of the suburbs.

"The subjects of these cases had all been exposed to cold, or had made an error in diet; none of them had had communication with other sick, and they lived in parts of the town and suburbs at the greatest distance from each other. They were all of the lower classes."

"On the night of the 14th of September, (after three days of rain and wind from the west and north-west,) it broke out in its greatest intensity in those streets in the immediate vicinity of that in which the first sporadic case was seen, and where the nervous fever had been so severe. This outbreak was as sudden as a clap of thunder; in two or three hours before and after midnight, more than one hundred persons were seized.

"It was at this moment, only, that people of the higher ranks were attacked, and these were almost all seized on returning from a place of public amusement. At this time, also, the greatest number of robust, healthy people were attacked. The intensity of the epidemic, (limited as it was in extent,) seemed to have reached such a height, that a stronger constitution, and a better mode of living were no longer proof against it, and it took place after exciting causes of the slightest kind. At this time no other disease was seen. The cholera ended quickly in death, or in return to health; it was strong and clear; little complicated with other diseases. People of all ranks complained of loss of appetite—sudden giddiness—rumbling in the bowels—looseness of stools, which lasted from a few hours to some days—cramps in the extremities, with twitchings of the muscles; all these were most felt during the night, and especially towards morning. Afterwards it lost in intensity, and the rich and healthy were rarely attacked; the poor and sickly continued to fall before it, but the course was longer, and it generally ended in a low or nervous fever, or in those diseases to which the patient was most predisposed."

"This was the general course of the disease in the town; in the suburbs, and even in separate institutions, it ran the same course. After a few precursory sporadic cases, it broke out suddenly in its full force. No circumstances of change of weather, of situation, or particular communication, regulated the progress or course of the disease. It was found to reach its height under all atmospheric states; it did not spread regularly from one suburb to another, but often broke out in all its violence in parts the furthest from, and having no intercourse with, those already attacked. It did not attack always first the low and bad-built streets, but in them it was more extended, and had a more adynamic character."

Cholera at New York.

The cholera still lingers at New York, and can scarcely be considered as having decreased during the past week, as will be shown by the following table.

	No. of cases,	deaths*
August 8th,	72	55
9th,	73	34
10th,	100	26
11th,	76	47
12th,	67	34
13th,	105	36
14th,	42	33
Total,	535	265

The number of deaths in New York during the week ending 11th of August, was 467, of which 281 were from malignant cholera; 2 cholera morbus; 5 diarrhœa; 5 dysentery; 24 cholera infantum; 8 inflammation of the bowels.

Health of Philadelphia.

The cholera has passed its height in Philadelphia, and is manifestly on the decline.

On the 9th of August there were	154 cases.
10th	142
11th	126
12th	110
13th	130
14th	111
15th	73

Whatever may be the causes, and we are not prepared to point them out at present, it is a fact that the pestilence has visited our city, comparatively, but lightly. A very small proportion only of the population have been affected by the disease in its malignant form, and its attacks have been found to be preceded by premonitory symptoms, which have been perfectly under the control of medicine. Many recoveries have taken place even after the state of collapse had come on. We shall, in our next No. present an account of the modes of treatment adopted in some of our hospitals.

* These are taken from the City Inspector's report of burials.

The following tables exhibit a very interesting view of the progress of the disease, and the localities in which the cases occurred. We are indebted for it to Mr. Samuel Hazard, in whose valuable publication, the Pennsylvania Register, it first appeared.

SUMMARY REPORT.

	Private practice.		Hospitals.		Almshouse.		Arch street prison.		Total.	
Date.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.
July 11	1	1	0	0	0	0	0	0	1	1
12	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
16	5	3	0	0	0	0	0	0	5	3
17	1	0	0	0	0	0	0	0	1	0
18	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0
24	1	1	0	0	0	0	0	0	1	1
25	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0
27	0	0	2	2	0	0	0	0	2	2
28	1	1	5	4	0	0	0	0	6	5
29	4	0	1	0	1	1	0	0	6	1
30	9	3	5	3	0	0	1	1	15	7
31	5	2	9	5	5	2	0	0	19	9
Aug. 1	16	5	4	2	1	1	0	0	21	8
2	8	3	14	9	5	2	13	1	40	15
3	13	4	13	5	5	1	4	4	35	14
4	27	4	9	8	0	0	9	1	45	13
5	26	10	28	10	11	6	*	*	65	26
6	29	10	86	24	16	11	45	26	176	71
7	78	26	38	32	17	8	3	7	136	73
8	43	7	35	20	35	18	1	1	114	46
9	94	26	35	24	24	7	1	1	154	58
10	83	12	41	21	14	4	0	1	142	†39
Total.	444	118	325	169	134	61	77	43	984	392

* No report.

† Including four cases and one death in Pennsylvania Hospital.

Table showing where the Cases of Private Practice occurred.

Date.	Kens.	N. L.	P. T.	City.	South.	Moya.	W.Phil.	Total.
July 11	0	0	0	1	0	0	0	1
16	0	4	0	0	1	0	0	5
17	0	0	0	0	1	0	0	1
24	1	0	0	0	0	0	0	1
27	0	0	0	0	1	0	0	1
28	0	0	0	0	1	0	0	1
29	0	1	0	2	0	1	0	4
30	2	3	0	0	0	3	0	8
31	0	4	0	0	0	1	0	5
August 1	3	3	0	2	3	5	0	16
2	0	4	0	1	1	2	0	8
3	4	2	0	2	2	2	1	13
4	9	8	1	6	3	0	0	27
5	6	7	0	7	4	2	0	26
6	2	5	1	11	3	7	0	29
7	4	15	1	37	7	14	0	78
8	2	9	4	17	2	9	0	43
9	6	9	2	34	24	19	0	94
10	4	5	1	32	25	16	0	83
Total.	43	79	10	152	78	81	1	444

The following table exhibits the whole mortality, and also that from bowel complaints for the 2d week in August for five successive years.

1828.—2d week, ending August 9th. Whole mortality, 99; of which, the deaths from cholera morbus were, adults, 0; children, 18; Total, 18.—Diarrhœa, adults, 1; children, 1; Total, 2.—Dysentery, adults, 2; children, 1; Total, 3.—Total from bowel complaints, 23.

1829.—2d week, ending August 15th. Whole mortality, 90; of which, the deaths from cholera morbus were, adults, 1; children, 27; Total, 28.—Diarrhœa, adults, 0; children, 4; Total, 4.—Dysentery, adults, 2; children, 1; Total, 3.—Total from bowel complaints, 35.

1830.—2d week, ending August 14th. Whole mortality, 112; of which, the deaths from cholera morbus were, adults, 1; children, 23; Total, 24.—Diarrhœa, adults, 3; children, 1; Total, 4.—Dysentery, adults, 1; children, 0; Total, 1.—Total from bowel complaints, 29.

1831.—2d week, ending August 13th. Whole mortality, 118; of which, the deaths from cholera morbus were, adults, 1; children, 27; Total, 28.—Diarrhœa, adults, 0; children, 2; Total, 2.—Dysentery, adults, 3; children, 4; Total, 7.—Total from bowel complaints, 37.

1832.—2d week, ending August 11th. Total mortality, 530; of which, the deaths from cholera morbus were, adults, 5; children, 35; Total, 40.—Malignant cholera, adults, 335; children, 35; Total, 370.—Diarrhœa, adults, 9; children, 9; Total, 18.—Dysentery, adults, 3; children, 3; Total, 6.—Total from bowel complaints, 434.

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Remarks on the Pathology and Treatment of the Disease termed Malignant Cholera. By J. P. HOPKINSON, M. D. Demonstrator of Anatomy in the University of Pennsylvania; Lecturer on Anatomy in the School of Medicine, &c.

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The disease termed malignant cholera, so generally fatal under all modes of treatment, so unaccountably cured occasionally by almost any course, however extravagant or contrary to former experience, seems still to call forth the ingenuity of the profession in devising something new in the treatment, or in endeavouring to find some specific whose power shall never fail. Is it not strange that medical men should now for the first time have abandoned all their principles of practice, and throwing aside reason, catch at any shadow that was passing by, in the gloom of deficient or erroneous pathology? What must be the conclusion of every practitioner, who, anticipating the approach of the disease, and wishing to prepare himself to do justice to his patients, consults any or all of the innumerable books, pamphlets, suggestions, &c. &c. on the subject? Can he draw one single principle—on which to reason and exercise his judgment? Can he find one sound pathological view of the disease, founded upon observation and justified by general experience in practice? It is a melancholy truth he cannot—and yet this cholera has been distinctly before the profession for at least fifteen years, and for probably more than a century has the same affection, or one very similar to it, been known. In this state of things, I also had formed my speculations, and felt the same indecision as to the best mode of practice, when at length the epidemic visited our city, and soon presented itself characterized by all its most alarming features. The first case of which I had any personal knowledge, was in a post mortem examination I was called upon to make. Although this case was complicated by a strangulated femoral hernia, and attempts were made to explain it away as not a case of cholera, yet the very slight vomiting, the sudden death, the blue skin, the corrugated fingers, the immense collection of rice water fluid shut up in the intestines, the total suppression of urine, and finally, the universal congestion of the stomach and bowels, led to the evident conclusion, that the immediate cause of this woman's death was of a nature different from ordinary strangulated hernia; in fact, that, although only one or two cases had as yet occurred in the city, this could not be considered other than malignant cholera.

The second observation was made upon a strong, muscular man, brought into the cholera hospital a few hours after the attack, presenting symptoms of

the most malignant character; he was pulseless, and covered with a cold, clammy sweat; had a cold tongue; the blue and doughy skin; anxious countenance; whispering voice; the sunken eye, &c. and he was clamorous for cold drink. External heat, turpentine, frictions, ice, carb. ammonia, camphor, opium, warm brandy-toddy, and finally, injections of brandy and water into the veins, were *tried* in succession, and interrupted only by the hand of death, about five hours after his admission. Here it may be remarked, that, although stimulants of the most active and diffusible nature had been introduced not only into the stomach, but into the very heart itself, yet no perceptible impression was made upon either—and the unfortunate patient seemed to sink as rapidly as if nothing had been done.

The next case of decided cholera which came into the hospital was a coloured man, with cramps, vomiting and purging; he was on the very eve of the collapse, but had pulse; he was bled—the pulse rose—the bleeding was repeated, until three pints of blood were extracted; he took also some vol. alkali; no difficulty was experienced in bringing about complete reäction, and this man soon recovered. The practice pursued in the hospital after this was *unsettled;* all the various plans recommended, of dry frictions, bleeding, hot air, camphor, calomel and opium, vol. alkali, &c. were resorted to and failed in almost every case in a collapsed condition. Some of these cases were examined, and presented the usual appearances described in any treatise on the subject. It was the bad success of this treatment, added to the results of subsequent inspection of the body that first gave me a disgust for the stimulant practice. I saw no marks of inflammation except in cases of drunkards, or where it had probably existed antecedent to the attack of cholera; in one case inflammation was found in the caput coli; in another, the rectum was most violently inflamed, and sometimes the glands of Peyer were enlarged, but these appearances were by no means so general as to justify any conclusion as to their connexion with the immediate cause of death. Dissection had not as yet satisfactorily located the disease in the central nervous system. The lungs were almost universally healthy, and thus the abdomen alone remained to be studied in our pathological researches. As already stated no decided marks of inflammation presented themselves in any of the abdominal viscera—adequate to account for the sudden death, nor in fact are the symptoms during the course of the disease those of inflammation—but more of this presently. The appearance of the intestines externally is so peculiar, that no one who has once seen them, can be deceived. In every case I have examined, the most decided proofs of universal congestion were apparent. When the omentum was raised, the intestines, (generally distended,) presented a mottled surface formed of small bluish and red points, the former preponderating, so as to give altogether a dark chocolate appearance—a closer examination traced the connexion between these specks and the veins—of which the small ramifications, the branches and the trunks, were filled with dark blood. The mucous surface was more variable in its appearance. The valvuli conniventes being in some places of a bright red—in others pale. *Ulcerations* or *stellated inflammation* I did not find in any case in the intestines. The inspection of the stomach was equally unsatisfactory, or perhaps more so. In some cases inflamed, in others not; sometimes having a softened mucous surface, easily scraped off, while in others again, this mem-

brane retained its ordinary degree of firmness; in one word, the stomach, in this respect, presented nothing I had not often seen, and what dissections made in various diseases do not reveal every day. The only condition at all general was a congestion of the veins apparent on the external surface, and its being exceedingly large, flabby, and filled with fluids. The liver, kidneys, &c. although sometimes congested with dark blood, or perhaps disorganized by some old affection, showed no marks of recent organic disorder that were appreciable; bile and dark blood sometimes flowed when incisions were made into the liver, and there was invariably a total suppression of the secretory action of the kidneys; when the papillæ of these glands were compressed, a milky fluid exuded from the orifices of the tubuli uriniferi. The bladder was empty and contracted. The spleen had nothing remarkable in its appearance: there was no bile in the intestines.

Thus it would seem, since the morbid conditions of the nervous system are too abstruse for our detection, that nothing has been gained by the post mortem examinations, if it be not that a universal venous congestion pervaded the whole abdominal cavity, accompanied by a suppression of the natural secretions. It then appears probable, that the cause of cholera, whatever it be, by diminishing the heart's action, and thus lessening the activity of the arterial circulation, and by producing a torpid venous circulation, perhaps the result in part of the former, perhaps produced by the direct operation of some morbid poison on the nerves, operates mainly upon the abdominal viscera; here it is, as we know, that the proximate causes act in bringing on an attack; and here it is we find developed the most prominent symptoms.

Now let it be understood, that although this pathological view became the foundation of the practice hereafter to be explained, it is not put forth with so much confidence as to limit further researches into the nature of this strange affection. One thing only is insisted upon, that, whatever the remote cause be, that at this particular time, in some circumscribed locations, and not in others, predisposes to the disease termed cholera; the most prominent symptoms are developed in the abdominal cavity, and to that point must we turn our attention, would we arrest the approach of death. The coldness of the extremities, therefore, the profuse sweats, the cramps of the muscles, the cold tongue, the immoderate thirst, &c. are not to be regarded, except as mere symptoms remotely connected with the morbid actions that are going on in the interior of the body.

A natural consequence of diminished arterial circulation is diminished temperature—but if the cause that produced this feeble action, still continue to operate at the centre, how vain must all efforts to arouse action be, when applied to the extremities.

Again, as regards the thirst, since there is neither increased heat nor dryness of the mouth, upon what reasoning or theory do we allow the patient the free, unrestrained use of ice or cold drinks. Is it because he demands them? and is nature always so true in her requests, that we should listen to her? Our patient may be indulged perhaps to his detriment; I have known the water and melted ice, that have been allowed to a patient at intervals during the space of an hour, to be thrown up from his stomach *nearly as cold as they went down.* There cannot therefore be much increased heat in the gastric organ, and we

have a right to conclude that the effect of cold and moisture is not demanded, since evident *coldness and moisture* actually exist in the mouth, and in all probability the stomach is in a similar condition. To those who are disposed to doubt the correctness of the theory here advanced, and who, bound in the chains of former doctrines, cannot give up the impression of an augmented temperature in the stomach, causing the thirst—to all such, let me here make one remark—what is the actual condition of the patient's skin? and what are his feelings connected with that condition? Cold and wet is the reply to the first—insufferably hot, answers the second. Have we not then before our eyes and under our fingers, a cold, moist skin, giving the sensation of oppressive heat?—a phenomenon as yet not understood, and must we of necessity reject the same idea as applied to the stomach; merely because we cannot explain it? Look at the collapsed, dying individual, with a skin like marble, covered with the morning dew—what are his sufferings if attempts are made to confine him under covering? Does he not resist with all his strength, and cry out he is burning with heat? With this fact before me, I am content to say, there is a total destruction of all the natural sympathies in this disease, and referring the thirst, the cramps, and the feelings of heat, to morbid nervous actions, stop my speculations here, and follow that practice which experience proves most beneficial.

The profuse sweats can hardly be called either a secretion or an excretion. Our knowledge of the capillaries is as yet too unsettled to establish any theory upon this point; but when we see those parts of the body most remote from the centre of the circulation, and most deficient in arterial circulation, pouring out these sweats more abundanlty as they are more distant, is not the conclusion warrantable, that they are a kind of exudation, coming perhaps from the veins, (which are visibly more congested in the same ratio of distance from the heart,) and not the result of any arterial excitement? Let us now only transfer our attention to the interior of the body—let us admit a condition of the alimentary passages, similar to that remarked upon the skin, and have we not at once, an explanation of the immediate cause and source of the rice water discharges? Here then we unite the various considerations that have become the basis of our pathology and of our treatment of cholera.

The cramps cannot be easily explained. I feel a hesitation in offering a theory upon the subject, and shall defer any further remarks respecting them for the present

In proceeding now to speak of the treatment, we cannot give a better idea of what has hitherto been done, than by the following extract.

"In each country where this disease has appeared, we find a very different and opposite treatment recommended, as one proved by experience to be the best. In India, bleeding, calomel, and opium, were the favourable remedies. In Russia, a practice as inert as a few grains of the sub-nitrate of bismuth in frequently repeated doses. In England, the mustard emetic. Again, in different countries, remedies contradictory, as bleeding and transfusion, are proposed and made use of in full confidence. Heat applied to the body in every form, as well as the cold affusion. Drinks altogether denied, or ordered in unlimited quantity, both hot and cold. They have attempted to restrain purging and vomiting by the most powerful narcotics, enormous doses of opium; and

they have also encouraged them by various emetics and purgatives. Some try to allay the irritability of the mucous membrane; others goad it with the most powerful stimulants, ardent spirits, and ammonia. Others place their reliance chiefly on the mild alkalies, soda, and magnesia, to neutralize some imaginary agent; and, again, some indication has been found for acids; whilst many have trusted a trifling carminative, as essence of mint, or cajuput oil, to combat these alarming symptoms;—illustrating the remark of Sir William Crichton; 'it is a most melancholy confession, but one not the less true, that after cholera has spread its devastations from Ceylon to Archangel, from Oranburg to Berlin, we are almost as far from a rational methodus medendi as we were when it first appeared on the banks of the Ganges.' "*

Here is a summary of medical authorities upon the best mode of treating cholera. Uncertain as has always been the science of medicine, our records do not show any thing quite so extravagant as this—for although different systems of treatment and different theories have, in succession, each had its turn, it is something new to see so many put forth at one time, and each one supported by such high authority.

There is so much in a name, that we consider it of some importance to settle the question as to the proper appellation by which to designate the disease, before we apply a remedy. The term "cholera" has been now so much sanctioned by general adoption, that no other would be understood—but has not injury resulted in the present case, from the too ready adoption of a loose term. Who would have prescribed opium so liberally in this disease, had it not been for the name—cholera morbus!

"Cholera," or "cholera morbus," has always meant a disease of the stomach and bowels, generally of a bilious nature, and accompanied by a sense of internal heat, and griping, pains, &c. It arises from solar heat, or from the irritation of some indigestible matters, and very seldom terminates fatally with us. It is scarcely known except in warm climates, and in the hottest seasons. Here, on the contrary, we observe a disease, characterized by a total suppression of the biliary secretion. Some of the worst cases have neither vomiting nor purging to any great extent. Most alarmingly and rapidly fatal, and pursuing its course in all climates, and at every season. The one is generally sporadic, often accidental—the other an epidemic, enjoying a limited reign. A minute comparison need not here be entered into—any medical man is competent, at a glance, when he sees the disease, to learn more than pages can convey.

But we must have a name. It is thought by many to resemble the cold plague, which prevailed in the southern parts of this country. Perhaps it does *resemble* that disease, but that is all. If a term were wanting to express what seems to be the fact, we would rather call it *a congestive fever*, and no injurious consequences will result, for as the name would be in a measure new, the treatment would rather be selected for it in particular, than derived from another affection perhaps totally different.

Allowing this cholera to be a disease of a typhoid character—granting it to be connected with an almost universal congestion of the venous system, and not inflammatory, what are the indications? These appear to me to be several

* Johnson's Medico-Chirurgical Review, for April, 1832.

and distinct, and that the whole success of our practice will depend upon the manner and the order in which they are met. Let us first review the symptoms of a man in the state of collapse. He is either pulseless or nearly so. The extremities are icy cold, and checkered with large drops of limpid water, collecting as fast as they are removed; the fingers corrugated, the nails blue; the tongue and breath chilled, and the thirst painfully urgent. To these add in most cases violent cramps of the voluntary muscles, purging of an almost colourless fluid, and the rejecting from the stomach of every thing swallowed. Apparently the cold extremities, the vomiting and the cramps, are the most urgent, and therefore the first to be removed, and hence hot applications, frictions of various kinds, anti-emetics and opium, seem so natural a prescription, that it is difficult to resist their employment. The real disease is not studied; the symptoms alone lead every one astray. To relieve the spasms and check the vomiting and purging, nothing is more natural than large doses of opium. To restore the temperature of the skin, cold and damp, who would not resort to heat and stimulating frictions? The want of success in this treatment leads to the *trial* of something else, combining perhaps some one of those remedies, (generally opium,) or else excluding them all, and standing forth with all the presumption of a specific.

Let us now take up the indications under a different view of the disease. Supposing the venous congestion be proved to be the immediate cause of those symptoms, viz. that the morbid cause having diminished the power of the heart, (whether through the nervous system or not we need not stop to inquire,) the arteries as a consequence carry less blood than usual, must not the remote parts of the body, under such circumstances, first feel the want of their accustomed supply? The coldness of the skin then is merely a symptom, an inevitable consequence, and as such it should not be regarded in our treatment. Again, grant that a diminished arterial circulation throughout the abdomen, produces there a state of things similar to what is witnessed without, ought not the same results to ensue, namely, a diminished temperature, a loss of tone, and suppression of natural or healthy actions? How futile then all attempts to arrest the vomiting and purging, by ordinary means, such as opium, &c. These symptoms are merely the natural results of the grand cause that is still triumphantly operating, and if they, as such, are permitted to attract our attention, are we not thus decoyed away from the main object? If this position be true, the rice water discharges pouring from the rectum, and the fluids thrown from the stomach, are worthy of no more attention than the dew-like drops that collect upon the skin. But let it be remembered the stomach is an organ, possessing a higher degree of vitality than any other viscus of the abdomen, and that the distention and consequent loss of tone in it, must exercise a greater influence over the whole system, on which account its immediate restoration becomes a matter of the first importance. I conceive then this organ to be in a state of *flabby distention*, if I may so speak, to have all its veins highly distended with blood going through a torpid circulation, its arteries contracted and enfeebled in the same ratio, and having a diminished temperature. If it be true, that through the medium of the stomach, we must hope to act upon the rest of the system, it behooves us first to prepare this organ for so important a duty; we must arouse its energies ere yet it be too late; we must bring on the tonic con-

tractions of its muscular fibres; we must expel this black venous blood, and endeavour to restore the arterial circulation to its natural superiority. What can do this but an *emetic?* We have no common cholera morbus to deal with, and would have nothing to fear in the use of such a remedy if we had. The choice of an emetic is, however, a matter of some consequence. The mustard I have never tried; all our common emetic medicines are either slow and uncertain, or else violent and dangerous. The Russian practice suggested the salt, and experience has proved it precisely what in every respect I would have it. My first course then is to dissolve two large spoonfuls of common salt in a pint of water as warm as the patient can bear it, of which a tumblerful is given at once. Almost instantaneous emesis results, and generally some retching follows; if however these are not sufficiently well effected, that is, if it appear probable that the stomach has not completely contracted, another tumblerful is given and our object attained.

The evacuation of the stomach is not the only advantage derived from an emetic. Nothing in these cases excites the heart to action so certainly as the retching that accompanies the act of vomiting; where stimuli have failed to make the slightest impression, the effort of vomiting has instantly restored an extinct pulse. But most of all, this operation is followed by a less irritable stomach, and if caution be observed subsequently in regard to drinks, no vomiting of any consequence will return. Thus we accomplish the grand objects of the first remedy; and so far as I have as yet observed, if the salt fail to excite vomiting, the case is desperate. Immediately after the emetic, perhaps in five, ten, or fifteen minutes, twenty grains of calomel for an adult, mixed with a little white sugar, are placed in the mouth dry, and washed down with some cold water. This medicine is given at this time, not with the expectation of any immediate effects, but with a view to its subsequent operation. Ten grains are then given at intervals of an hour, until often a drachm or more is taken. If reäction come on, the calomel is immediately stopped, as every object will be attained when the system is so far restored as to receive its influence. It is then the ulterior effect upon the secretions that makes its early use important, especially as it does not interfere with the other remedies next to be mentioned. It is now clear that thus far only one indication has been answered, viz. that of restoring the stomach to a more natural condition. The next important object is, to do for the rest of the system what we have done for the stomach, that is, to overcome or remove the universal venous congestion, but of course by a different means. For this purpose, there is no substitute for venesection, and the blood must be drawn *from the veins.* It will not do to open an artery; this exhausts the patient, but does not relieve the *venous congestion.* In this respect, perhaps, we have an exception to all other cases; *we must then open the veins.* If the pulse is not perceptible, or if it be very feeble, it is better to begin by applying cups over the whole abdomen, and then if the pulse rise, we may open a vein in the arm or in the foot, and watching the pulse, let the blood flow until reäction or the improved condition of the patient indicates the attainment of our object. As regards bleeding from the arm, unless the pulse be full or hard, and there are violent spasms, we should be cautious not to resort to this practice too indiscriminately. I have seen it do harm, where a vein has been opened before the habits of the patient or the real object of the operation has been consulted.

Although the pulse from the beginning has in some cases been so good as to bear a free bleeding, it has generally been necessary to resort to cupping before the restlessness and anxiety, (attendant upon the abdominal congestion,) have been relieved. For, the tossing about, the feeling of fulness and uneasiness, seem to me all to depend upon this torpid congestion of the abdominal viscera. Although not always attainable, especially in country practice, a valuable adjuvant is obtained in the application of leeches to the epigastrium, but more particularly to the anus, for here we come directly to the point and draw blood from the abdomen. The next thing to be done, to retain the ground we have thus gained, is to apply a large blister over the epigastrium, and if we succeed in producing inflammation on the skin, (vesication is not necessary,) our patient may be considered in most cases convalescent. These are the grand principles of our practice founded upon the pathological view of this disease now offered to the medical profession in these remarks. But there are some other matters to be attended to, of no small importance.

1st. The nausea and occasional return of the vomiting; to relieve this, the effervescent draught, taken in a state of effervescence, and made in preference with fresh lemon juice, or a little cold soda water, to which have been added ten or fifteen grains of sup. carb. soda, with ginger syrup, will prove most effectual. But do not let the patient indulge his desire for drink too freely. At this time it would appear that the pyloric orifice is obstinately closed, and absorption goes on so slowly in the mucous membrane of the stomach, that ultimately vomiting ensues as the only means nature has to relieve herself of an oppressive load. To illustrate this observation by a fact, I will mention a circumstance that occurred in one of our most malignant cases.

A boy, aged sixteen, was slowly recovering from a state of collapse, on the practice which I had instituted in the hospital. During my absence, an ounce of castor oil, with a drachm of spirit of turpentine, was given with a view to purge. This was taken at 3 o'clock in the afternoon. The whole of that night he was in a precarious state, and we were obliged to give him stimuli. Next morning at 8 o'clock, seventeen hours after its exhibition, this medicine was vomited from the stomach. This case will be more particularly detailed hereafter.

2d. The thirst is so urgent, that it seems cruel to refuse the patient every drink, and yet it becomes our painful duty to restrain him in the gratification of his desire. With this view, ice is generally allowed, but in very small quantities. I prefer much limiting the patient to the use of cold water as a gargle, and have generally been highly gratified to see him, when made aware of the danger of swallowing so much water, amuse himself with both pleasure and relief in washing his mouth. The sensation of thirst in this disease appears, as already stated, to be entirely a morbid nervous feeling. The tongue and mouth are cold and moist, a condition directly opposite to that generally accompanying thirst, and we have no reason to suppose that there is any increased temperature in the stomach to cause it, as the observation already made would go to prove, since as then remarked the water which was thrown from the stomach was still cold. Would not hot drinks taken into the mouth, by restoring a natural action, tend to remove an unnatural condition?

If the patient be not an habitual drunkard, or have not any chronic affection

of his viscera, this course will generally succeed in bringing on reäction, or to speak more correctly, in allowing reäction to come on. We first discover the doughy condition of the skin, replaced by a natural elasticity, so that if we pinch it up, it immediately retracts. This change is first noticed on the thighs and shoulders, whence it gradually progresses, to the remotest points, until life once more seems universally disseminated; at the same time, the profuse sweats cease, and the surface, without becoming parched as in a hot fever, presents a natural degree of warmth and dryness. The thirst also disappears, an effect, in part perhaps, of the calomel, as I have seen it relieved before the tongue had regained its warmth.

3d. We said nothing respecting the constant purging in our treatment, because we consider it merely as a symptom. If, however, the stools are copious and frequent, more as a matter of convenience than from any idea of their suppression benefiting the patient, the following injection is thrown up the rectum:—To one pint of cold water, add, acetat. plumbi, ʒj.; laudanum, ʒj.—one-half to be first used, and if rejected, the remainder. This will arrest the purging. It is more than probable that it extends its influence further than the large intestines, with which it comes in contact, for it has generally been remarked, that no discharges have come away, after the use of this injection, until the calomel makes its appearance, escorting the bilious matters, the harbinger of our patient's recovery. The stools, it may be well to remark here, which make their appearance from twelve to twenty-four hours, or even later, after the exhibition of calomel, are very peculiar. They are thick and of a bright green colour; so much so, that they are familiarly termed the "spinage stools." The improvement of the patient after this takes place, is remarkable.

4th. Respecting the cold extremities, as already stated, we do not regard them as a matter of consequence, in the treatment of the *disease*. Warmth is generally applied to the feet, legs, and thighs, by means of bags of hot sand or salt, but with another view; nor have I as yet had any reason to suppose they have ever assisted in bringing on reäction; yet it must be acknowledged, that they aid in its accomplishment when once it has commenced, and if used in time may prevent or protract the approach of the collapse; for then there is still vitality enough left to feel their influence; but what can we expect from heat applied to a surface, as it were, dead, and insensible? In fact, have we not all seen in these cases, continued frictions, fail to excite the slightest warmth, although evident redness appeared upon the skin?—and have we not all seen hot applications impart their heat, only as they would to a block of wood, which feels it not, and looses it as easily as it was received? An exception has been hinted at—it is in cases where the cramps are very severe—heat applied to the muscles, and dry rubbing with the hand, have proved highly beneficial in relieving the cramps, which are often so distressing as to cause the patient to cry out. The relief is so marked, that he will tell you where to place the hot bags, and beseech you to recur to the rubbing.

Some observations upon the employment of stimuli may not be out of place here. The practice which has now been recommended, is essentially *non-stimulant*, and yet it will, under certain circumstances, admit of the employment of stimuli. These are in cases of drunkards, and of relapses, after a moderate reäction. In the first, during the employment of the cupping, the calomel, &c.

if the patient do not very soon show some amendment, it is adviseable to resort to something that will aid a debilitated stomach in coming up to its proper standard of sensibility. Hence, a strong infusion of Cayenne pepper and cloves, a table-spoonful of each to the pint of boiling water, to which, in some cases, may be added a little of the spt. camphoræ, act as a cordial stimulant, highly beneficial. Of this tea, he may take one or two table-spoonfuls every ten minutes, being allowed afterwards to rinse his mouth with cold water, but not to swallow it. The quantity allowed must be regulated by the effect upon the pulse. In addition to this, or sometimes as a substitute, hot brandy-toddy may be given. The carbonate of ammonia is apt to excite vomiting.

In the second case, viz. where a patient has been aroused from the torpid state of collapse, and has had bilious evacuations, showing a return of arterial action, if arising from previous debility, neglect, or feebleness of constitution, he again begin to sink, the same or milder stimuli, in smaller doses however, may be used to advantage.

In some cases of this nature, the essence of beef, seasoned with salt and Cayenne pepper, is very grateful, and restores the strength. In regard to the diet of a patient recovering from an attack of this strange affection, it is difficult to name any article that the patient will express a desire for; and in the more malignant cases, he will lie, for several days, in a state almost resembling that of the hibernating animals—he wants nothing—complains of nothing—and feels nothing. If watched carefully during this time, and the indications are met as they arise, there is no danger to be apprehended; nature will at length speak for herself; and as far as I have observed, it is generally safe to gratify the particular whim of the patient in any little matter he may desire. Hot green tea is often highly grateful; cold lemonade, barley-water, chicken-water, oat-meal gruel, sago, arrow-root, mush and milk, &c., may afford us a choice, that will meet the wants of almost every case. But, one thing ought to be remembered, as a general rule, that until the restoration of the *biliary and urinary secretions*, no nourishment can be wanted, and none should be allowed. The truth of this is evident in the fact that it is seldom or never called for by the patient, and his friends had better not anticipate the call. Before concluding these remarks, I will insert from the day-book the comparative results of the practice pursued, under the direction of the physician-in-chief, in the hospital, prior to the adoption of my practice, and of that which I introduced, upon the principles before explained. From July 27th to August 6th, fourteen cholera patients were received into the hospital; of these, five were cured* and nine died. From August 7th inclusively, to August 21st, twenty-eight cases occurred; of these, twenty were cured, and eight died. Both computations have been made, by excluding all cases not choleric, and in each some of the cases were moribund when received.

A few cases have been selected, and are here inserted to illustrate more clearly the course of our practice, based upon the congestive view of this disease.

Early on Sunday morning of August 5th I was called to see a woman who had been taken with the cholera in the street. With some difficulty she had at length been received into a house, where I saw her. Her symptoms were, rice water evacuations, continued vomiting, and cramps of the legs and arms. The pulse was small and contracted, but the blue stage had not yet arrived, nor

* Including two cured by my treatment, being my first two cases—one of which will be detailed.

were the fingers shrivelled. The tongue however was cold; I bled her upon the spot about twelve ounces, and sent off for the carriers to convey her to the hospital. About an hour after I arrived there, and as I had commenced the treatment the case was left solely to my direction. I found her worse; the collapsed stage was fast progressing; the pulse weaker; the fingers beginning to show the corrugated appearance, and the vomiting continual. I immediately gave her the salt emetic, which produced excessive retching and painful efforts for some minutes. These at length ceased, and twenty grains of calomel were exhibited. For a time the stomach remained tranquil, but again the disposition to vomit returned. To relieve which the effervescent mixture was given in small quantities, and occasionally small pieces of ice. In one hour after the first dose of calomel, twenty grains were again given. Between these two doses, as the pulse had improved after the vomiting, cups were applied over the whole abdomen, and a few ounces of blood extracted. A large blister was then applied over the abdomen, from the navel to the top of the epigastric region. Ten grains of calomel were exhibited hourly until sixty were taken in all, hot sand bags were also placed to the lower extremities. Thus, she was left to await the effects of what had been done; taking nothing but ice, and occasionally soda water, or the effervescent draught. Towards the latter part of the day her appearance was so unfavourable, that every one who saw her felt persuaded the result was no longer doubtful, and predicted her death that night; I was sanguine, and had hopes; I had seen how rapidly patients sink when once in the collapsed state, if not likely to recover. She had still some pulse, less vomiting, was less urgent for drink, and what was more important than all, the *blue face* and distended veins were not remarkable. I therefore did not regard the cold, wet and shrivelled hands, the almost extinct voice, and the general bad appearance. In this state she passed the night, when towards morning an evident improvement was discovered; reäction began to appear about the neck, shoulders and thighs, and my patient's eyes were brighter, and her lips of a better colour. The improvement was slow; in the course of this day the spinage stools were discharged, and she was convalescent. The next day salivation came on, which proved troublesome. She recovered entirely.

The next case in which I put in practice this treatment, occurred in the hospital on the 7th of August; but as the patient had not fallen into the collapsed state, and recovered without difficulty, no particulars are necessary.

The result of these two cases made me anxious to put my views to a further trial, and on the 8th the opportunity occurred in the person of a German, whose treatment and condition were observed by many physicians and students visiting the hospital constantly. The circumstances under which he came under my care are briefly these:—

He was attacked about 5 o'clock in the morning, and brought into the hospital at 8.

I arrived there at 9, saw him undergoing treatment, but did not interfere. The only medicine prescribed, was a mixture of magnesia, spirit of camphor —and chloric ether—with water. About half past ten, as the physician-in-chief was leaving the bed-side, I stopped, and asked his permission to treat the case. He replied—"It is not a *fair case for you*—the man is moribund." He, however, left the hospital, without ordering any thing for him, and appeared to assent to my request. I then approached the patient, and found him cold

and pulseless, covered with large drops of cold sweat, restless and tossing about his bed; he spoke in a whisper scarcely audible; he had no urinary discharge, but occasionally the rice water evacuations; the hands and feet blue, and marked by distended veins. I am not prepared to say what was the colour of his lips, but the whole expression of his countenance was so bad, that a single look would convince us he must die.

Such was this man's condition when I ordered the nurse to prepare the salt vomit. It was taken through some persuasion, and nearly the whole pint swallowed. In one minute vomiting began, and brought from his stomach an enormous quantity of fluids which he had taken. The retching and fruitless efforts that now followed were so severe, and his exhaustion seemed so great, that I stood, anxious for the result. At length he became composed, and upon taking hold of his wrist, to my great gratification and relief, there was pulse. Let it suffice now to say, that from this time, his pulse did not leave him, and that vomiting did not return. The calomel was the next step, and this was not spared. He began with one scruple, and took in the course of the day at least seventy grains. Cups were applied to the abdomen; they drew blood, and his pulse rose. A blister was next applied over the epigastrium. The effervescent draught, occasionally a little ice, and rinsing his mouth with cold water, comprised all the treatment that followed. It was not until evening that his condition was much improved. From this time, he recovered, but very slowly; large quantities of spinage stools came away the next day, at which time also the urinary discharge began to return. In a few days he was sent out to the convalescent hospital, and was restored to perfect health, without salivation. A curious eruption appeared upon his skin, during his convalescence, which in a few days disappeared.

One other case will now be detailed, to explain the treatment in those which relapse. This occurred when the practice of the hospital had become established, and trials had been abandoned.

A most unfortunate family residing in Lombard street, near the Schuylkill, consisting of a man, his wife, and seven children, became the victims of this disease, to an extent seldom equalled.

An infant, two months old, was first attacked—it died; and the mother returned from the funeral much fatigued; she went to bed however as well as usual, and about 2 o'clock in the morning was attacked with vomiting and purging; about the same time, two sons, one fourteen years of age, the other sixteen, became affected. Between 8 and 9, she was brought to the hospital, in the last stage of collapse, and died in three hours:—while she was breathing her last, three of her sons arrived in succession, two with the cholera, and one with a chronic liver affection, very much exhausted. Our attention was now directed from the dying, to the relief of those for whom there was hope. The boys affected with cholera, were vomited, cupped, blistered, and treated with the calomel in the usual manner. Francis, the elder, was just getting into the collapsed state when this course was commenced; his skin had an unfavourable character—it was almost universally *doughy* and cold; and the blood in the veins seemed to get along with much difficulty. The countenance also had an unfavourable aspect; his fate long stood doubtful, but he got through that night, and with the exception of cold hands and feet, seemed to have passed into a state of partial reäction: bilious stools had been discharged; thirst had very

much diminished; the elasticity of the skin was restored to the parts immediately connected with the body, and his pulse, although not strong, was quite apparent. Soda water, small pieces of ice, and the effervescent draught, were ordered to be given occasionally; and through the morning he took some small doses of calomel. About 3 o'clock, during my absence, he was ordered, by the physician-in-chief, an ounce of castor oil, with a drachm of spirit of turpentine, as he appeared to be sinking. During the evening, it being then my term of duty, it was discovered that he was almost pulseless; that the skin had got colder; his tongue again cold; his respiration bad, and his whole aspect quite as unfavourable as at the commencement of his treatment. Under such circumstances, stimuli were indispensable. The Cayenne pepper tea, warm, was immediately given at intervals, and he was carefully watched through the night, taking also, some other stimulant not now recollected. At 8 o'clock next morning, he vomited, and threw up the oil he had taken the day previous, and also the drinks he had swallowed in the intermediate time. This oil must then have lain in his stomach seventeen hours. The vomiting, however, did not seem to depress him; the stimulant practice was continued. Towards evening he again relapsed somewhat, the bilious stools having disappeared, and the pulse flagging; more active stimulants, given with a more liberal hand, a third time raised him. During this day, he also took occasional doses of calomel; sometimes five grains; sometimes two grains. The exact amount of calomel he took, is not known, as in the hurry of the moment, no notes of the cases were made. The whole history, as here detailed, is correct in the main points, although the minutiæ are not recollected. It was during this day, that we learnt from his brother, for the first time, that Francis had been accustomed to take a few small glasses of spirits, when at his work in the brick-yard, although not in the habit of getting intoxicated. Great attention in regard to his pulse, and to the regular supply of the stimuli, kept him up and he finally recovered. It was for four or five days after this, that he laid torpidly on his bed, with a good pulse, bilious stools, clean tongue, and in a good state of reäction, but unable to take any article of food whatever. He was just commencing the use of quinine, when he left us for the convalescent hospital. No salivation was produced by the large quantities of calomel he took. There was something very extraordinary in the poison that produced the disease in this family. The brother, affected with the liver complaint, was emaciated to the last degree, and died under choleric symptoms in a few days. The other brother, with cholera, was obstinate and slow in his recovery; and a sister only five years of age, who was brought in two days after Francis, was in a doubtful state for a week, but she also at length was restored to health. Two others of the same family, a girl about fifteen, and a child of four years of age, were conveyed to another hospital, and in spite of all efforts died. Thus in one house five out of eight, attacked, were hurried to the grave in a few days. The father was the only one not taken sick, and of the eight that composed his family circle, only three now remain. It may be well to mention, that by reference to the book of cases, it is found, not a single case of cholera terminated fatally after the adoption of my system of practice, except confirmed drunkards, and those who were brought in too late; that is, in what is termed the blue stage, and two of these last had been treated by opium previous to their arrival. By the blue stage is understood, that condition of the venous system, which with a sunken eye gives to the face

a peculiar dark expression; the veins on the inside of the lips are filled with dark torpid blood, and those on the extremities are in a similar condition. It is always accompanied by great jactitation, oppression, and complaints of excessive heat. It is in fact a state of gradual death.

So much success has been claimed for the saline powders, that, although I feel totally unable, as yet, to explain their mode of operation, it may be well to add the prescription, as it may perhaps become an adjuvant to the practice here recommended. It will, at least, leave it to the judgment of the practitioner, to select so much of each course as may meet the indication of any particular case.

℞. Sup. carb. sodæ, ʒss.
Muriat. sodæ, ℈j.
Chlorat. potassa, grs. viij.
To be taken every hour in a little water.

Thus we have attempted to place before the profession a pathological view of this disease, formed perhaps upon too limited experience, but connected with a system of practice, at least consistent with the principles that have been advanced. "*The cholera*" is rapidly spreading in all directions, so that if any benefit is to be derived from a new course of treating it, let it be made public at once, in a crude form, rather than retained for polishing, to stalk forth at length, in all the pride of a fine dress, when, alas! the grave has closed upon thousands, and all around is sadness and mourning.

Dr. Ochel of St. Petersburg, on Cholera.

Dr. Ochel, of St. Petersburg, has published in the Journal of Frankfort, No. 302, some interesting observations on cholera, of which we shall present a summary. He states that—

By far the greater number of medical men in St. Petersburg are of opinion that this epidemic is *not contagious*, but that it is propagated by aërial miasmata and exhalations from the earth. The sudden appearance of the pestilence, and the rapidity with which it diffuses itself whenever it appears, strongly corroborate this idea. Moreover, many who escape the disease in its violent and concentrated form, suffer from *choleric* or *choleroid* attack, which are to be viewed only as diminutives of the great original; thereby distinctly proving that its severity and fatality are in proportion as the patients are predisposed to be affected by the influence of the atmosphere.

Dr. Ochel contends that the proximate cause of the disease is a paralysis of the organ of circulation. His remarks apply chiefly to the third stage, or what has been called the "stadium reäctionis," which varies exceedingly in its character in different individuals. In many it commenced with delirium, which was speedily followed by coma, and numerous patients died in this state; in others there were neither delirium nor coma, but inflammatory attacks of different viscera, sometimes of the liver, and not unfrequently of the parotid gland; in a third class he observed fevers of various types, gastric, bilious, inflammatory, typhoid, or even intermittent. The treatment which he found by far the most effectual, consisted in giving repeated doses of common sea-salt in tepid water, till it produced bilious vomitings and stools. Out of a great num-

ber of cases, he selected 15 of the most aggravated; in each of these he gave the solution of salt, and in every case, bile was copiously evacuated in less than an hour; 13 were saved, and 2 died. When the bile passed downwards, either at the time, or on the morrow, he observed that the patients were generally cured in three or four days; when it did not, they were subject to relapse of particular symptoms, as watery vomitings, cold extremities, &c. &c. but these threatenings vanished as soon as the bile was evacuated by a few spoonfuls of tincture of rhubarb. Some of the medical men tried emetic doses of ipecacuan and tartrate of antimony, and found that nearly the same success was obtained, provided a sufficient quantity of bile was evacuated. Even the lower orders in Russia, who refused to apply for medical assistance, resorted to large quantities of oil and tepid milk to excite vomiting, and frequently with good effects.

From these facts, Dr. Ochel infers that the correct mode of treating cholera is to evacuate the bile as quickly as possible; and that whatever tends to check the vomiting and purging, before this effect is produced, is decidedly pernicious; for though death may be thus prevented at the onset of the disease, the foundation is almost always laid for the secondary disease, or "stadium reäctionis," which never takes place when the bile has been freely discharged in the first stage. Dissection of rapidly fatal cases adds confirmation to this view of the subject; the gall-bladder is found distended with bile, and the ducts closely contracted. We must carefully distinguish the morbid appearances in such as have died in the early stage, from those which we observe after the secondary disease, under any of its different modifications, has commenced.

Many of Dr. Ochel's colleagues observed that the best preservative against an attack of the epidemic was a powerful emetic. As the disease began to subside in Russia it was noticed that numerous cases of bilious vomitings and purgings occurred.

Many who had been cured of cholera by the sedative and astringent treatment, recovered exceedingly slowly, and for several weeks after they had been pronounced well, suffered from vertigo, spasms, &c. &c.; but these symptoms quickly disappeared, when the discharge of bile was promoted.

Cholera at New York.

The cholera at New York continues to decrease, but exceedingly slowly. This will be evinced by the following table:—

	No. of cases,	deaths,*
August 15th,	75	27
16th,	79	34
17th,	63	32
18th,	79	26
19th,	56	25
20th,	58	39
21st,	52	16
Total,	462	199

* These are taken from the City Inspector's report of burials.

Whole number of deaths in New York during the week, ending 18th of August, 446; of which were, from malignant cholera, 222; cholera morbus, 6; diarrhœa, 7; dysentery, 8; cholera infantum, 36; inflammation of bowels, 10.

Health of Philadelphia.

The cholera is rapidly declining in Philadelphia, as is shown both by the report of cases by the Board of Health, and by the returns of the sextons of the interments.

On the 16th of August 94 cases were reported.

17th	-	90
18th	-	74
19th	-	49
20th	-	54
21st	-	51
22d	-	49

In the 2d week in August, ending the 11th, the interments from malignant cholera were 370; in the 3d week, ending the 18th of August, there were but 282, and the succeeding week will show a much greater diminution in the mortality of the disease.

The following table exhibits the whole mortality, and also that from bowel complaints for the 3d week in August for five successive years.

1828.—3d week, ending August 16th. Whole mortality, 116; of which, the deaths from cholera morbus were, adults, 0; children, 16; Total, 16.—Diarrhœa, adults, 1; children, 4; Total, 5.—Dysentery, adults, 1; children, 0; Total, 1.—Total from bowel complaints, 22.

1829.—3d week, ending August 22d. Whole mortality, 91; of which, the deaths from cholera morbus were, adults, 2; children, 22; Total, 24.—Diarrhœa, adults, 0; children, 4; Total, 4.—Dysentery, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 31.

1830.—3d week, ending August 21st. Whole mortality, 100; of which, the deaths from cholera morbus were, adults, 0; children, 26; Total, 26.—Diarrhœa, adults, 0; children, 3; Total, 3.—Dysentery, adults, 2; children, 0; Total, 2.—Total from bowel complaints, 31.

1831.—3d week, ending August 20th. Whole mortality, 110; of which, the deaths from cholera morbus were, adults, 0; children, 13; Total, 13.—Diarrhœa, adults, 0; children, 6; Total, 6.—Dysentery, adults, 2; children, 6; Total, 8.—Total from bowel complaints, 27.

1832.—3d week, ending August 18th. Total mortality, 500; of which, the deaths from cholera morbus were, adults, 3; children, 7; Total, 10.—Malignant cholera, adults, 238; children, 44; Total, 282.—Diarrhœa, adults, 6; children, 12; Total, 18.—Dysentery, adults, 3; children, 2; Total, 5.—Total from bowel complaints, 315.

THE

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Historical Examination of the Epidemic Cholera of Paris; Account of the different Modes of Treatment employed against different Forms and Periods of the Disease; and Estimate of the results of these Methods.

The numerous materials collected from all parts of Paris, will, doubtless, furnish the means of tracing a general history of the epidemic cholera; and while we wait for the periods when we may undertake this task, we shall publish, in the meantime, a series of facts by which it may be facilitated. We begin with the

Hôtel-Dieu.—The sanitary state of this large hospital always furnishes the exact standard of what is going on in the rest of the city. Its central position and the neighbourhood of several populous districts, caused patients to flock thither before the prevalent disease was heard of at the other establishments.

Already, especially under the care of M. Petit, it had been observed that several persons were attacked with profuse diarrhœa and serous vomiting; and one or two cases of sporadic cholera had been observed, which had yielded to simple rational treatment, when, on the 26th of March, a woman with the same symptoms, though in a more advanced stage, entered the St. Paul Ward. The existence of cholera was admitted, without, however, regarding the case as of the epidemic species. The woman died four or five days after.

On the 27th of March, 4 new cases, 2 men and 2 women, with the symptoms ascribed to Indian cholera, were brought in the evening. Assistance was promptly given; but a man and a woman died next day, and inspection left no doubt on the nature of the disorder. The remedies were external revellents and opiates; but reäction did not take place, and death speedily ensued. These cases were carefully recorded by M. Montault, pupil of M. Petit.

On the 28th, 9 men, labouring under intense cholera, were admitted. One died the same day, after being a few hours in the ward; 7 more died next day, and 1 only recovered. A women entered the Hôtel-Dieu the same day, about four in the afternoon, and expired before midnight. On opening a vein, no blood could be obtained; the exhibition of punch produced no reäction; and, to use the language of M. Magendie, by whom she was treated, she was a *cadaverized* case,—a true type of that asphyxial variety afterwards met with.

These first demonstrations indicated the severity of the disease; and two wards were assigned for the admission of patients that might forthwith be expected. This apprehension was very soon confirmed; and next day, the 29th of March, 23 new cases, 14 men and 9 females, were lying in the St. Martine and St. Monica Wards, under the care of MM. Magendie, Honoré, and Bally.

Of these 14 men, 8 died the same day, and the remaining 6 the day after. One of the 9 women died the same day. Most of these patients, it may be remarked, came from the district of the Hotel de Ville, from the street of La Mortellerie, from the city; some belonged to districts less insalubrious, as the Gate of St. Denis, the street of Orleans St. Honoré, &c. Dissemination was manifest, and consequently it was necessary to admit some other influence beside that which is concentrated in a confined and isolated locality.

On the 30th, 40 new cases were received; 10 died the same day, and almost all the rest the ensuing day. The same day, (30th,) at midnight, 78 cholera patients were lying in the Hôtel-Dieu; and on the evening the following day, only 16 were in life, and expired in the course of the subsequent days. At this period, it must be observed, of 27 females only 19 died, while among 51 men there were 43 deaths. This alarming mortality depended not merely, as was asserted, on the uncertainty of the treatment; for most of the patients brought to the Hôtel-Dieu presented the symptoms of the most virulent form of the disease. In vain did we attempt to produce reäction, and to warm them by every means suggested by reason and experience; the violet tint of the countenance and the limbs continued; the voice was irrecoverably gone; the breathing slow and deep; the eye dull, and the eyelids half open. The serous discharges continued to exhaust the patient, who was quickly cut off amidst acute suffering from the cramps, and unabated præcordial anguish.

On the 31st, 50 new cases, 30 male and 20 female, were admitted; and it is remarkable that the proportion of admissions and mortality nearly observed this standard throughout. During these five days, therefore, the progress of the epidemic was rapid, and its commencement indicated a high degree of severity, and a wide extent of comprehension. Hitherto all the individuals attacked belonged to the working class, and they were generally middle-aged men, exhausted by labour and privations, badly fed and clothed, residing in unhealthy districts, neglecting every species of cleanliness, and guilty of frequent errors of diet. The majority had suffered before the first assault of the disease a diarrhœa of several days' duration, which had been neglected, or rather treated by wine, spirits, and other *stimuli*, resorted to by the common people in such cases.

The patients accommodated in the two wards already mentioned, remained only two days under the care of the physicians specified. All the heads of the faculty being assembled, resolved that a certain number of beds should be allotted to each; and in consequence thereof nine physicians and three surgeons divided the 168 beds contained in the two wards, making to each 14, or 7 men and 7 women. These physicians and surgeons were MM. Petit, Recamier, Gueneau de Mussy, Husson, Magendie, Honoré, Bally, Gendrin, Caillard, Dupuytren, Breschet, Sanson.

Each head of the service had his internal pupil and his externals. The number of hospital attendants was augmented, but it was soon discovered that these

measures, instead of alleviating and accelerating the duty, deranged its regularity. Very varied prescriptions, very different methods, measures executed at the same time, or at different hours, produced a degree of confusion, which caused much suffering to the patients, and which the zeal and intelligence of the most able assistants could not prevent. On the 3d of April, after which it became imperative to distribute the patients in all the wards situate on the left bank of the Seine, 388 patients had been treated in the wards of St. Martine and St. Monica, and next day 281 deaths were to be divided among the 12 physicians specified above. Some days after, one-half at least of the residual 107 had expired, and 3 score only quitted the hospital recovered.

We shall afterwards consider the therapeutic methods observed; at present we must advert to the pathological principles on which the treatment was founded, and which were sought in the comparison of the symptoms with the necroscopic appearances.

The first inspections, performed with the minutest care, showed that the brain, the lungs, the liver, the spleen, and the other parenchymatous organs were not the seat of any arterial or venous bloody congestion, that there was not even cadaverous turgescence or mechanical *stasis*, and already the modification undergone by the blood was perceptible. Of this blood the chambers of the heart and the large vessels contained a certain quantity, though less than usual; but it was not in mass; there was no fibrinous clots in the aorta or pulmonary veins; it was blacker than the ordinary venous blood; its consistence was that of broken down currant-jelly, that is, a species of pulp a little diffluent, but without trace of separation of the serum from the fibrine. The inner membrane of the vessels offered nothing indicating a morbid condition, and all the branches of the abdominal portal vein were empty.

On the other hand, the proper digestive apparatus, viz. the stomach and intestines, presented evident signs of active congestion. The gastro-enteric mucous membrane was injected of a rose colour, punctulated and sprinkled with arborescence of a bright red. There were many prominent patches of very distinct isolated follicles; and near the end of the *ileum* were all the anatomical characters of mucous inflammation of that portion of intestine. The whole tract of the intestine contained a large quantity of serous or sero-mucous fluid, tinged sometimes red, occasionally yellow, but most frequently turbid, whitish, depositing a flocculent pulverulent matter, as is done by a strong decoction of rice or an imperfectly strained emulsion. The large intestine appeared not unhealthy, and its contained fluid belonged to the *ileum*. The gall-bladder, without being distended, contained a blackish viscid fluid. The urinary bladder was uniformly empty, although the whole urinary apparatus betrayed no appreciable lesion. *Lastly*, the whole body was extremely rigid. The muscles formed through the skin bold reliefs, as in the most violent contractions. The fingers and toes were incurvated; the nails bluish; the countenance, pinched and contracted, retained the expression of suffering; and the eyes half-covered by the eyelids presented the lustreless stare already observed in life.

The cerebro-spinal apparatus was the object of researches still more strict if possible. The brain proper was firm, punctulated with black blood. The gray substance rose-coloured, but all natural. Neither the *cerebellum*, nor the annular protuberance, nor the spinal bulb, bore any trace of lesion. The serous fluid

of the ventricles, and of the ex-serous cavity of the spinal cord showed nothing remarkable. The same may be said of the chief nervous trunks of the extremities.

Lastly, several great sympathetics were dissected in their entire course, and convincing proof was obtained that they presented no visible lesion.

These researches were made without preconceived idea, and with the laudable intention of forming an exact estimate of the organic lesions of the individuals who became victims to *cholera*. It was thought that proof was given of *active congestion* of the digestive apparatus,—congestion, by means of which was explained the enormous sero-mucous secretion forming the basis of the evacuations exhausting so rapidly the choleric subjects. This bloody concentration was believed to have the effect of speedily robbing the blood of a large proportion of its mass and constituent principles, since the residue was manifestly less than usual, and had lost the characters of healthy blood. The disturbance of innervation, in consequence of which these changes supervened, though maintained by a distinguished surgeon, is mere supposition; and not even an incipient proof or a plausible trace could be discovered in favour of this revived opinion, which must be regarded as a mere hypothesis.

We must therefore be satisfied with regarding as uniform a very active irritation of the small intestine, or a first degree of inflammation giving rise to peculiar phenomena. From this, consequently, was deduced the first rule of treatment, the object of which was to oppose this inflammation. We shall see, nevertheless, that, notwithstanding this opinion, the treatment adopted was far from being purely antiphlogistic.

On one hand, all the patients brought to the Hôtel-Dieu, by no means presented the same symptoms; and if, on the whole, they were attacked by the same disease, it was impossible for them all to be attacked in the same degree, or for the disease to assume exactly the same forms in all cases.

The first patients brought to the hospital were in a state of deep collapse, of general cold, with the circulation almost at a pause, the large arteries alone presenting feeble oscillations. The beats of the heart were scarcely heard; and the ear, applied to the chest, perceived only a dull sound, denoting that the ventricles did not expel the little blood they contained. These patients expired speedily, whatever efforts were made to warm them; and many thus died in six, eight, ten, or twelve hours at most. With these patients the first and most urgent indication was to reëstablish the circulation, to induce reäction in the sanguiferous and nervous system, and put a stop to that state of slow *asphyxia* which directly threatened life. In these circumstances, M. Magendie administered several glasses of spirituous punch, spoonfuls of hot spiced wine, frequently repeated, and of Malaga and other spirituous wines. These means were, however, very far from producing always the effect desired.

Patients, however, in whom the refrigerating period was less advanced, were also brought to the hospital; and these complained of acute pains in the epigastric region, and in that of the heart, as if the lower part of the chest was the seat of a sense of weight, which embarrassed at once the motions of the stomach and those of the heart. In these patients the pulse was more distinct than in the preceding class, the cramps of the legs were violent and frequent, agitation was extreme, and the vomitings were accompanied with intense an-

guish. In this form or degree of the disease, an indication for detraction of blood, either by the lancet, or by means of cupping, or by leeches, was believed to be found; and MM. Husson, Honoré, Gendrin, and others, had recourse to the antiphlogistic method with success.

Other patients appeared with an assemblage of very singular spasmodic symptoms. Cramps, occupying simultaneously or successively almost all the muscles of the trunk and extremities, appeared the leading symptom of the disorder; the patient was in incessant agitation, uttered piercing cries, rolled in his bed, and often even threw himself on the floor, without being able to obtain a moment's respite. In some, who had almost no vomiting or purging, the countenance was red and congested, the eye brilliant, the belly tense, and the urine suppressed; and, had not the precursors of the disease been almost like those observed in other cases, it might have been mistaken for another disorder. Though in these cases of spasmodic cholera it was still thought useful to draw blood, the urgency of controlling what was denominated nervous irritation was admitted; and in these circumstances, several physicians obtained good effects from the use of opium in large doses, long-continued baths, and numerous analogous means.

Lastly, some patients presented all the symptoms of *cholera* deemed inflammatory. Pain, aggravated by the slightest pressure, burning thirst, general heat, red tongue, and hard pulse; and in these circumstances the means employed were modified by the vigour of the subject and the period at which he was brought to the hospital.

Thus, some days of experience were sufficient to demonstrate this great truth, that in *cholera*, as in every other disease, the treatment, regulated by observation is, alone, good and practicable, and that it is absurd to adopt a uniform and general therapeutic system. Was the eruption of this formidable epidemic in Paris in 1832 requisite to furnish occasion to prove, that exclusive principles, always fallacious, are particularly so in the practice of medicine, and that the search for a specific may be abandoned with that for the philosopher's stone.

The principal indications now specified, forming the basis of some partial modes of treatment, we shall mention the more general ideas which served as the foundation of special methods. We do not allude to specifics, but to a mode of treatment with reference to etiological ideas more or less founded on observations of some isolated facts, or on analogy with other disorders, the ultimate nature of which is better understood.

Many physicians, for instance, regarded *cholera* as the result of a species of miasmatic poisoning, and on this supposition founded their treatment. The painter's colic is accompanied with symptoms similar in some points of view to those of cholera. Hence the idea of employing in the last affection the sulphate of *alumina*, sulphuric lemonade, and other remedies, which peculiarly modify the intestinal tube when under the influence of the oxides of lead. This method MM. Gendrin, Sanson, and others employed, and it must be admitted, without any success.

M. Dupuytren considering the most frequent symptom, that of the colliquative extenuating diarrhœa, as the one which most urgently demanded the attention of the practitioner, prescribed acetate of lead and the preparations of

opium. He believed that these remedies, administered in large doses, would victoriously oppose the extreme determination to the small intestine, and re-establish the balance by the sole operation of their astringent and sedative properties. This theoretical view derived more or less plausibility from analogy; but it gave way under clinical experiment; and it was requisite to abandon it after some trials conducted with becoming precautions.

The therapeutic measures underwent several modifications suggested by the leading symptoms. Each physician had a peculiar method, and in this we observe great diversity, if not in substance, at least in form.

In the refrigerating period, M. Magendie gave internally diffusible stimulants; MM. Petit, Honoré, Gendrin, and several others, employed friction of the trunk and extremities with hot aromatic liquors; some physicians placed the patient in a vapour-bath; others enveloped him in woollen coverings, and conveyed under them, by means of an appropriate tube, a large supply of alcoholic vapour. Lastly, M. Recamier employed cold affusion, or at least affusion of water at 57, 58, or 59 degrees only, for one or two minutes over the whole surface; a method which produced energetic reäction, and almost instantaneously restored heat and sweat. The extremities of the patient were surrounded with hot bricks, hot smoothing-irons, bags filled with hot sand, bottles of hot water; and, in short, nothing was neglected to produce speedily the result.

At a period less advanced, when the patient, yet retaining a little heat, was suffering from vomiting and purging so profuse as to threaten immediate dissolution, means also very varied, and suggested by some peculiar systematic notions, were adopted. Thus, the physiological physicians applied leeches to the epigastrium, opened the veins of the arm, administered soothing drinks, and, in short, studied to allay the irritation of the digestive apparatus. Others, attaching less importance to these symptoms styled inflammatory, did not hesitate to employ means more active, more direct, and more likely to augment the disturbed action of the disordered organs. This revulsion, as the followers of M. Broussais termed it, brought about most happy changes. Tartrate of antimony, in the dose of 2 or 3 grains, ipecacuan, in a quantity varying from 15 to 18 grains to a scruple, and even more, was administered boldly, and with the happiest effect. In this M. Recamier imitated the Germans, who have long boasted the superiority of this substance in the treatment of dysentery, and other acute affections of the intestinal tube. The vomiting, increased at first, soon ceased, and with it the intestinal discharges; and gentle uniform warmth then followed, the skin was covered by sweat, the cramps ceased, and tranquillity of the system was restored. These effects obtained in a great number of patients, induced almost all the other physicians to employ the same remedy; and at present ipecacuan is in frequent use in the treatment of cholera.

Under the influence of the same idea, the same physician employed the sulphate, and the carbonate of soda and of magnesia, in ordinary purgative doses. The choleric diarrhœa was by this very simple remedy very promptly controlled; and we owe to it numerous cures.

When the patient in the deepest collapse appears insensible to every stimulant, the electro-puncture has been used with some benefit; and to this M. Bally is indebted for reviving several patients in this hopeless condition. An agent still more active; namely, cauterization of the epigastrium was also em-

ployed; but M. Dupuytren, by whom it was used, has had no reason to commend it. Lastly, with the same object, several drops of ether saturated with camphor, were administered with apparent advantage by M. Recamier.

Besides the local bleeding, by means of leeches or cupping, and those practised at the arm and jugular vein by the lancet, arteriotomy was performed on a number of subjects, who, it must be confessed, appeared to derive from it no benefit. The temporal artery was opened by MM. Magendie, Recamier, Gendrin, and several others; and by this means some spoonfuls of rose-coloured blood, with impaired fluidity, trickled away as if from a venous tube. In two subjects, it was determined to open the radial artery a little above the articulation of the thumb, where it is superficial, and may be easily tied. It was then observed that this vascular trunk scarcely contained a feeble thread of blood, the motion of which was so much retarded, that the jet scarcely rose beyond the lips of the wound; the ventricular impulse was almost extinct, and, to obviate hæmorrhage, a simple compress and ordinary bandage was sufficient. The thin plastic blood scarcely reddened the two or three turns of the roller which covered the wound of the artery; when reäction began to appear, there was no hæmorrhage, properly so named; and ligature of the vessel was dispensed with as superfluous.

These facts are not new; and the surgeons of Berlin went a step further. The brachial and even the crural artery was opened; and it will scarcely be credited that a distinguished surgeon, whose name we conceal, ventured to open the carotid artery, because the other arterial trunks had furnished no blood. It is related that the latter arteries being equally deficient, the operator introduced a stylet into the aorta and left ventricle to rouse it to new contractions. Death took place on these manœuvres, although denied by one of the admirers of this chirurgical hardihood; and there was not time to see the patient sink under hæmorrhage.

Though arteriotomy is practicable in the treatment of severe *cholera*, it is probable that it ought not to be employed, because the arterial system is not the seat of the mischief. The venous blood is manifestly changed, while that of the arteries is merely deficient in quantity. If this were practicable, it would be more rational to attempt transfusion, than to deprive the system of the little stimulus left. But rational physicians, who admit as a therapeutic agent, that only which bears a relation to well-marked symptoms, will have recourse to suitable means; and we turn to those who particularly belong to this class.

We shall take a view, in the meantime, of the method employed by each of the physicians of the Hôtel-Dieu, and the results obtained in their different departments. We shall do so in reference to the peculiar circumstances presented, and which have influenced the numerical amount of the deaths and recoveries.

The first seven beds of the St. Martine Ward being under the care of M. Honoré, we shall begin with that honourable practitioner. M. Honoré distinguishing two well-marked periods in the progress of cholera, prescribed the following treatment. During the attacks, that is, when vomiting and looseness, cramps, refrigeration, and more or less *aphonia* were urgent, friction on the extremities and the præcordial region, from half hour to half hour, with flannel soaked in a mixture of two ounces of spirit of camphor, and half a drachm of

tincture of cantharides; 2*d*, to administer every half hour *enemata*, consisting of rice decoction, 1 pint; extract of rhatany, 2 drachms; laudanum, 40 drops, and ether, 4 drachms—the whole divided into 4 *enemata;* 3*d*, every half hour a spoonful of Malaga wine; 4*th*, carbonated water, or sugared tea for drink; and 5*th*, the anti-emetic of Dehaen, with 15 drops of laudanum, and half a drachm of the anodyne liquor of Hoffmann. If, in spite of all these means, the vomiting continues, a large blister was applied to the middle of the back. Lastly, there was administered in the night, in spoonfuls, a potion consisting of Malaga wine for its basis, and a large proportion of the syrup of *diacodium;* then revellents were applied to the feet, &c.

In the period of reäction, the treatment was regulated by the leading symptoms. Blood, for instance, was drawn from the arm, or by leeches from the epigastric or iliac regions, according as symptoms of morbid congestion appeared in different points of the digestive apparatus. M. Honoré, finally, has generalized in some degree his opinion on the general treatment of *cholera* by confining it to three indications;—to restore warmth, to oppose by all possible means the concentration which tends to the centre, and then at a subsequent period to moderate the effort of reäction which takes place in the opposite direction.

About 40 patients of both sexes were treated in the beds allotted to M. Honoré during the first seven days of the epidemic; and half of the number expired. It must be mentioned that four or five individuals at least were brought dying, and remained only one or two hours in the ward, so that to them no cure could be administered. After this period, that is, during the succeeding eight days, nearly a like number of patients entered the same division, and the results were the same. It must, therefore, be admitted that this mode of treatment has been at once one of the most simple and the most successful. This observation is not new; but its repetition at present is not superfluous.

M. Gendrin, who comes next in the numerical series, distinguishes in general four degrees of the disease; precursors lasting for days; vomiting and cramps; then violescence of the face and extremities; and, lastly, reäction. Half an ounce of sulphate of *alumina* was dissolved in a mixture consisting of two ounces of barley water, and two ounces of syrup of quinces, with three grains of the bare extract, and a spoonful was given every half hour in a glass of cold water, which was also used for drink. A bladder full of pounded ice was applied to the belly, and the extremities were vigorously rubbed with a mixture of equal parts of the balsam of Fioraventi and traumatic alcohol. Lastly, the patients in stupor and *asphyxia* were subjected to the cold affusion for one or two minutes.

These measures were not followed with all the success desired; and the same physician afterwards varied his directions considerably. Latterly, he appeared to confide for the treatment of the early period of the disease in blood-letting, energetic revellents to the inferior extremities, and the internal use of ipecacuan. These means furnished favourable results, but only when the intensity of the epidemic appeared to abate. M. Laberge, resident pupil of M. Gendrin, has stated, that at first one cure only was obtained among seven or eight patients.

The following beds belonging to M. Dupuytren, were occupied by a very great number of patients with severe symptoms, and of whom, consequently, a

considerable proportion, more than two-thirds, sunk. A certain number, indeed, of these choleric cases brought moribund, expired either on the stairs, while they were being conducted to the ward, or on the litter, before there was time to undress them; and these cases, though reckoned in administrative statistics, ought to be deducted from the medical report. Documents afterwards published by M. Dupuytren show, that from the 7th of April to the 13th, he has lost a little more than a third of his patients,—a result which restores the equilibrium, and shows that the numerical mortality has been raised only in consequence of accident which placed on his beds dead subjects, or patients in the last agonies.

The treatment of M. Dupuytren, besides the acetate of lead, already mentioned, and cauterization of the epigastrium, which was practised in one case only, consisted in friction of the extremities with flannel soaked in a concentrated decoction of mustard with alcohol, covering the body with emollient fomentations, leeches applied where pain was felt, and lastly, drink of infusion of lime-tree flowers, edulcorated with syrup of *diacodium*, in the rate of one or two ounces to the pint of ptisan. Subsequently the professor announced that he confined himself to follow indications as they rose, and abandoned all thought of specific cure.

M. Petit, perhaps, was the first to entertain the opinion of acting in a continuous manner on the spinal chord, and producing changes in the phenomena of innervation. He consequently caused to be placed along the whole part of the spine a piece of cloth soaked in a liniment composed of one ounce of oil of turpentine, and a drachm of hartshorn. Over this was drawn a very hot smoothing-iron; and the result is an instantaneous evaporation of a great part of the liniment, which then acts strongly on the skin of this region, and produces speedy vesication. By this ingenious method the spinal chord is irritated, and very soon under this influence the heat returns, the vomiting and cramps abate, the circulation is reëstablished, and the patient experiences considerable improvement. Its action is further promoted by various accessory means, such as hot bricks, previously enveloped in cloths dipped in vinegar, round the extremities, frictions, with decoction of mustard, stimulated by hartshorn, and the internal use of balm and mint tea. At the same time, a mixture consisting of distilled lime-tree and balm waters, two ounces each, twenty drops of laudanum, and one ounce of etherated syrup is given in spoonfuls every hour, and frictions by a liniment composed of two ounces of camphorated chamomile, a drachm of laudanum, and a drachm of hartshorn, are actively used.

Though, like all the physicians of the Hôtel-Dieu, M. Petit lost during the first days of the epidemic a very great number of patients, afterwards he was more fortunate than many among them, and probably in consequence of his method of treatment. According to a notice read by him to the Academy of Medicine, on the 10th of April, his cures were in the proportion of two in three. We repeat that this can apply only to the patients admitted since the 5th of April; for, previous to that in the St. Martine and St. Monica Wards, the proportion was inverted.

M. Husson employed at first the diffusible stimulants, tonics, and external revellents or irritants. The unsuccessful results were very numerous; and other methods were practised. He applied leeches, bled, and administered

mild drinks; he had recourse then to the anti-emetic potion of Riverius; then to protracted baths; to anodyne clysters, and, under the influence of this method, he saw several recoveries take place. They were indeed few; for, on the fourteenth day of the epidemic, of 140 choleric patients placed on his beds, he counted only 5 or 6 well-established cures. Too much reliance must not be placed on convalescent cases, for they often expire very quickly, without time being given almost for a relapse.

The treatment pursued by M. Magendie enjoys, in the meantime, a celebrity quite popular. Journals of all ranks have proclaimed the good effects of punch; and they might be believed if we knew how far publications of this sort must be trusted. A diffusible stimulant given in the cold stage produces reäction; but it must not from this be inferred that all the patients are thus cured. Like all his colleagues of the Hôtel-Dieu, M. Magendie witnessed more than one-half of his choleric patients expire; and, modifying his *panacea*, he now gives as a drink a mixture of two ounces of acetate of ammonia, one pound of sugar, and four *litres* (8 pints) of infusion of chamomile. Occasionally he substitutes for the punch a vinous liquor sugared and spiced with tincture of *canella*, in the proportion of two ounces to two *litres*, or four pints of wine, of which a small glassful is given every hour.

This treatment has been followed by a degree of reäction which it is often difficult to control. The circulation excited by alcohol soon produces congestions in the head, and digestive apparatus; and more than one patient sunk with delirium, and afterwards deep coma. This congestive state, local and general depletion were always as inadequate to remedy as the application of cold to the head, and the most active revellent irritants to the feet.

M. Gueneau de Mussy, with his usual sagacity, followed the indications, and treated the principal symptoms as they required. Like M. Honoré he obtained favourable results from this progress; he modified the *formulæ* according to the particular cases which were presented; and recognising the uselessness of a great display of resources against cases which the simplest examination showed to be fatal, he was contented to treat those which might reasonably become so.

M. Bally has tried the efficacy of many energetic agents. *Opium*, given in large doses by all channels, he very soon abandoned as injurious in the period of collapse, and useless in others. The *sulphate of quinine*, in doses of from 30 to 40 grains, produced no benefit in four patients, and was also abandoned. The oil of *croton tiglium*, so much commended by several physicians of the East India Company's service, was of no avail to a poor woman, who quickly expired. Local and general bleedings, iced water, and other means were successively relinquished. *Lastly*, recourse was had to galvanism, which appeared to revive with promptitude *two* or *three* patients brought in a very advanced stage of the disease; but it has rarely been employed since; and M. Bally satisfies himself with general measures, excepting the modifications which are the result of his peculiar therapeutical ideas. In conclusion, if he has lost many more cases than his colleagues, it partly depends on this circumstance, that the 30 or 40 first choleric cases brought to the Hôtel-Dieu were treated by him alone, and that, with a single exception, all of these died.

M. Recamier found, in these afflicting circumstances, a new occasion to demonstrate the fertility of the resources of his inventive mind. Has this cele-

brated practitioner been more fortunate in results? That we cannot assert. In the mild form, or in the period of onset, he draws blood from the veins, till this fluid appears to become red in the air; he gives every second hour eight drops of laudanum in four spoonfuls of rich mucilage or gum arabic, aromatized with peppermint water. He warms the patient to restore heat and transpiration; he applies to the belly very hot cataplasms slightly stimulated with mustard, or a volatile camphorated irritating liniment; he orders repeated injections with decoction of bran, of starch, or of bread crumb, adding a little laudanum. If the diarrhœa continues, he exhibits half an ounce of *arnica* root and one-fourth of a grain of nux vomica, gradually augmented afterwards.

In violent *cholera*, or the blue stage, M. Recamier still bleeds a little, but cautiously; he excites reäction by means of affusion for a single minute of water at 58 or 59° F., and after drying the patient, and placing him in a warmed bed, the skin is very soon covered with sweat. With cold rice water for drink, a spoonful of a solution of sulphate or of hydrochlorate of soda, according to the state of the stomach, was given every quarter of an hour. Reäction being established, the treatment of the first stage is gradually introduced, and the chief study is then to moderate the congestions which take place on the different organs.

M. Recamier states that he has ascertained that opium, camphorated ether, acetate of ammonia, sulphate of quinine, and the other fixed or diffusible tonics, are absolutely useless in the blue period, and that sinapisms and all the rubefacients are equally unavailing. The small number of recoveries even which he obtained in the commencement of the epidemic, appears to him to be owing to the cold affusion, the iced drinks, and the blood-letting. Afterwards the same physician had recourse to sulphate of soda in strongly purgative doses, to ipecacuan in powder and decoction, and massing or kneading the surface instead of friction; but he contends that the different periods of the disease should be well distinguished. The blue period is, in his opinion, utterly beyond the resources of art; vital resistance is extinct, and the means employed to excite its return serve only to accelerate death, because the organism does not obey them. It is as if a whip struck a corpse.

M. Sanson began by prescribing a very hot and strongly sinapised *pediluvium*, or by subjecting the patient for some minutes to the cold affusion. He then ordered a spoonful of a mixture of four ounces of the jalap of diacodium, and one drachm of sulphate of alumina, to be given every hour; two clysters daily of decoction of poppy heads, and a drachm and a half of sulphate of alumina, and rice decoction, for drink. M. Sanson remarked that the aluminous mixture, which has a very nauseous taste, appeared agreeable to the patients for some time, but became soon insupportable. In the first case, there was endurance of the stomach, and it ceased as soon as the symptoms were abated. Under the influence of this treatment, as of all the rest, the half at least of the patients died.

M. Breschet, who had at first adopted the electro-puncture, very soon abandoned this remedy, the success of which was only temporary and ineffectual. He gave diffusible stimulants of every kind; he bled, cupped, and scarified the epigastric region, and gave cool liquors for drink. He employed volatile liniments, affusions, external revellents of every kind, but nothing in particular.

We may say as much of M. Caillard, who, engaged by the nature of his du-

ties at the Hôtel-Dieu, leaves to zealous and intelligent pupils the charge of carrying into effect a plan of treatment, the outline of which he concerts with them. These gentlemen have not had occasion to regret the loss of a greater number of patients than the other physicians; and the result affords a new proof of the little efficacy of any therapeutic method in cases of severe cholera.

In conclusion, to establish in a general manner the value of the different curative methods adopted at the Hôtel-Dieu; and to avoid an unjust division of unsuccessful issues among the 12 heads of the service, we shall give the general results, leaving to each of these gentlemen to furnish the individual returns. Thus, on the 17th April, at midnight, 1771 choleric patients had been admitted into the Hôtel-Dieu; of this number 1054 died; 344 went out cured or convalescent, and the residual 373 are still under treatment, and several must die. This shows that these deaths are in the proportion of two-thirds.

Professor Chomel, who conducts at the Hôtel-Dieu the course of clinical medicine for the faculty, had received in his wards during the first days of the epidemic, two choleric cases of the inflammatory character, which, treated by antiphlogistic measures, underwent at first a remarkable improvement. In one patient, typhoid symptoms soon supervened, and carried him off on the fifth day of his convalescence. The other sunk in like manner, after showing remarkable improvement.

The distribution of the choleric patients in the first two wards, being opposed to that of which M. Chomel had charge, it was only afterwards that a division of the St. Paul ward was assigned him. In this division remedial means were wisely afforded; and after a conscientious examination, we have found that the treatment of this distinguished practitioner, though neither extraordinary, nor very energetic, nor incendiary, nor extenuating, furnished neither more fatal cases nor less success, than that of physicians who announced pompous results from particular methods.

In all the cases of cholera deemed inflammatory, that is, with preservation of pulse and heat, cramps and vomiting, &c. M. Chomel prescribed blood-letting, and applied leeches to the epigastrium, and gave opium in pills. For drink he gave solution of gum syrup; the belly was covered with cataplasms, and the legs were rubbed with camphorated oil of chamomile.

In the *cholera algida*, or chill form, he employed decoction of coffee, and a blister on the spine, from the nape to the middle of the dorsal region. External warmth was applied by all means. The gum-syrup solution formed the basis of the fluids drank, though tea and lime-tree infusion were also given, and for the diarrhœa rice-ptisan with opium. In some cases of chill cholera, M. Chomel employs the blister to the epigastric region, and placed on the exposed *derma* half a grain of acetate of morphia. In cases with delirium he applied leeches to the mastoid processes, and, in short, founded his prescriptions on the character of the principal symptoms.

We shall be able only subsequently to furnish an exact statement of the number and kind of the patients treated in the division of M. Chomel; but we may be assured that its exactness will be unfortunately too rare in the actual circumstances. We shall in the meantime advert to the results obtained in other hospitals.

(To be continued.)

On the Cholera Animalculæ.

It is a very generally diffused opinion, although supported by no positive facts, that those animated creatures belonging to the lowest classes to which, on account of their minuteness, the name of Microscopic Animalcules has been given, are formed by the simple aggregation of the so called organic molecules; and Dr. Hermann has endeavoured to explain the contagious nature of cholera upon this supposition. As similar views have been more than once suggested, and it is to be feared that their plausibility may gain for them a more extended credence; the opinion of a naturalist deeply versed in microscopic inquiries, and who has personally observed the oriental plague, a disease not dissimilar in some of its characters to cholera, merits consideration. Professor Ehrenberg, in a late fugitive piece, has expressed himself in the following terms upon this subject.

To the doctrine of the similarity of the contagion of plague and of cholera, is connected with another which has lately found its way into the public journals, and which is merely a revival of the old and antiquated idea of small invisible insects which generate this contagion by their irritation, poison, &c. and propagate it by their increase and migrations. Similar stories are to be found in the traditions of various people, as well as those of the poisonous look of some human faces, of the dragon, of witches, magicians, the second sight, &c. formerly so seriously believed, but now only thought ridiculous. Linné, the great reformer of natural history, first took this fabulous animalcule into the domain of natural history, probably only with the view of directing the attention of naturalists to the subject.

It was said to be the cause of the pestilential blisters of the Gulf of Bothnia. He gave it the vermiform shape, and the yellow colour of northern tradition, and conferred on it the scientific name, more ridiculous than formidable, of the Infernal Fury, *(Furia infernalis.)* Before that, at the time of the plagues, at Marseilles in 1721, the contagion had been ascribed to small infusory-like winged, or mite-like, yet invisible, animals, and at the time there appeared in the French language many treatises, which must now appear absurd to every well-informed person. One of these, printed anonymously in 1726, to push the matter still further, deduces all diseases from these animalcules, which are designated by the following name:—*Vers assoupissans, cours de ventristes, barbon quifians, clouifians, erectifs, fistulaires lacrymaux, fleuistes blancs!* The tradition of the Linnean Furia still remains in Finland, where the anthrax is common; and, in Siberia, I found, in 1829, on my journey with Baron von Humboldt, a similar tradition regarding the cause of the Siberian pestilential boil, only that it was ascribed to flying large insects, without, however, one of them ever having been exactly characterized or even taken. Although we passed through many places infested with the pest, and I neglected no opportunity of learning the causes of the disease, I found no trace of this insect.

A similar tradition gave rise to the question which was put to Dr. Hemprich and myself, in the year 1823, by the Pacha of Egypt, whether it was true, that in Dongala there were flying scorpions which produced mortal wounds, for the troops refused to march there, having already suffered much from those without wings.

As during my natural history researches for nine months in Dongala, I had found nothing which justified this belief, except the troublesome small mosquitoes, which were neither poisonous, nor scorpions, the mind of the Pacha was set at ease.

As was to be expected, the same idea of invisible poisonous insects was transferred to the contagion of cholera; yet it is hardly credible that Hahnemann, as stated in the Leipzic Journal, should have for this reason recommended the sedative effects of camphor, because it killed these insects, and so expelled the cholera.

I have, for many years, made these minutest of organic bodies the subject of my particular inquiries, and have for that purpose employed the best instruments. But none before me, nor have I myself, ever succeeded in finding in the air these small bodies to which tradition had given a real existence. I must, therefore, warn medical men from modes of treatment of cholera founded upon this principle, for no naturalist has yet observed these animalcules. I have never observed these animalcules under the microscope, at the time of the plague in Egypt and Siberia; and previous to my African journey, in the Hospital of the Charité at Berlin, I had examined with the microscope many contagious and cutaneous eruptions, without ever seeing them. While, by the most rigorous microscopic accuracy, I have made the singular discovery, that infusory animalcules, from 1-6th to 1-2000th of a line in size possess an organization similar to many of the higher animals, and have demonstrated their propagation by eggs and internal organs, which are less than 1-36000th of a line, or 1-432000th of an inch in diameter, and are yet distinctly visible.

What must, then, be the size of the pest or cholera animalcules, or *cours de ventristes*, if they were not discernible by such instruments? The opinion is to be classed in the same rubric with the traditions and hypotheses of dragons, &c. and has at least been confirmed by the experience of no credible naturalist.

According to the observations of Professor Ehrenberg, the so called "Priestley's Matter," when it is not formed by real animals of a very different form, was by algæ; and particularly when it appears as a pellicle or cuticle, is the result of putrefaction, and only consist of the dead bodies of infusoria. It is therefore not the commencement of new formations, but the remains of dead organic generations.—*Edinburgh Philosophical Journal for July.*

Progress of Cholera.

POUGHKEEPSIE: The cholera appears almost to have subsided, only 3 cases having occurred during the week ending 28th.—ATHENS: from 3d to 25th of August, 13 deaths; the inhabitants who had left were returning.—ALBANY, 28th, 9 cases, 3 deaths.—TROY, 27th, 2 fatal cases.—UTICA, 25th, 6 cases, 4 deaths.—MENDON: there have been from 30 to 40 cases, and 14 deaths.

NEW JERSEY.—NEWARK, August 28th, 2 cases, 1 death.—ELIZABETHTOWN, 27th: no new case for ten days; but 3 deaths.—RAHWAY, 24th: 6 cases and 1 death near this village.—NEW BRUNSWICK, 28th: a few mild cases.

MARYLAND.—Baltimore: The Board of Health report on the 28th, 12 deaths by cholera, 8 white, and 4 coloured.—St. Michaels, Talbot county, 2 additional cases.

DISTRICT OF COLUMBIA.—Washington, August, 28th: The Board of Health report 4 new cases, 2 deaths.

RHODE ISLAND.—Providence: August 26th, the Board of Health report 2 new cases, 1 fatal.

CANADA.—York: for eight days, ending August 22d, 105 cases, 27 deaths. —Eight deaths had occurred among the new settlers at Medonte, and several among the Indians at the narrows.—Kingston: from 1st to 27th of August, 10 cases, 5 deaths.—New Edinburgh, 18th: it is estimated that a ninth part of the population have been carried off by cholera in ten days.—North Georgetown: within a distance of six miles, there have been upwards of 30 deaths.

Greenhow on Cholera.

Cholera, as it recently appeared in the towns of Newcastle and Gateshead; Including Cases illustrative of its Physiology and Pathology, with a view to the establishment of sound principles of practice. By T. M. Greenhow, M. R. C. S. in London, &c. &c. This is one of the ablest works that has issued from the English press on the subject of cholera, and we are pleased to announce its republication by Messrs. Carey & Lea.

Cholera at New York.

The cholera is gradually abating in New York.

	No. of cases,	deaths*
August 22d,	48	22
23d,	72	31
24th,	45	30
25th,	37	16
26th,	50	24
27th,	40	38
28th,	41	15
Total,	333	176

Whole number of cases since the commencement of the epidemic, 5817; deaths, 2935.

The number of deaths for the week ending August 25th, was 391, of which 178 were from malignant cholera; 8 from diarrhœa; 15 from dysentery; 42 from cholera infantum, and 6 from inflammation of the bowels.

* These are taken from the City Inspector's report of interments.

Health of Philadelphia.

The cholera continues to decrease in Philadelphia, and has ceased to excite apprehension. Yesterday there were but two deaths from the epidemic. Those persons who left the city, and the number has been much smaller than usually leave it during the summer, are returning to their homes, feeling more secure there than in the country, to which the cholera is actually extending, and where bilious and remittent fevers are becoming prevalent.

August 23d there were 33 cases.

24th	-	48
25th	-	24
26th	-	30
27th	-	21
28th	-	16
29th	-	20

The following table exhibits the whole mortality, and also that from bowel complaints for the 4th week in August for five successive years.

1828.—4th week, ending August 23d. Whole mortality, 92; of which, the deaths from cholera morbus were, adults, 1; children, 12; Total, 13.—Diarrhœa, adults, 1; children, 1; Total, 2.—Dysentery, adults, 0; children, 1; Total, 1.—Total from bowel complaints, 16.

1829.—4th week, ending August 29th. Whole mortality, 98; of which, the deaths from cholera morbus were, adults, 2; children, 21; Total, 23.—Diarrhœa, adults, 1; children, 0; Total, 1.—Dysentery, adults, 0; children, 11; Total, 11.—Total from bowel complaints, 35.

1830.—4th week, ending August 28th. Whole mortality, 100; of which, the deaths from cholera morbus were, adults, 0; children, 13; Total, 13.—Diarrhœa, adults, 0; children, 1; Total, 1.—Dysentery, adults, 1; children, 3; Total, 4.—Total from bowel complaints, 18.

1831.—4th week, ending August 27th. Whole mortality, 103; of which, the deaths from cholera morbus were, adults, 1; children, 8; Total, 9.—Diarrhœa, adults, 1; children, 4; Total, 5.—Dysentery, adults, 4; children, 0; Total, 4.—Total from bowel complaints, 18.

1832.—4th week, ending August 25th. Total mortality, 245; of which, the deaths from cholera morbus were, adults, 2; children, 26; Total, 28.—Malignant cholera, adults, 67; children, 49; Total, 116.—Diarrhœa, adults, 1; children, 8; Total, 9.—Dysentery, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 156.

ERRATA.

The mortality from cholera morbus in children during the 3d week in August was 58, instead of 7, as stated in the table in the last No.; the whole mortality from bowel complaints would consequently be 366, instead of 315.

PHILADELPHIA—CAREY & LEA—CHESNUT STREET.

THE

CHOLERA GAZETTE.

VOL. I. *WEDNESDAY, SEPTEMBER 5th*, 1832. No. 9.

Historical Examination of the Epidemic Cholera of Paris; Account of the different Modes of Treatment employed against different Forms and Periods of the Disease; and Estimate of the results of these Methods.

(Continued from page 124.)

La Charité.—The central position of this hospital brought to it a great number of patients; and on the 27th there were 3 cases. From this period to the 2d April, 30 new cases were admitted, on the disposition of which the same precautions were observed as at the Hôtel-Dieu. Two wards, St. Jean de Dieu for men, St. Magdalene for women, were selected as the most salubrious and the best situate to facilitate the duty. MM. Fouquier, Lerminier, Rullier, Rayer, and Dance, shared the beds in equal numbers.

Entertaining nearly the same opinions on the mode of opposing the disease, these practitioners studied to produce reäction as promptly as possible, and to controul it when it displayed excessive violence. M. Fouquier prescribed in a potion of aromatic distilled water, two drachms of acetate of ammonia, and one ounce of canelion water, to be given in spoonfuls. He ordered also three or four grains of the watery extract of opium, in divided doses, during the day; several sinapisms at the same time to the legs, to be renewed if needful; frictions with camphorated spirit, and infusion of chamomile for common drink. When reäction was speedy and vigorous, he ordered fifteen or twenty leeches to the epigastrium.

M. Rullier caused the bodies of his patients to be rubbed with a liniment consisting of tincture of bark and camphor; he applied sinapisms, and administered every half hour spoonfuls of a mixture consisting of a scruple of sulphuric ether, a drachm of laudanum, and an ounce and a half of distilled water of lime tree and mint, in a decoction of poppy heads properly edulcorated.

After frictions and other external means of warming the patients, M. Lerminier caused them to drink a small glassful every hour of a mixture composed of two ounces of syrup of valerian, two drachms of alcohol, and twenty-four drops of *aqua ammoniæ*, in two pints of infusion of mint and orange flowers. In the

intervals, or instead of this stimulating ptisan, he prescribed a mixture consisting of two ounces of peppermint water, half an ounce of acetate of ammonia, two drachms of sulphuric ether, two drachms of laudanum, and two ounces of syrup of eyebright. By these remedies a good degree of head was promptly obtained, and to them more than one patient owed his recovery.

We wish we could detail the treatment pursued by the young and unfortutunate M. Dance, who was to have published in the Archives the result of his observations on *cholera;* and the acuteness and conscientiousness with which they would be made, are well known. A deplorable event deprives us of the information to be furnished by an observer so judicious; and we know only that the treatment which he had begun to follow, was that of M. Fouquier already mentioned.*

By a note of M. Danyau, head of the clinical department of La Charité, we learn, that of 83 cases admitted under M. Dance, 40 died, 12 were cured, and the rest were under treatment. Among the 40 deaths, two-thirds died after remaining less than three hours in the hospital, part of the residue in twenty-four hours, and none survived the third day. M. Dance derived great advantage from the application of dry cupping applied round the base of the chest; and M. Danyau, who continued his duty, has much reason to congratulate himself on the use of the means which has superseded *asphyxia*, and revived the action of the heart. M. Dance had almost entirely renounced the employment of opium, especially by the mouth; and he gave cold lemonade, Seltzer water, and ice in pieces; and these means almost always succeeded in checking the vomiting.

M. Rayer, one of the physicians who has in the best spirit observed cholera, has given us a note, which we almost literally transcribe, because it constitutes one of the most useful documents on the treatment to be followed in the different forms of the disease.

The first choleric cases entrusted to the care of M. Rayer, were mostly in a desperate state. They were old men dying, or adults with the most severe symptoms of cholera. At first glance, and at any other period, they might have been taken for drowned persons expiring. Next day, and the following one, similar admissions continued; but several patients were now distinguished in whom life appeared less nearly extinct; and several hospital patients were attacked, and presented successively the several symptoms of the different stages. Comparing these facts with some others much less severe observed in the city, M. Rayer perceived, that it was less important to seek a remedy against cholera than to study carefully its individual varieties, the shades, the degrees, and the complications, in order to adapt to its periods, or its various forms, a distinct and rational treatment. With this object, and to distinguish the principal conditions in which each patient was at the moment of admission, he fixed on the leaf of his diagnostic register; *slight cholera, or the first period of cholera; severe or chill cholera; simple or complicated cholera; cholera slight at beginning*, or with threatening of the second; and the adopted peculiar modes of treatment for each of these morbid conditions.

* M. Dance, physician to the Cochin Hospital, was attacked with cholera, about the beginning of April, and died, after a painful struggle, on the 18th.

In *slight cholera*, or the *first period*, distinguished by the feeling of a bar across the pit of the stomach, and giddiness, soon followed by thirst, purging, and vomiting, more or less abundant and repeated, by the continuance of the pulse almost natural, or only slightly enfeebled, with little change of voice, cooling of the head, or in the colour of the nails and skin of the hands,—M. Rayer administers opiates and rhatany root in draught, ptisan, or clyster, as the evacuations take place upwards or downwards. At the same time he recommends maintaining a gentle degree of heat of the surface; even to raise the temperature, and excite sweating by the aid of hot bricks at the flanks, and bags of hot bran on the belly; cramps are to be stopped by the application of sinapisms; and thus a cure almost uniformly is effected in children and persons of mature age, unless the symptoms of the second period appear, which usually happen in old men, or in men of mature age but deeply impaired constitution.

In *severe* or *chill* cholera, marked by burning thirst, discharges of watery, turbid, whitish matter upwards and downwards, and by suppressed urine, &c. M. Rayer orders the application of four sinapisms, two to the legs and two to the forearm, compresses impregnated with hartshorn on the chest, etherated Malaga wine given in spoonfuls every two hours, less frequently if it is not borne; decoction of rhatany acidulated with citron-juice; dry frictions and warmth to the surface; and clysters of rhatany, etherated and opiated. By these means reäction may be developed, unless in persons beyond 70, in whom life is extinguished almost directly by the cold stage of the disease. In one person only beyond 70, a woman of 74, did M. Rayer witness reäction established.

When reäction takes place it is requisite to maintain it, and yet to keep it within due bounds; and unless this is done, local determinations and violent inflammations,—*secondary disorders*, greatly more frequent now than at the commencement of the epidemic, are established; and existing diseases are at the same time aggravated. As a secondary disease, M. Rayer observed among about 200 cholera patients, one acute *peritonitis*, one *amygdalitis*, two cases of *erysipelas* of the face, three cases of *pneumonia*, several of *gastritis*, and a greater number of *cerebral affections*, slight or severe. After death he never met inflammation of the *spinal chord*, or the great sympathetic. To watch the arising symptoms of these diseases, M. Rayer performed two visits daily to the hospital; and in the interval the cases were observed by an intelligent pupil.

According to M. Rayer the cerebral affections observed after the chill stage have a *double origin*. In one the most rare, *(the choleric cerebral state,)* in consequence of reäction, feeble or incomplete, the patients retain a choleric colour, fall into a state of stupor and debility, with furred tongue and brown coating of the teeth, the face cold, and the radial pulse feeble; and if this state continues some days, the patients present the expression symptomatic of the third period of ileo-glandular inflammation, *dothin-enteritis;* and after death no visible lesion was found in the brain and its membranes. In the second case, *(cerebral congestion,)* in consequence of powerful reäction, spontaneous or induced by art, the patient becomes dull and stupid; the face is red and hot, especially in the evening, the pulse more distinct, and the eyes injected; agitation and sometimes delirium take place in the night, with red dry tongue, thirst, &c.; and after death in general the cerebral veins are injected,

and sometimes the cerebral substance is of a rose-red tint, with or without serous fluid in the cerebral cavities. In the first case M. Rayer ordered blisters to the inside of the legs, if the sinapisms employed in the chill period had not vesicated, vinous water for drink, and clysters of etherated rhatany decoction. In the second state, and sometimes before its development, from the first moment of strong reäction before the appearance of cerebral symptoms, M. Rayer prescribed warmth to the feet, cold by compresses, or ice to the forehead for several hours, especially in the evening, or leeches behind the ears, and keeping the patient up during the day if possible. Local inflammations were observed to be more severe in choleric subjects than in any other condition; and blood-letting, though urgently indicated, proved speedily fatal. A choleric patient attacked by *pneumonia* of the left side, died some hours after blood-letting; and the inferior lobe of the lung was found condensed and infiltrated with black violet-coloured blood, similar to mulberry juice.

M. Rayer saw cholera induce abortion in pregnant females, supervene at the moment of labour, and the infant born dead, and in those suckling gave rise to the most severe and fatal symptoms. Cholera appearing in persons already attacked with other affections, always belongs to the first class.

Occasionally the first disease disappears after the cure of the cholera, as happened to an Englishman labouring under tertian fever; and in other cases it is little modified, as occurred in a young person with the third degree of *pneumonia*, and in whom, after the cure of the cholera, resolution proceeded. Lastly, the original disease may be unmodified, as occurred in several consumptive subject who survived the choleric attack, and in two persons with itch, who contracted the epidemic disease.

(To be continued.)

Letter on the Epidemic Cholera of Albany, addressed to Thomas Spencer, M. D. President of the Medical Society of the State of New York. By James M'Naughton, M. D.

Albany, August 23d, 1832.

Dear Sir,

Your letter of the 6th has been duly received, but the press of professional engagements has been so great, as to have put it ought of my power to answer it sooner. Even now, I am indebted to a fit of sickness, which has, for the last two days, confined me to the house, for leisure to reply to your inquiries. My reply must be brief, as my strength will not permit me to enter into much detail. Besides, all that I have to say, can be compressed into a very small compass.

1st. Cholera has, in every instance that has come to my knowledge, in this city, been preceded by more or less indisposition. The *first* symptom that attracts my notice is, *a white slimy tongue;* and I consider the danger of an immediate attack more or less urgent according to its degree. When this is *well-marked*, there is *usually* a diminution of appetite, and generally occasional qualmishness of stomach. The eye has not its wonted brightness, nor the coun-

tenance its usual animation. The hand in this stage will be found warm, and the pulse quickened. This state may continue for some days, and eventually, in a good constitution, go off without the occurrence of any more serious indisposition. But in other instances, the above-mentioned symptoms are followed by head-ache, sickness at stomach, and diarrhœa. The head-ache and sickness may be slight, but in a vast majority of cases a severe attack of cholera is preceded by well-marked diarrhœa. I have not known a single instance in which it was altogether wanting;—but it is proper to state, that in some fatal cases it was slight, and of short duration.

2d. I know of no circumstance which distinguishes the diarrhœa which precedes the cholera from ordinary diarrhœa, unless it be the *total absence* of biliary secretion in the discharges. Bile, I believe, is *never present* in the discharges preceding an attack of malignant cholera. If bile be found in the dejections, the cholera will be of the common kind, should it follow a diarrhœa.

3d. I am of opinion "that the epidemic ought to be regarded as an aggravated form of the common cholera." We find it prevailing in different degrees in the same family, or neighbourhood. One may have it in its most severe form, another may have a slight common cholera; a third may have only a diarrhœa, while a fourth has only a white tongue and a slight loss of appetite. I have known this to have happened in more than one instance. The same general and local cases are modified by constitution, and divers other circumstances, so as to produce different effects in different individuals. The causes, whether atmospheric or telluric, or both, which give the cholera this season an epidemic character, are sufficient to account for its greater fatality, as well as for its more general prevalence. I do not think that there is enough in the fatality or character of the disease, to justify us in regarding it as *essentially different* from common cholera morbus, or as originating from a specific cause. The epidemic was much more destructive in Asia than it has been in Europe: and in Canada it has been more virulent than in the United States. But still we are not to suppose because it varies in its character and in its severity, that it is not one and the same disease, influenced and modified by circumstances. Where it is mild, we may infer that the predisposing and exciting causes do not exist in an intense degree—where virulent, we infer the contrary. It is just so of other epidemics. One season scarlet fever is mild, and few fall victims to it; another, its course is marked by desolating havoc in families and neighbourhoods. The disease, notwithstanding, is one and the same, differing only in degree. So with measles, and so with many other diseases I might mention.

4th. It originated in this city among the resident inhabitants, and we have no reason to attribute its commencement to intercourse with Canada. During the latter part of June, bowel complaints and common cholera became frequent. On the 3d of July, two fatal cases occurred at distant points in the city, but both near the river.

In a vast majority of cases, the disease has attacked persons who had no intercourse with the sick; but truth demands I should acknowledge that when a case has occurred in a family or house, others in the same house or vicinity have been attacked too often to be fortuitous occurrences. Whether a person labouring under the disease is capable of communicating it to another living in a healthy place, and not particularly predisposed, I am unable to determine;

but I think there can be no doubt but that persons living in the same house with the sick, or attending upon them, are more liable to be attacked than others. Such persons are exposed to the same causes which produced the first attack. In addition to which, they are disturbed in their minds and in their rest —exposed to fatigue and to the exhalations arising from the body of the patient —all circumstances favouring an attack.

It is safe to say, that the disease is not dependant on contagion for its propagation. It spreads as an epidemic, but under particular circumstances may be communicated by contagion. This is true of other epidemic diseases. The measles, hooping-cough, and scarlatina, attack persons who have had no connexion with the sick; but are more apt to attack those who have had intimate intercourse with them.

5th. When cholera does not prove fatal, it degenerates into fever, varying in type according to constitution and circumstances, as well as to the previous medical treatment.

6th. It is not confined to any class of citizens. All are equally susceptible; but its severity and fatality have been much greater among the labouring classes and the poor, than among those in easy circumstances. Very few deaths have occurred in persons in good circumstances, whose habits were correct, and who had previously been healthy.

It has not been confined to any part of the city. It has been as severe on the top of the hill, which is high, dry and sandy, as near the river, where it is low and damp. It seems to be more affected by the circumstances of particular houses, in respect to ventilation, cleanliness, number of inhabitants, &c. than by general circumstances. It is most destructive in small, damp, crowded houses, where there is too often no regard paid to cleanliness, or ventilation, and where the habits of the inmates are frequently dissolute. It has not "picked out drunkards" as much as I anticipated, though where it has fallen upon such, it has fallen, like other diseases, with greater severity.

7th. The two first who died were the only ones that, to my knowledge, have been examined after death in this place. These were dissected by Dr. March. The bodies were blue. The veins of the abdominal viscera congested; omentum and epiploon reddish; *gall-bladder distended with bile; no bile in duodenum;* veins congested; urinary bladder contracted; only as large in one case as a hen's egg; muco-purulent on inside; the same with ureter. These latter appearances were probably unconnected with the disease. *Brain,* serous effusion of pia mater—some in ventricles, and in sheath of spinal marrow. From the nature of the disease, little information is to be looked for from dissections. Nothing but functional disturbance can be expected in so short a time, and congestion of the venous system must necessarily occur, from the phenomena of the disease. The appearances observed in protracted cases are still less to be depended upon in explaining the pathology of the disease. Since the derangements produced are purely functional, probably the best, if not the only true way, of ascertaining the nature of the disease, will be, to study the condition of the several functions, and observe the manner and order in which they become severally disturbed.

The very first morbid change I have been able to detect has been in the tongue. This varies from a shade of white so slight as scarcely to be percepti-

ble, to that in which it is covered with a white slimy coat as thick as a sheet of paper. This coat may exist to a considerable degree without *any loss of appetite*, or complaint on the part of the patient; but when it is well-marked, a slight check of perspiration, or irregularity in diet, will bring on diarrhœa; and should the exciting causes continue to operate until cholera come on, it will be of the worst kind, attended with spasms, and rice water evacuations from the bowels and stomach. Diarrhœa and other premonitory symptoms may not precede cholera more than a few hours, or even a shorter time; but I believe the *white tongue* precedes it invariably for at least twenty-four hours, and often for a week. This index, therefore, affords patients an opportunity of attending to themselves ere it be too late; *for malignant cholera is a disease to be prevented, not cured.*

The functions of the whole mucous membrane of the stomach and intestinal canal seem to be deranged as much as that of the tongue. The bile, though secreted, does not find its way into the *duodenum*. This may be owing to spasm of the biliary duct, or of the muscular fibres of the *duodenum*, where the duct enters it, or simply to the redundant mucus plugging up its orifice. The digestion must necessarily become disturbed, and a vitiated chyle is in consequence carried into the circulation, to contaminate the mass of fluids, and to disturb all the other functions. It is probable that the same influences, whether atmospheric or telluric, which disturb the functions of the mucous membrane of the digestive apparatus, may at the same time impair the functions of the mucous membrane of the lungs, rendering it less capable of acting on the air respired, and of exerting the necessary influence on the venous blood. Or it may so happen that the application of cold and damp may check the cutaneous transpiration, and affect the mucous membrane of the lungs simultaneously, and constitute the first link in the chain of disordered action, whilst the mucous membrane of the intestinal canal and the vascular system are secondarily affected. If the disease were regularly preceded by a chill and catarrhal symptoms, I would consider the former the ordinary mode of invasion; but inasmuch as these are not well-marked in general, and the disease is insidious, first manifesting itself in the digestive apparatus, it will be best for practical purposes to consider it as originating there, and thence extending its influence to other functions.

8th. *Treatment in different stages.* In the first stage the tongue is white, the pulse accelerated, the digestion impaired, and there is lassitude and warm, dry hands. In this stage repose is required. If the patient can be persuaded that he is sick enough to keep his bed, use diluent drinks, abstain from solid food, the efforts of nature would generally throw it off—provided the stomach and bowels be not oppressed in consequence of irregularity of diet. In the latter case a gentle emetic of ipecac, followed by a dose of castor oil, or magnesia and rhubarb, or calomel and jalap, according to circumstances, I have found very useful. In the commencement of the epidemic I was afraid of using emetics for fear of *bringing on cholera*, as we have been taught to fear by European physicians. In the first stage I now use ipecac, and sulphate of zinc, separately or combined, without hesitation, and generally with the best effects. I generally give them in combination, in the proportion of twenty-five grains or half a drachm of ipecac to from three to five grains of sulphate of zinc, in a

wine-glassful of warm water. It operates speedily, and rarely affects the bowels. A full dose is better than a small one. The emetic determines powerfully to the surface, thereby relieving the internal organs and producing more equable circulation throughout the system. It also rouses the action of the stomach and liver, and adds to the efficacy of the calomel and opium with which I generally follow it, in emulging the biliary ducts. The tartrite of antimony I have not used alone, because it is not so manageable. When it operates freely it is apt to produce sinking, and is, besides, very apt to run off by the bowels, which in this disease is extremely hazardous.

When there is much distress about the chest, with head-ache, a warm hand, and a full pulse, I have found bleeding to a moderate extent exceedingly beneficial. In such cases I am not deterred from using the lancet by the presence of vomiting, if moderate, or even when purging is also present. In several such cases I have found it very useful in relieving both the vomiting and purging. I have not given an emetic in any instance where the latter symptoms were both present, in a severe degree, attended with the characteristic rice water discharges. In such circumstances I think it hazardous to have recourse to emetics.

When head-ache, cramps in the limbs, full pulse, white tongue, and sickness at the stomach are present, I generally bleed, and often give an emetic after bleeding; and follow the latter by ten grains of calomel as soon as the stomach is sufficiently settled to retain it. If diarrhœa be present, I combine half a grain, or a grain of opium with the calomel. This generally restrains the diarrhœa, as well as the disposition to vomit. After an interval of four or five hours, I direct two drachms of the tart. potassæ, dissolved in a gill of water, or gruel, to be given every two hours, until the calomel be carried off. The calamel usually brings away bilious discharges, and the soluble tartar has an admirable effect in cleansing the tongue and in improving the intestinal secretions. I am indebted to my distinguished friend, Dr. Caldwell, of Montreal, for suggesting to me the use of this invaluable remedy.

In the generality of cases of the above description, when there is merely white tongue and sickness at stomach, with more or less purging, a pill or two of calomel, with half a grain of opium in each, followed by the soluble tartar, will relieve all the symptoms, and speedily restore healthy secretions. In five cases out of six, in the incipient stages, I find no other means necessary, except what relate to diet and regimen.

When called to severer cases—when the hands are cold and moist, the tongue coated and white, cramps in the limbs, and frequent and copious discharges from the stomach and bowels of a fluid resembling rice water, I never bleed, having thought it hurtful in that stage. The great object then is, to check the inordinate discharges. I have found a tea-spoonful of equal parts of sulphuric ether, and laudanum, in half a wine-glass of water, more useful in checking the vomiting than any other remedy. The first dose is usually rejected very soon. In that case I direct its repetition. It seldom happens that more is required. To moderate the evacuations from the bowels, enemas of a tea-spoonful of laudanum in a wine-glassful of starch water, or milk, or gruel, repeated two or three times, at intervals of half an hour if rejected, are extremely beneficial. When the vomiting and purging are checked by these means, the patient

often complains of great distress about the region of the stomach. In that case, a pill of one grain of opium and ten of calomel, will be very useful. I have also found the application of a large emollient poultice, as warm as it could be borne, over the stomach and bowels, to give great and speedy relief. The colomel in such cases should, in the course of a few hours, be worked off by the soluble tartar, as before directed. Blisters to the epigastrium are very useful in lessening the irritability of the stomach, which is apt to continue troublesome. They are also useful in lessening the sense of sinking, which is often oppressive.

In the last and worst condition in which we are likely to be called, when the body is blue, the eyes sunken, and the countenance ghastly, the hands cold, and the fingers as if soaked in water, no pulse at the wrist, and a cold, clammy sweat bedewing the surface—much may be tried, but little good can be done. I have as yet seen no recovery from such a state; but there have been several from states nearly approximating to it. It is, however, our duty to persevere while there is life, as there is, at least in this disease, some faint hope of success.

In the stage of extreme collapse there is no vomiting or purging, or much apparent suffering. The patient is restless, and constantly wants cold water, or ice, and should you gratify him in his request, the more you give the more he craves. In this stage the voice is nearly gone, the urinary secretion is suspended, and indeed all other secretions. The sweat appears to be a passive exudation of the serum of the blood, through the pores of the skin. The only functions are a feeble respiration, and a circulation only through the larger vessels, and through the head. Hence it is that the intellect often remains clear, though feeble, to the last.

In the stage of collapse, various stimulating applications are made to the surface; such as frictions with dry flannel, with heated Indian meal, or mustard flour; liniments containing ammonia, camphor, cantharides, nitric acid, &c., bottles of hot water to the feet, hands, pit of the stomach, back, &c. Sinapisms to the chest, bowels, wrists. Internally, some give hot brandy in repeated doses, with or without opium—others give only a small quantity once, and subsequently trust to less doubtful means. I myself use, internally, the aromatic mixture recommended by the Edinburgh Board of Health, in the quantity of two tea-spoonfuls every half hour for a couple of hours, and afterwards use aqua ammoniæ, or carb. ammonia in form of pills, in doses proportioned to the urgency of the case. Only use opiates to allay irritation, or relieve pain.

In this stage I have found enemas of rice water or arrow root, containing a wine-glassful of hot port or Madeira wine, every half hour or every hour, more useful in sustaining the strength, and in promoting reäction, than all other means. In the few bad cases in which I have had the pleasure of seeing a recovery, I have attributed it chiefly to their influence. It is a mode of *transfusion* more natural, and, let me add, more safe than that by the veins. In this stage I have seen the nitrous oxide used, but with no sensible effect. It produced no excitement or exhilaration. The lungs seemed to be insensible and dead.

9th. I have tried transfusion into the veins in one instance in my private practice. We injected a quart of a solution of common salt and sub-carb. of soda,

in the proportion of a drachm of each. It gave temporary relief. It has been tried in three other instances in this city—twice in the Central Hospital, and once in private practice. In all these instances with only temporary relief. In the hospital it certainly protracted life for a day. But still I cannot recommend it as a safe or useful remedy. If used much, it would, I am sure, do more harm than good. It is true, some have recovered upon whom it was performed; it is equally true that some as bad cases have recovered on whom it was not performed. It is an operation which requires some skill in its performance; and it is also necessary to have an air-tight apparatus for the purpose. I think a long glass tube with a stop-cock, such as anatomists use for injecting lymphatics, better than the stomach-pump. By means of this, the foreign fluid can be gradually introduced, and the air be with certainty excluded.

I have not bled but once in the blue stage, and then it was under the impression that the powers of life were oppressed in consequence of the engorgement of the large vessels near the heart. It lessened the blueness, and for a short time relieved the respiration; but when collapse comes on, as it generally does after copious evacuations from the stomach and bowels, I hold bleeding to be inadmissible. The serous part of the blood is already in great part removed, and I cannot conceive that the patient is to be benefited by removing the *crassamentum* also.

I do not know that I can with any benefit extend my remarks further respecting the treatment of cholera. I have given you my general views, and the outline of the plan of treatment I usually pursue. It is unnecessary for me to say, that in this, as in every other disease, the plan of treatment must be adapted to the circumstances of particular cases. Nothing can be more mischievous than to prescribe empirically the same remedies in such a disease as the cholera, without proper attention to the stage, the complications, and the thousand other circumstances which modify, not only the disease, but the effects of remedies. The character of the epidemic also varies in different places, being much more virulent in some than in others; so that the course of treatment which succeeds in one place, may fail in another.

As to preventives, I would recommend the wearing of flannel next the body, to promote and preserve the functions of the skin; to avoid night air and exposure to rain and damp as much as possible, and, particularly, to guard against wet feet. I would not advise any great or sudden change of diet. Any thing that disturbs a healthy system is to be avoided as inexpedient, if not dangerous. The cold bath, or shower bath, and moderate exercise in the open air, are advantageous in strengthening the constitution, and in lessening the liability to the epidemic influence. The tepid bath in persons of debilitated habits would be better than the cold. People that are well, ought to take no medicines as preventives. Good health is a better preventive than all the articles in the Materia Medica. When the tongue becomes white, and the digestion disturbed, patients should take no medicine, nor make any great change in diet or regimen, without the advice of some skilful physician.

For the last six weeks my brother and myself have prescribed for from thirty to fifty patients daily, five-sixths of whom were affected with some modification of the prevailing epidemic. Out of this number, eleven have died of cholera. Three of them were in a state of collapse before we were called; three were cases of relapse from exposure and error in diet; and one occurred in a person

of debilitated constitution. In the remaining cases, though called in before the stage of collapse took place, our efforts proved unavailing in preventing a fatal termination. I mention these facts, not for the purpose of showing that our success has been at all extraordinary, but for the purpose of showing in how large a proportion of cases the disease is manageable, if taken in time.

If the public at large were duly impressed with the importance of attending to early symptoms, this fell scourge might be stripped of its terrors. I believe that the *white tongue*, to which I have endeavoured to draw your attention, gives the earliest intimation of a tendency to this formidable disease; and as it exists for a considerable length of time before an attack, the patient has sufficient warning of its approach.

The epidemic is here, I trust, somewhat on the decline. Up to this time, there have been nearly 1000 cases reported, and upwards of 350 deaths: but this constitutes but a small part of the whole number who have suffered from *cholerine*, or the disease in its milder form.

I hope these remarks may prove satisfactory to you on the several heads on which you have requested my opinion.

Professor Chapman on Cholera.

The following letter, written without any view to publication, having been made public by the gentleman to whom it was addressed, we take pleasure in laying it before our readers. The views of its talented and estimable author, merit the most respectful consideration, both from his deserved reputation, and his enlarged opportunities for observation afforded by an extensive private practice, and his position as physician-in-chief of one of the cholera hospitals.

My Dear Sir—I have delayed to answer your letter, till I had formed some decision as to the nature and treatment of the pestilential cholera which is now prevailing. These are points on which so much difference of opinion existed, that I found it impossible to make up my mind as to them, without the lights of actual observation and experience. I have now seen the disease sufficiently to enable me to arrive at satisfactory, and I trust, just conclusions on the subject. But I can present in the narrow compass of a letter, only a very concise and imperfect exhibition of my views, and, indeed, such are my incessant occupations, that I have scarcely leisure to execute even this slight sketch.

The disease, *wholly independent of contagion*, is caused by an epidemic agency, of which we know nothing with certainty. It is not improbable, however, that it is owing to an æriform poison, which, acting through the medium of the stomach on the ganglionic nerves, so impairs that system, that its functions are in a greater or less degree suspended. As always happen, where sensorial or nervous influence is withheld, there is in this case a recession of blood from the periphery of the body, and correspondent accumulations of it in the deep-seated vessels, subversive of the proper distribution of it in the circulation, attended by a vitiation or suppression of the secretions. This, in a word, is my theory of the disease, the truth of which, I think, is sustained by the symptoms, the phenomena on dissection, and the mode of cure.

It is generally held here, that cholera is almost uniformly preceded by considerable disturbances of the alimentary canal, by nausea or purging, or the two united. That affections of this sort are very common in the city and elsewhere, cannot be denied. But whether they constitute the preliminary stage of the disease is very doubtful. It seems to me they ought rather to be considered as a condition, arising from distinct sources of irritation predisposing to the disease. Can it be credited, that a cause ultimately operating so powerfully as that of cholera, should endure for three or four or five days, merely teasing, in this slight manner, the stomach or bowels? The transition from these mild and lingering affections, to the explosion of cholera in its fullest force, is far too sudden and violent to suppose that they are one and the same disease, varied only by stages. I know not the analogies by which the hypothesis can be supported. Nor is this prelusive indisposition mentioned by any of the writers on Asiatic cholera whom I have consulted. It is scarcely to be presumed, that so prominent and important a fact, had it an existence, could have possibly escaped the attention of these very able and experienced historians of the disease.

Being attached to armies, and more particularly from their position in hospitals, they enjoyed the best, and peculiar advantages, for accurate and discriminating observations. It was first noticed and promulgated by some of the British publications, though not sanctioned by all, and from a similar coïncidence of such derangements with the epidemic in this country, the notion has been espoused by us. Be it as it may, these disorders should at once be removed, as they are apt at all events, to invite an attack of cholera. They do not differ from the ordinary complaints of the season, and require no peculiar management.

Genuine cholera, for the most part, comes on with little or no premonition. The earliest symptoms are complaints of load, and oppression, and anxiety about the præcordia, with an internal sense of heat, referable to the stomach or bowels, with great thirst and a whitish tongue, and, at the same time, the head is confused, the expression of countenance haggard, accompanied by slight nervous tremors, muscular weakness, cool skin, and either a quick and somewhat feeble, or a full and struggling pulse. Copious evacuations upwards and downwards, of a fluid resembling dirty or turbid rice water, with flocculi mixed in it, soon occur, followed by cramps or spasms of the muscles of the extremities and abdomen. These are seldom so violent as has been represented, and never extend to the alimentary canal. An aggravation of the preceding symptoms rapidly takes place, and in an hour or more the tongue becomes icy cold, the skin more chilled and sodden, though feeling hot to the patient, covered with a dewy, viscid perspiration, the hands shrivelled or wilted, as if macerated, the nails of the fingers blue, the pulse scarcely or not at all perceptible, the face sunken, especially the eyes, around which is a dark circle. This colour gradually diffuses itself more or less over the entire surface, partaking of the various shades of lividness, from a saturnine to a bluish or blackish hue. During this period the thirst is intense, the heat of the stomach in some instances is increased to a burning sensation, the respiration greatly embarrassed, the air expired cold, the voice low, or whispering and plaintive, the diaphragm convulsed, and there is a total suppression of the urinary and other secretions. Discharges from the alimentary canal, and the spasms likewise cease or are

much diminished. The intellectual faculties, though obtuse, are seldom otherwise affected, and, in some instances, their entire integrity is throughout preserved. Death ultimately takes place in a sort of tranquil stupor, or with indescribable jactitation and distress, the latter state being by far the more common.

As I have briefly described the disease, such is the tenor of its character and progress, though occasionally diversified in some respects. Thus, I have seen its accession as sudden as the electric shock, and have met with cases without spasms, or vomiting or purging. Many other anomalies might be mentioned, could I indulge in such details. The disease may be properly divided, in most instances, into two stages—that of aggression and collapse.

Called at the commencement of an attack, unless there is extreme depression, I bleed freely from the arm, and uniformly cup the epigastrium, and give calomel largely, combined or not with opium, according to the severity of the spasms. The case will almost invariably yield to these remedies, and we have no further trouble concerning it. But where the attack is confirmed, or in other words, the state of collapse exists, the difficulties of management are vastly increased, and the practice is somewhat different. The first step under such circumstances is to puke actively with tepid salt and water, a tumblerful at a time. This usually settles the stomach, allays thirst, produces some degree of reäction, a stronger pulse, increased warmth of surface, and a resolution of the spasms. Coöperating in the same design of arousing the vital forces, and exciting the skin particularly, the body and extremities may be rubbed with warm flannels. Let a vein be then opened, and if the blood flows freely, take a large quantity, and especially should the pulse rise and the blood become florid. But where the reverse happens, or you have slowly to coax out the blood, or the pulse is sensibly weakened by the loss of it, stop the operation, and apply twenty or thirty cups to the abdomen, including the epigastrium, which, though they may not draw much blood, are eminently serviceable as revellents. The cups are to be succeeded by a blister to the same parts. Calomel is next to be given in the dose of five, ten, or twenty grains, frequently repeated, till the aggregate amounts to about a drachm, and then worked off with a table-spoonful of castor oil. As the result of these means there are commonly bilious evacuations, discharges of urine, and other proofs of the restoration of secretory power. Little more is demanded than what has been mentioned. I have, however, sometimes known, though rarely, that at this point of the case, irritability of the stomach to return, with the appearance of approaching exhaustion, in which event stimuli are to be resorted to—the best of which are a strong infusion of Cayenne pepper, or clove tea, or the spirit of camphor, or the aromatic spirit of ammonia, or mint julep. But they are cautiously to be administered, and in small portions, or they are instantly rejected, or they overwhelm the energies of life, or more slowly induce typhoid prostration.

Drink is sometimes vehemently solicited, particularly in the height of the attack, and the instinctive desire for cold water, or even for ice, may be gratified in moderation. The proper nourishment in convalescence, the only time when any is wanted, or to be allowed, is chicken water or beef tea, rendered agreeably pungent with Cayenne pepper.

Thus I have hastily laid before you an outline of my mode of managing this disease. It may be observed, that with scarcely an exception, it is depletory

or evacuant. Deluded by false appearances of debility in the disease, and still more by the weight of authority, I adopted, when it first broke out among us, in common with my medical friends, a course of practice in conformity with such an impression—and most disastrous was the issue. Nearly every patient, amounting to five or six, in the different hospitals, died. The prominent indications seemed to call for heat to the surface, and the internal exhibition of the diffusible excitants. Every variety of bath, warm water, vapour, heated air and topical applications of hot sand, or oats, or salts, &c. were used, and also frictions with the spirit of turpentine alone, or united with camphorated mercurial ointment, and other articles. Brandy, ether, camphor, vol. alkali, &c. &c. were in succession tried, and the whole of these means with no other effect than an inconceivable exasperation. The suffering, indeed, induced, was as great as I have ever witnessed from the application of any remedial process. No practical lesson is more important than that in the cure of this disease, all such appliances and medicines are mischievous, till evacuations are premised, and then to be most discretely directed. The system previously, is utterly intolerant of them, and I have found it better to expose the patient naked to cool air, than to cover him even with a blanket.

It were easy to acquaint you with divers other methods of treating this epidemic, or to enumerate a number of special remedies that have been proposed. Dismayed, as it were, by the fearful character of the disease, practitioners have been too prone in its treatment, to abandon their principles and well-tried remedies, in analogous cases, to seek a resource in specifics and nostrums.

I do not mean to vaunt of my success, but on a fair comparison of all that I have seen attempted, I am led to an unqualified preference of this plan. It cannot be charged with being tentative or empirical—is deduced, on the contrary, from established views of pathology and therapeutics, and is sanctioned in most of its features by the lengthened and concurrent experience of the distinguished and authoritative writers on the disease in India. Many may be cured by it, and some will sink under the force of the attack in despite of your efforts. The case not being too far advanced, a triumph over the disease is pretty certain. Cholera is, on the whole, more tractable than yellow fever, or the winter pestilence, which devastated our country during the late war.

Ever, my dear sir, yours, most truly,

N. CHAPMAN.

Philadelphia, August 18th, 1832.

To Dr. Wm. Bradley Tyler, Frederick, Md.

P. S. I have omitted to mention that this very practice, by emetics, calomel, bleeding, &c. is the one which I have for twenty years taught in my lectures, as most appropriate to the worst forms of the ordinary cholera of our own country. You will find a tolerable synopsis of it in my work on the Materia Medica. I will only add, that there is considerable difference of opinion among us as to the best means of puking, some preferring ipecacuanha or the sulphate of zinc, &c. In Britain, the mustard emetic seems chiefly to have been used, while in France the ipecacuanha, and in Russia, and other countries of the north of Europe, the salt and water. The latter, on the whole, I think is most appropriate, though I have in some instances resorted to the ipecacuanha, very advantageously.

Progress of Cholera.

New York.—The following table of the mortality from cholera, taken from the City Inspector's report of burials, exhibits the progress of cholera in New York from its commencement to the present time.

Week ending July	7th,	56
do.	14th,	336
do.	21st,	716
do.	28th,	686
do.	Aug. 4th,	383
do.	11th,	281
do.	18th,	222
do.	25th,	178
do.	Sept. 2d,	138
Total since 1st July		2996

The whole number of deaths in New York for the week, ending September 1st, was 324; of which, 138 were from malignant cholera, 2 from cholera morbus, 6 from diarrhœa, 11 from dysentery, 38 from cholera infantum, and 5 from inflammation of the bowels.

Maryland.—The Board of Health of Baltimore *do not report the cases of cholera* occurring in that city, but from their reports of deaths, it is shown that the mortality from the disease in Baltimore at the present period, is equal to that from the same cause in Philadelphia at the height of the epidemic. Thus, in the latter city, the population is 180,000, and the greatest mortality any one day was 73, viz. on the 7th of August; the population of Baltimore is 81,000, and the deaths from malignant cholera reported September 2d were 35.

District of Columbia.—*Washington City*, Saturday and Sunday, 29 cases, 8 deaths.

Virginia.—*Norfolk*, August 31st, no deaths.

Rhode Island.—*Providence*, September 2d, 4 cases, 2 deaths.

Great Britain.—The cholera does not appear to be on the decline generally in Great Britain and Ireland.

The following is the report for the country, published in London on the 30th of July:—New cases, 401; deaths, 173; recoveries, 421; remaining, 949.

In Liverpool is was evidently on the decrease. The following is the last report of the Board of Health:—

	New cases.	Died.
July 25th,	77	17
26th,	61	7
27th,	37	12
28th,	44	12
29th and 30th,	77	30
31st,	44	9
Total from commencement on the 12th of May,	2965	807

At Manchester the total number of new cases from the commencement was 115; deaths, 71.

At Glasgow the cholera continues its ravages. In the whole populous district of Glasgow, containing by the last census 203,426, there have been re-

ported, since the 12th of February last, to the 24th of July, 2,286 cases of cholera; of which number, 1,144 persons have died—that is, only one more than the half.

Ireland.—The new cases are declining in number in Dublin, and the deaths within the last two days have not been half what they were in one day about three weeks ago. On looking through the catalogue of other places, a greater diminution has taken place. We have just obtained this day's Dublin return; the cases are considerably diminished. New cases, 81; deaths, 26; recoveries, 76.

Health of Philadelphia.

The cholera continues to decrease in Philadelphia. On Sunday last, no case was reported in private practice within the limits of the city, and for the last three days only a single death daily has been reported from the epidemic; to day no death has been reported as occurring in private practice.

August 30th,	No. of cases, 20
31st,	23
September 1st,	18
2d,	7
3d,	11
4th,	12
5th,	7

The following table exhibits the whole mortality, and also that from bowel complaints for the 5th week in August for five successive years.

1828.—5th week, ending August 30th. Whole mortality, 108; of which, the deaths from cholera morbus were, adults, 2; children, 12; Total, 14.—Diarrhœa, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 17.

1829.—5th week, ending September 5th. Whole mortality, 122; of which, the deaths from cholera morbus were, adults, 0; children, 18; Total, 18.—Diarrhœa, adults, 1; children, 3; Total, 4.—Dysentery, adults, 1; children, 4; Total, 5.—Total from bowel complaints, 27.

1830.—5th week, ending September 4th. Whole mortality, 86; of which, the deaths from cholera morbus were, adults, 0; children, 8; Total, 8.—Diarrhœa, adults, 1; children, 3; Total, 4.—Total from bowel complaints, 12.

1831.—5th week, ending September 3d. Whole mortality, 84; of which, the deaths from cholera morbus were, adults, 1; children, 8; Total, 9.—Dysentery, adults, 4; children, 3; Total, 7.—Total from bowel complaints, 16.

1832.—5th week, ending September 1st. Total mortality, 171; of which, the deaths from cholera morbus were, adults, 2; children, 19; Total, 21.—Malignant cholera, adults, 41; children, 4; Total, 45.—Diarrhœa, adults, 1; children, 5; Total, 6.—Dysentery, adults, 3; children, 1; Total, 4.—Total from bowel complaints, 76.

PHILADELPHIA—CAREY & LEA—CHESNUT STREET.

THE

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Historical Examination of the Epidemic Cholera of Paris; Account of the different Modes of Treatment employed against different Forms and Periods of the Disease; and Estimate of the results of these Methods.

(Continued from page 132.)

De la Pitié.—This hospital, situate near several very populous quarters, early received a great number of patients, who filled two wards. MM. Andral, Bouillaud, Louis, Clement, Parent-du-Chatelet, and Serres, as physicians, and MM. Lisfranc and Velpeau, among the surgeons, had the equal charge of the beds, and they determined that a physician and a surgeon should be always in attendance at the hospital to minister to the patients brought. In the first four cases, brought on Thursday, 29th of March, M. Serres prescribed infusion of chamomile, and a draught of ether and laudanum in valerian and mint water. Three of these died the same day, and the fourth had favourable reäction, and went out well at the end of eight or ten days.

The physicians of the hospital adopted at first a uniform mode of treatment, the basis of their remedies being warm vegetable diluents, with opium by the mouth and by clyster, and warming the beds by means of alcoholic vapour. Independent of the obvious impropriety of so general a mode of management, without regard to the character of individual cases, narcotism quickly appeared in the majority, without arresting the unfavourable symptoms of the disease. This method was therefore abandoned; and each physician undertook the treatment of twelve patients, six of each sex, according to the symptoms and the stage of the disease.

M. Andral substituted for the narcotic potion a mixture composed of one drachm of acetate of ammonia, fifteen grains of sulphate of quinine, twenty drops of sulphuric ether, and twenty grains of camphor; allowed cold lemonade; and caused the extremities to be rubbed with tincture of cantharides. For profuse diarrhœa he ordered clysters, containing each twenty drops of laudanum, and twenty grains of sulphate of quinine. During reäction, bloodletting, local or general, was employed according to circumstances. At the

onset of the disease, M. Andral at first employed blood-letting, and afterwards ipecacuan.

M. Bouillaud found in the first dissections sufficient reason to employ antiphlogistic means freely, with revellents and opiates only; and on the 6th of April, he had already inspected the bodies of more than forty victims of the disease. Though he maintains that inflammation of the intestinal mucous membrane performs an important part on the disease, and makes one of its essential elements, he admits that the antiphlogistic method is useful only at the onset of the disease, before the chill stage. Leeches to the epigastric region repeated, if requisite, four or five times, iced liquors, currant water, emollient cataplasms and clysters, slightly narcotized, and a strict diet, are his chief remedial means. In severe cases, however, he allows weak coffee, and cauterizes the region of the spine after the method of M. Petit; and under this application, breathing and the motion of the heart was restored in individuals who appeared dead.

M. Clement placed great reliance on the preparations of quinine, which were applied endermically when they seemed to augment vomiting; and in one case fifty grains were applied to the epigastrium, thighs, &c.; in othes cases by the mouth and by clyster.

M. Serres employed the antiëmetic draught of *Riverius*, tartaric and citric acids, blisters and sinapisms, during collapse, and blood-letting, general and local, in the stage of reäction.

M. Parent-du-Chatelet prescribes, in the severe period, alcoholized lemonade, an etherated draught, Madeira, a clyster of rice water, with extract of rhatany and laudanum, and friction; during reäction, emollient liquids and venesection, if requisite. These means have been successful in many cases, and have been adequate to restore some of those who were narcotized during the treatment of the first days of the epidemic.

It has been impossible hitherto to obtain accurate returns of the number of cases of both sexes treated under M. Louis; but, according to the statements of M. Eager, his pupil, with a sufficient number of blue cases, the instances of ordinary cholera were numerous. The general treatment of the cold stage consisted in friction and hot cloths externally, alcohol and laudanum draughts internally, ice for checking the vomiting, and local and general bleeding, which appeared to relieve the oppression, but which was generally unavailing when the radial artery had ceased to beat. During reäction the disposition to local congestion was opposed by local and general blood-letting, which sometimes succeeded, but more frequently failed.

In the nescropic inspections of this physician, the same results were almost uniformly remarked. The intestinal mucous membrane of the small or large intestines was commonly ecchymosed; in other cases the submucous cellular tissue was much injected; the *plicæ* of the jejunum sometimes remarkably injected; the mesenteric vessels, the superior and inferior *cavæ*, loaded with dark-coloured blood; the heart filled with black coagulated blood; the lungs much obstructed with black blood; the bladder remarkably retracted, but its mucous membrane sound; the liver slightly injected; the gall-bladder distended with black ropy bile; the Peyerian glands usually well-marked, distinct and prominent; violet-red patches in various points of the intestinal mucous membrane; the gastric mucous membrane, like the intestinal, more or less reddened, and

often remarkably mammillated. The brain, sometimes injected, contained serous fluid, more or less clear. The skin was violet-coloured; and tetanic rigidity of the extremities was always distinct.

M. Velpeau, like all his colleagues, varied his treatment according to the indications. After the 3d of April, for the opiate he substituted mercurial frictions apparently without benefit. His general mode of treatment consisted, after rolling the patient in flannel, in sinapisms to the feet, knees, and thighs, blistering the epigastrium, clysters of sulphate of quinine, laudanum, and camphor, repeated as required, aromatic diluents, and the endermal use of quinine. By these means several, apparently dying, recovered. M. Velpeau tried charcoal internally, punch, and large doses of calomel without advantage.

The supposition of M. Reveille Parise, that persons with cauterized issues, blisters, or even old wounds, are not attacked by cholera, was disproved by the experience of M. Velpeau, who saw six women attacked in a surgical ward where they were kept for old ulcers and other diseases with established suppuration.

Between the 11th and 18th of April inclusive, M. Velpeau lost 11 of 30 choleric patients; 6 went out well, 5 were convalescent, and 8 remained under treatment; and in the two latter divisions several deaths did take place, and reduced the number to one-half. This proportion is small, and all candid physicians agree that it is often much more. It remains, nevertheless, to be told what number of these cases were severe, what number were women, and at what period they were brought to the hospital; and it is further to be remarked, that the mortality at the time specified was less than at the beginning of the epidemic. The following sketch by M. V. gives a general idea of the cases treated at La Pitié.

Between the 30th of March and the 15th of April, 592 choleric cases were admitted into the hospital at La Pitié; and of this number 103 went out cured, 176 remain under treatment, and 313 died. During the first week they presented in mass with vomiting, diarrhœa of very fluid white discharges, cramps in the arms, colic pains, hollow eyes, icy cold of the head and arms, violet tint of the face and hands, thready or insensible pulse, and extinct voice. Afterwards this assemblage of symptoms was no longer observed in so large a proportion. Blueness and chillness were wanting in many of those admitted the last week. Some had only profuse exhausting diarrhœa with the choleric characters. Some were distressed by nausea and cramps, and had a bluish tint. Others colliquesced under profuse sweating, which was occasionally cold and clammy. Some with expressive look, complained of acute tenderness of the epigastrium, and burning heat all over. Lastly, in this as in other hospitals, we saw cases which proceeded at once to the highest degree, and in all intermediate shades; and it is impossible to distinguish between the cases of genuine *cholera* and the choleroid. Many persons, after undergoing the first period for five or six days, became victims of the second,—showing that they are probably only different degrees of the same disease.

As to predisposing and exciting causes, and hygienic conditions, we have nothing definitive or conclusive. Old men, valetudinarians, drunkards, ill-clothed and ill-fed subjects, who at first afforded so many cases, were soon accompanied in their calamitous attacks by persons of every age, and of all constitutions

who, without being in affluence, observed, nevertheless, substantial regimen, and led regular lives. They came from the best situate streets, *(la rue Copeau, la rue de Boulanger,)* as from the most unhealthy. They were of all professions. Women, who formed only a fourth part at first, terminated in a much larger proportion. We had only three patients between eight and fifteen years; and at this date, (17th of April,) we have all the varieties enumerated above. The livid tint is not so rare as some persons have asserted; and four cases of six received yesterday presented it in the highest degree. One person, though with all the other symptoms of severe *cholera,* has only *nausea.* A woman who had merely vomiting and cramps, without diarrhœa, died, nevertheless, this morning after thirty hours of illness. The number, however, of those who have only profuse discharges, slight cramps, without lividity or extinction of the pulse, and who recover, has sensibly increased for some days.

Patients die at two distinct periods. Either struck as if with lightning they die in agony before reäction, or heat indicates the return of the circulation; or after being painfully rescued from the first state so far as to seem out of danger, they relapse either into stupor with depression, or into delirium and adynamy, then linger a few days, and perish like others in defiance of the most varied modes of treatment.

One patient of this class having ceased to vomit, to be purged, and to suffer, having got rid of the blue colour and cadaverous look for two days, fell into a state of *coma vigil,* without delirium and raving, and without dry mouth, and died at the end of forty-eight hours without other symptoms. Another, after three days of improvement, died as if suffocated by œdematous *angina,* though the throat presented no change. A third case, which seemed for two days to be convalescent, was on the third day in a state of listlessness, of stupor, and agitation, which only ended with death in the evening. Lastly, they seem to be stifled under the influence of violent congestion, either of the brain, or of the lungs, or of some other organ.

In the first period, the tongue may be pale, smooth, nearly natural in some, and covered with grayish or yellowish thin fur in others. After reäction it may be slimy and whitish, red and punctulated on the edges, grayish, black, yellow and moist,—or unchanged. It is crusted and parched in a small number.

The necroscopic appearances are pretty uniform. In most subjects the mucous membrane of the digestive passages is punctulated with minute ecchymotic spots, more or less approximated in its whole tract, and it may present large patches more or less intensely red, occasionally approaching to dark crimson. On Tuesday and Wednesday, for instance, I found in three subjects the stomach as black as coal, from the *cardia* to the *duodenum,* less so at the small arch, more at the large *fundus,* while neither washing nor friction could diminish this tint, which was without evident thickening or softening of the tissue. The blood appeared fixed in the capillaries, and the whole membranous surface was ecchymosed on the free margin of the *rugæ* as well as on their intervals. Great part of the small intestine presented the same appearance; but the colon was scarcely changed.

In others, though coloration was almost entirely deficient, the mucous membrane could not be termed sound. Its *villi,* thicker and more prominent, gave it a strongly-marked villous character, though it was whitish, of a dull white, or

merely dotted red. The red or bluish tint appears, all other circumstances being equal, to be deeper as the body is inspected later after death. The Peyerian glands were developed without manifest change. The lymphatic glands were unaltered; the system of the portal vein much obstructed. The bladder was empty and shrivelled; in one case only was it distended: and in other respects sound. Engorgement and sometimes *emphysema* of the lungs, *ecchymosis* of the heart, and black blood in its chambers, and more serous fluid than usual between the folds of the vertebral arachnoid, and in the cerebral ventricles and subarachnoid tissue were the other most ordinary appearances. The contents of the intestinal tube are well known.

The Hospital of St. Louis received many choleric cases, which were at first admitted in two wards, but which were afterwards dispersed in all the divisions. Here, as elsewhere, very opposite methods of treatment were followed with nearly equal degrees of success.

Alibert, regarding *cholera* as a pernicious intermittent, after the example of Torti, who made it a particular species, gave sulphate of quinine in grain pills every hour, *cinchona* wine in spoonfuls every half hour, and *cinchona* glysters, with external warmth. The actual advantages of this method are not known, as it was soon modified by combining it with the preliminary exhibition of ipecacuan, when it is said to have been very successful.

M. Biett, who had the charge of a ward of twenty-eight beds favourably arranged, well-aired, and abundantly provided with the means of attendance, has treated a considerable number of choleric cases, the total amount of which, however, is not yet given. Adopting the idea of miasmatic poisoning as the cause of *cholera*, this physician administered internally charcoal in doses of half a drachm every hour, with the effect of checking the diarrhœa, and exciting the flow of bile, but not greatly controlling the cramps and vomiting. He states, also, that he has given the subnitrates of bismuth in doses of six or eight grains every two hours, with the effect of controlling the cramps. Calomel and opium was given in a few cases. In cases of local congestion, blood was drawn by cupping from the ileo-cœcal region, and by leeches from the anus. Of nineteen cases, thirteen are said to have been cured; but the precise mode of treatment is not given.

M. Gerdy, second surgeon of this hospital, received from the 6th to the 14th of April 103 cases; and of these 20 died at the close of a few hours, and consequently could not display the effects of treatment; 16 died after one or more days of treatment; 23 went out cured; and lastly, 44 were still in hospital at the date of the report, and among these many truly convalescent. The number of deaths rose to about one-third of the whole,—a smaller proportion than elsewhere, and less still if the number of deaths be reduced by deducting those who expired without any treatment. The mortality is then 1 in 5 or 6 cases.

The first twenty-seven cases were admitted at the most severe period of the epidemic, all with vomiting, pain of the epigastrium or belly, frequent stools, suppression of urine, feeble or extinct pulse, violescence of the face and extremities, coldness, and cramps. The subsequent group rarely offered this assemblage of symptoms, which then occurred separately or successively; and though the disease was less violent, many still died in some hours, eleven, in short, of twenty, or more than a half.

Viewing the disease as a species of *asphyxia*, produced by affection of the nervous system, M. Gerdy employed friction by an irritating, but not vesicating liniment, to recal heat; large blisters along the vertebral column to stimulate the organs of the nerves, and excite respiration and circulation, sinapisms for revulsion and allaying cramps; starch opiate clysters to obviate diarrhœa; in a few cases blood-letting to controul congestion; and lemonade, pectoral ptisan, or sugared Seltzer water for drink. These means have in general fulfilled the indications proposed.

Hopital St. Antoine, Hopital des Enfans, Hopital des Veneriens, Hopital Necker, &c.—The choleric cases admitted at St. Antonine were numerous, and were placed under the care of the physicians, MM. Kapeler, Mailly, and Guerard, and of Professor Berard, the surgeon of the institution.

M. Kapeler administered at the onset of the epidemic, laudanum, laudanum and ether in mixture, cinchona clysters, with laudanum and extract of rhatany, dry aromatic frictions or sinapisms, and external heat. This mode of treatment was followed by speedy cures, and also violent attacks of cerebral congestion, which rapidly destroyed convalescents. Neither blood-letting nor leeches controlled the symptoms. Opium was then abandoned. The tepid bath, stimulated with two pounds of soda or potass, followed by thirty drops of laudanum, were soon followed by heat and transpiration. In cases of deep collapse, an etherated camphor mixture was given by the stomach, and camphor was thrown into the intestines; and a terebinthinate camphor liniment was actively rubbed on the person. Sulphate of quinine and cold affusion are said to have been used without benefit.

M. Mailly, who gave little opium except at the onset, employed acetate of ammonia, etherated syrup, and infusion of peppermint in the cold stage; and congestion he opposed by leeches and temporary blisters. By these means several cures were effected. Of 70 cases admitted into the St. Paul and St. Cecilia wards under his care, between the 1st and 6th of April, 14 were completely cured, and since this period, the success has been greater.

Hopital des Enfans.—In Paris, as in every other place, the number of children attacked has been inconsiderable. At the Hôtel-Dieu, to which the first patients, without distinction of age or sex, were brought, they received only 16, ten boys and 6 girls, and only two were about 5 or 6. At the Enfans Malades, on the 18th of April, the number of choleric cases amounted only to 87, 40 boys and 47 girls. The total deaths were 43, and the majority of these children were from 4 to 5 years or more. At this time of life, as in old age, reäction is not established, and *asphyxia* quickly cuts off the patients. Among the children above 7 or 8, the deaths are in the ratio of 1 in 3. In these subjects much is to be dreaded from the effect of cerebral congestion, which is speedily fatal.

M. Guersent employs in the chill period revellents to the skin, and stimulants internally; during reäction he applies leeches to the epigastrium, or behind the ears, emollient cataplasms and mild liquids for drink. Against typhoid symptoms, if they subsequently appeared, he gave *cinchona*, claret or Alicant wine, and blisters to the nape of the neck, or the occipital region.

MM. Jadelot, Baudelocque, and Bouneau, to each of whom one of the divisions of this hospital was intrusted, employed analogous means, and also used ipecacuan, calomel, the boric acid, &c.

Between the 6th and the 13th of April inclusive, forty-five choleric cases were brought to the Hopital des Veneriens, and under the care of M. Ricord, who ordered frictions along the spine with a very volatile liniment, the cramps were almost always allayed. None of the patients of this hospital under the actual use of mercurial frictions, were attacked by *cholera*, and it was even remarked, that few persons labouring under syphilis were overtaken by the disease; and, though several facts disprove the preservative influence of the latter power, it may subsequently become a subject of inquiry to what extent these conditions protect from the choleric invasion. M. Velpeau also employed mercurial frictions from the commencement of the epidemic. M. Jules Guerin, having observed that all the workmen employed in the preparations of mercury were exempt from cholera, thought that the mineral might be advantageously employed in curing the disease; and, with the view of enabling it to operate, he proposes previously to administer ipecacuan, in order to effect a reäction favourable to its influence. Mercurial friction on this principle has been followed by favourable results in cases apparently desperate. But these are too few and too vague to justify much confidence.

At the Hopital Necker, MM. Bricheteau and Delarroque treated many patients from the adjoining districts; and many cases were supplied by the Gros-Caillou, Vaugiraud, Grenelle, and Mount Parnassus. In these populous districts it must be further observed, the women were attacked in much greater numbers than the men; and the admissions at the Necker presented this difference from all the other hospitals. On the 15th of April, the patients admitted since the commencement of the epidemic, amounted to 236, of whom 150 had died. The treatment was founded on the particular symptoms of each patient. The physicians of this institution believe, that, do what you will, it is extremely difficult to obtain any success when the cholera patient is in the blue period, and that all means, even the most energetic, possess little efficacy. The use of the antiphlogistic method, above all, they found pernicious at this period; and, on the whole, the diffusible stimulants were attended with less inconvenience. This opinion, coming from practitioners so respectable, we willingly record.—*Archives Générales.*

On the German, or Camphor Treatment of Cholera Asphyxia. By William Channing, M. D. of New York.

The following comprehensive directions, intended to meet, in some degree, the exigencies of those who desire information relative to the use of camphor in the treatment of cholera, are essentially a summary of the practice of several physicians of New York, and now sanctioned by their experience in more than six hundred cases, many of them of the most malignant character. If they shall prove instrumental in lessening the destruction attending the pestilence now ravaging our country, the writer's design will have been answered.

It is necessary to premise, that in specifying measures *generally efficacious* in cases as they have arisen, it is hardly possible, in a single sheet, even to touch

upon the principles upon which the practice is founded; and still less to enumerate the various circumstances of age, sex, constitution, &c. of the patient, and the diversified phenomena of the disease, that, as in other diseases, require correspondent modifications of the treatment—modifications which it is manifest, must be left to the professional *tact* of the intelligent physician.

Another remark too important to be overlooked is, that there have already been observed no less than six different forms of epidemic cholera, each having its characteristic features, and each its appropriate treatment. Several of these may prevail, according to laws not ascertained, during the same season, in different countries or districts, as noted in Europe in its late desolating progress.

It must therefore be explicitly understood that the practice here set forth is designed only for an epidemic exhibiting the same distinctive features as have marked the footsteps of cholera in this city; and that, in such an epidemic, cases may be expected in which the *literal adherence* to directions *necessarily general*, may prove pernicious and even fatal. Moreover, it must be constantly borne in mind, that, throughout the several stages of this disease, from the first premonitory symptoms to confirmed convalescence, it is essential to the success of the camphor treatment, that the *patient be free from the counter influence of other medicinal agents;** and that, of all others, none is so utterly opposed to its efficacy, none so fatal to every hope of a favourable issue, as *opium in every form* in which it is administered.

To avoid repetition, it is thought expedient to present the treatment of the several stages of cholera in a reversed order, commencing with that in which its appalling symptoms are most strikingly developed.

The stage of asphyxia.—In this stage, if the collapse shall have long existed, or if the march of the disease shall have been unusually rapid, the evacuations so excessive that the patient appears nearly exsanguinated, the pulsations of the carotids and of the heart remarkably feeble and the respiration very laborious—but little hope can be indulged under any treatment. Such patients, however, have in some instances been resuscitated by the judicious exhibition of camphor—the doses being diminished to about one-fourth part, and repeated every three, four, or five minutes, and the other measures hereafter detailed faithfully enforced. But the majority of collapsed patients, when first seen by the physician, happily have not yet sunk to the above discouraging condition; and though the pulse at the wrists shall have ceased, the extremities and face shall be blue and shrivelled, and with the tongue and breath, evince no vital heat, if there be ordinary constitutional stamina, it is in such cases that the camphor treatment exhibits most convincingly its *specific* powers; for in such cases, if experience be the test, it is entitled to a confidence that can be claimed by no other yet promulgated.

1st. The patient should be immediately undressed and well covered in bed, and woollen stockings placed upon his hands and feet. 2d. Three drops of the spirit of camphor† in a table-spoonful of water, or (what is equivalent and of

* This remark requires the qualification that there are cases of occasional occurrences, in which according to circumstances to be recognised only by the skilful physician, *cuprum*, *veratrum*, *rhus* and *bryonia*, are called for and exhibited with the greatest advantage.

† The spirit of camphor referred to is that of the L. and D. P. or camphor (2 oz.) two ounces, dissolved in alcohol a pint.

more convenient administration) a table-spoonful of camphor mixture* should be forthwith administered, and repeated every fifteen minutes. 3d. An injection warm as can be borne of the camphor mixture somewhat less than half a pint, every half hour, or oftener if not retained. 4th. The abdomen and chest should be covered with flannel wet with camphor spirit—the limbs above the stockings rubbed with it, and the bed-clothes about the patient's head so sprinkled with it that camphor may be inhaled with every breath. 5th. The extreme thirst should be allayed with a table-spoonful of cold water, or pure brandy and water *very weak*, as the patient may prefer, every five or ten minutes.

These measures should be unremitting until pulse and warmth be restored to the extremities, when the injections, (and the frictions, if no cramps be present,) may he discontinued. The *full dose* of camphor must be maintained until free perspiration becomes general, and the evacuations comparatively infrequent; then they are to be promptly reduced to *one drop* of the spirit, or *a tea-spoonful* of the mixture. So soon as the evacuations are small and rare, and begin to evince a bilious tinge, (as is often the case at an early period,) the *intervals* should be extended to twenty, thirty, or sixty minutes according to the degree of heat and perspiration, and thus continued until the watery discharges shall have wholly ceased. After this occurrence, most patients require the repetition of the one drop every two or three hours; but in some, this small dose, once in four, six, and even twelve hours, proves abundant for the continuance of active perspiration, while *the hazard of over excitement and depressing narcosis* is thus with ease avoided.

The sweating process in this manner, fully though cautiously sustained, is to be pursued in collapsed cases at least thirty-six hours, every exposure which may arrest its salutary influence being carefully avoided. In the course of it, the insatiable thirst gradually ceases, and the patient, after a little light nourishment two or three times, generally will relish, and in moderation, will take with great advantage, every three or six hours, beef-steak, mutton-chop, or boiled chicken, with good stale wheat bread; and for drink, brandy and water, and pure Port or Sherry wine. These articles should constitute the principal diet of the convalescent, whose *decidedly expressed wants*, as the utterings of nature not to be disregarded, should be indulged, yet with great temperance. Experience has amply shown, that by management so simple, convalescents, after severe attacks of cholera, may, with very few exceptions, be safely conducted through its consecutive dangers to confirmed health; always however, (peculiarly predisposed, as they must be in their debilitated state, to renewed attacks,) requiring the reiterated admonitions of their physician to unceasing vigilance.

The cramp or spasmodic stage.—This stage ordinarily precedes that of collapse, in many instances runs into it, and like it, is often accompanied by profuse evacuations, fits of vomiting, cold extremities, &c. If the sufferings be very severe, and collapse threatened, it calls for treatment as active as that just detailed, the frictions being vigorously applied to the seat of the cramps. If vomiting be a predominant symptom, the præcordia should be rubbed with the camphor spirit, and only *one drop* in a tea-spoonful of water administered every

* The camphor mixture may be extemporaneously prepared by adding to a common black bottleful of warm water three tea-spoonfuls of the spirit, to be shaken for a few minutes, then strained through a coarse napkin to remove the undissolved camphor.

three or five minutes; if repeatedly rejected let a like quantity be diffused through three, six, or even ten times the water, and given by the tea-spoonful till a larger dose shall be retained. By this mode of exhibition, camphor never fails to overcome the most violent vomiting occurring under this epidemic, after which no difficulty exists in pursuing the course directed in the stage of asphyxia. In case the attack be of a milder nature, warm perspiration will speedily appear, and the symptoms vanish under treatment less active.

The premonitory stage.—It is generally indicated by one or more of the following symptoms—lassitude, ringing in the ears, chilliness, uneasiness or soreness in the region of the stomach, nausea, occasional vomitings, costiveness, diarrhœa, pain in the bowels, slight cramps, particularly in the fingers and toes, &c. Unless severe in the outset, or too long neglected, the patient will rarely find it necessary to leave his ordinary avocations, though in cool or damp weather he may require an extra garment. To obviate costiveness, a mild injection, daily if required, is the safest means to be used when the bowels are so easily irritated into violent diarrhœa, as during the prevalence of cholera. If *any laxative be taken*, castor oil, in the dose of a tea-spoonful, with three drops of camphor spirit, repeated in an hour or two if it fail to operate, is to be preferred. In reference to the other symptoms of this stage, the same dose of camphor, repeated if requisite in an hour, or if they be urgent in half an hour, or a quarter even, will almost invariably arrest any, and all of them. Should they however obstinately persist, the patient must submit to the inconvenience of a free perspiration in bed for a few hours. The importance of *promptly* applying the remedy for the symptoms of this stage, and thus nipping the disease in its bud, cannot be too strenuously urged upon every individual exposed to this epidemic.

The practice above designated, can hardly be more at variance with any of the prevailing views of medical men, than with those entertained, but a brief period since, by the writer himself. In this age of generalizing, he had been led to doubt the existence of a *specific* for any disease. Experience, the only unerring guide, has convinced him of an error that has but too many adherents, and to propagate its correction, is but justly due to the interests of sound philosophical medicine.

To have imagined that the introduction of camphor as a specific for a disease so formidable as cholera, would escape an opposition as violent, if not so formidable, had argued gross ignorance of the history of improvement in every department of human knowledge. He who is aware that in enlightened Europe the virtues of ipecacuanha and Peruvian bark remain untested, and the unequalled blessings of the potato unappreciated, until the stamp of *royal* patronage opened the eyes of the blind, can scarcely feel surprise at what he witnesses in the present instance.*

But facts are daily accumulating, which, as they become known, must carry conviction to every understanding accessible to truth. To such—to *such alone*, the writer would appeal for an impartial trial of the practice he would promul-

* *Vide* in a *Ladies' Gazette*, "The New York Mirror" of this week, a "Letter on Cholera Asphyxia" from a late learned Professor, in which various modes of treatment are canvassed. If the amiable author utters his dicta in reference to other modes, with the *same amount* of knowledge, as that he evinces of the camphor treatment, the public will know *how* to appreciate his elaborate production.

gate. And he makes this appeal with the most unwavering confidence, (a confidence resting upon an extensive knowledge of facts in private and in public practice,) that such a trial cannot fail to demonstrate the preëminent simplicity, safety, and certainty of the camphor treatment of cholera asphyxia, as well as the acumen of German research which first devised it.

New York, August 30th, 1832.

As an appendix to this publication, the writer deems it an act of justice to state, that while most of the indications above specified have been the result of experience here, yet the use of camphor, as a remedy for cholera, with the general principles of its exhibition, originated in Germany, and for its promulgation the American public are principally indebted to his friend, Dr. H. B. Gram, of this city.

Cholera in Boston.

(From the Boston Medical and Surgical Journal.)

The history of cholera in this city seems to be destined to add to the number of wonders in regard to this strange malady, and to increase the difficulty of coming to any conclusion as to the laws of its appearance and progress. It is, in very truth, a most strange phenomenon—an invisible comet—a potent, relentless, and capricious enemy, striking blows in the dark, and mocking at our efforts to evade its force, or deprecate its fury. The anticipation of it seemed to haunt the public mind like a nightmare, producing a sense of something terrible near us, which the external face of nature flatly contradicted; and even now, that we have seen the monster, the impression has almost the vague, unreal character of a dream, so much was its aspect at variance with all else which presented itself to our sober senses. Let us consider the facts. The average mortality of the city of Boston is estimated at 28 weekly deaths. During the week ending August 18th, the number was 21; during that which followed, 28; and the last week, which ended September 1st, 17; making a total of 66, which, compared with 84, the average for the three weeks, shows how much more healthy than usual our city has been during this period. Yet, within this same period, four individuals have died with cholera, marked by all the symptoms which characterize the eastern disease, and which have accompanied it to our sister cities on this side the Atlantic; having the same rapid course and termination, exhibiting the same peculiar evacuations, the spasms, the collapse, and asphyxia, all strongly and distinctly marked, so as not to be mistaken by the most careless observer. All these cases, it is to be observed, terminated fatally. We have heard of no case of spasmodic cholera which had a different event. In the mean time, it is certain, both from the general report we have already referred to, and from the classification of the deaths, that the usual bowel complaints of the season are comparatively rare, or, if as numerous as usual, far less grave and fatal. Of the 66 deaths, already mentioned as constituting the mortality for three weeks, three only are of dysentery, and one of bilious cholera. We shall again recur to the subject of this last case. In the mean time, it may not be uninteresting to remark, that the number of deaths

for the three weeks ending Sept. 1, 1831, was 88, of which *five* were of cholera, and twelve of dysentery; making the whole mortality then greater, by one-third, than that presented by the corresponding period this year, and the deaths from common cholera numerically greater than those from the two forms of the disease now existing. In the mean time, our summer has passed away, and with it has ceased the only known atmospheric cause of our bilious cholera. More than two weeks have elapsed without the occurrence of a hot day. Our evenings begin to inspire something of an autumnal chill, and we begin already to talk of warm firesides and thick garments.

It is not in such weather as this, that we are acquainted with severe cholera in ordinary seasons; and it is difficult to realize that we are menanced with it now. One thing is certain, that if under existing circumstances, severe and fatal cholera should become epidemic among us, there will be little difficulty in recognising it as a new disease; and instead of laying particular cases to the account of green apples, cucumbers, and watermelons, we must then be content to confess our ignorance of the cause of this mysterious malady, and wait for further experience to enlighten our understandings.

The case of cholera which has been alluded to, deserves mention in this connexion, since some of its symptoms allied it very nearly to those which have been reported as spasmodic cholera. The leading particulars of this case will appear from the following note, which we have received from one of the attending physicians.

Mr. Editor,—On Tuesday, at noon, I was requested by my friend, Dr. M. G. to visit a patient in Wharf Street, to whom he had been called the evening previous, and whom he had found affected with severe cholera. The matters then vomited and purged were bilious. He had ordered sinapisms to feet, and pills of calomel and opium. On repeating his visit in the morning, he found that the pills had never been given. Vomited matter still tinged with bile. A blister was applied to the abdomen. On visiting her together, we found her in a sitting posture on her bed, which lay on the floor, and, like her clothes and person, was excessively filthy. She was throwing up, with very little apparent effort, a fluid resembling rice water, or serum holding suspended whitish mucous flocculi. The countenance was anxious; the eyes surrounded with a livid areola; the tongue of natural temperature, covered with a black coat; vomiting frequent, dejections frequent, not very copious, described as being like the matters thrown up. Had great thirst which she had been satisfying with *whey*. The sound of the voice was natural; the respiration not hurried; pulse rapid and feeble. Hearing appeared to be impaired; the mind was clear, but anxious. The muscular strength was considerable; she thought herself able to walk across the room. No distinct spasms were present; the toes were more than half flexed; fingers about half, but both under her controul. The skin of the extremities was cold to the touch, rather moist; colour nearly natural, perhaps sub-livid; that of hands somewhat sodden and shrivelled in appearance. Bladder had acted as well as usual.

At three P. M., I visited her again. The vomiting and purging had ceased. The skin remained cold; the countenance was sunken; the voice hoarse, breaking into a harsh, squeaking tone. No pain or spasms.

At eight, P. M., the surface of extremities cold throughout. Face of natural temperature; tongue likewise; mind was much discouraged; pulse nearly insensible at wrists.

She sunk gradually, and died at midnight. The details of the treatment I do not give, as they were under the direction of Dr. G. Permission could not be obtained to examine the body.

This case was certainly not one of *spasmodic* cholera; but the character of the evacuations, the aspect of the countenance, and the change in the voice, together with the fatal issue, may impart to it some interest at the present time, and I therefore take the liberty to submit it to your attention.

Respectfully,

E. G. D.

On Cold Affusions in the Treatment of Cholera. By William Ainsworth, Esq.

One of the physicians of the Cholera Hospital at Berlin, in writing upon this subject, says, "in those living corpses which are struck with asphyxia, lying cold and without any pulse, external and internal stimuli cease to be so, inasmuch as the debilitated asphyxiated frame cannot in its turn act upon them: no steam apparatus, however vaunted, no warm bathing, no friction, no excitement, is sufficient in these cases." And this is what I am sure every person who has seen the disease will coïncide in. Though produced from internally outwards, and not externally acting inwards, *asphyxia pestilenta* bears a strong relation to death by frost, in which there is an icy coldness of the surface, a want of pulse, and great congestion of the central parts. In these cases we use frictions of cold snow, &c. until a gradual warmth is restored; and it is on the same principle that sudden cold affusions are indicated in cholera. So forcibly did this strike medical men in this country as a neglected remedial measure, that when the *Berlin Cholera Gazette*, which contained the notice of its successful employment, was made known, every writer was anxious to show that he had himself previously advocated its adoption.

The patient is placed in an empty and dry bathing vessel or tub, and several buckets of cold water are poured on him, while the regions of the stomach and back are subjected to a kind of shampooing or friction; and this process must be repeated if the urgency of the circumstances requires it. No physic is given, and cold water is allowed for beverage. If the pulse revives, the affusions are continued in a tepid bath, and the patient is put to bed, where perspiration is excited by gentle frictions with cold flannels. It must be kept carefully in mind, that cold affusions are only applicable to the second period of the disease, and not to the first; and it is not a universal remedy, but can only be used in particular cases. To secure the convalescence of the patient, it is only necessary that he should be carefully watched, and all symptoms of returning heat and vitality, or recurrence of the usual secretions, be assisted by the exhibition of warm restoratives and gentle aperients, taking care to avoid local inflammation.

Progress of Cholera.

New York.—The deaths from malignant cholera in the city of New York for the week ending the 8th inst. were 201, showing an increase in the number of deaths of 63 over the preceding week.—*Blackwell's Island.* There have been several recent deaths of cholera on Blackwell's Island; and we learn that on Friday night last, there were four deaths in the vicinity of the dyeing establishment on the north side of Staten Island.—*Staten Island.* We regret to learn, that the venerable General Van Buren, stationed at the quarantine ground, is dangerously ill. Indeed, it appears, by the accounts from every quarter, that the epidemic is general, and its effects similar to those in our cities.

Maryland.—The Board of Health report for September 3d, 35 deaths; Sept. 4th, 15 deaths; Sept. 5th, 21 deaths; Sept. 6th, 33 deaths; Sept. 7th, 55 deaths; Sept. 8th, 28 deaths; Sept. 9th, 24 deaths; Sept. 10th, 23 deaths. These are exclusive of the deaths in the Alms-house, in which institution 125 deaths have occurred from cholera out of a population of 500, or one-fourth of the whole.

District of Columbia.—September 4th, 42 cases, 10 deaths; Sept. 5th, 46 cases, 11 deaths; Sept. 6th, 46 cases, 10 deaths; Sept. 7th, 59 cases, 8 deaths; Sept. 8th, 53 cases, 15 deaths; Sept. 9th, 62 cases, 15 deaths; Sept 10th, 42 cases, 13 deaths.

Drs. Thomas and Sim have had up to the 5th, 36 cases of cholera, (8 of whom have died,) which are not included in the report of the Board.

Alexandria, Sept. 7: The Board of Health announce 2 cases, one fatal; with this exception, the town continues unusually healthy.

North Carolina.—*Elizabeth City.* Four cases and one death were reported for the week ending on the 1st September.

Connecticut.—Last weekly report, 17 cases, 4 deaths.

Canada.—*Quebec.* Four cases, and 4 deaths on the 1st of September.—The interments in *Montreal*, from June 10th to Sept. 1st, were 2820, which is about one person out of every ten of the population, including emigrants and all other transient visiters.

England and Scotland.—August 3d, total number of cases up to this day, 24,088, deaths, 9,057. *Tipton*, August 1st and 2d, 30 new cases, 10 deaths. *Exeter*, August 2d, 13 cases, 3 deaths. *Plymouth*, August 22d, 55 cases, 22 deaths. *Workington*, August 1st, 17 cases, 2 deaths. *Liverpool*, August 1st, 49 cases, 26 deaths. *Sheffield*, August 1st, 3 cases. *Leeds*, August 2d, 35 cases, 11 deaths. *Glasgow*, July 31st, 70 cases, 27 deaths. *Barony*, of do. 42 cases, 18 deaths. *Greenock*, 5 cases, 2 deaths.

On the Continent.—The following are extracts from the Augsburg Gazette of the 26th of July.—The cholera had increased this week to an alarming extent. On the 17th there occurred 100 cases, and 38 deaths. The cause is probably the sudden change in the temperature, which on the 15th inst. was 26°, and the 16th, 15° Reaumur.

At *Scheveningen*, the 30th—21 new cases, 8 deaths.

At the *Hague*—2 new cases, 2 deaths, 9 recoveries.

City of Rotterdam—48 new cases, 15 deaths.

The cholera has appeared also at *Delft*, *Delfshoven*, and *Vlaardingen*, and also at *Stiedrecht*.

Health of Philadelphia.

The cholera has almost disappeared from our city; the whole number of deaths from the disease during the week ending Saturday last, was only 18.

The following tables, continued from p. 96, show the progress of the disease and the localities in which the cases have occurred. We extract them from Mr. Hazard's Pennsylvania Register.

SUMMARY REPORT.—*(Continued.)*

	Private practice.		Hospitals.		Almshouse.		Arch street prison.		Total.	
Date.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.
Total to Aug. 10	444	118	325	169	134	61	77	43	984	392
11	76	14	41	†13	8	3	‡1	3	126	33
12	66	12	*39	15	5	4	0	0	110	31
13	94	24	28	18	8	7	0	0	130	49
14	70	12	33	17	5	8	3	0	111	37
15	36	6	32	14	4	3	1	0	73	23
16	62	14	§31	15	1	1	0	0	94	30
17	49	11	36	13	0	1	0	0	‖90	26
18	53	11	21	7	0	0	0	0	74	18
19	20	5	25	6	4	0	0	0	49	11
20	31	7	22	9	1	0	0	0	54	18
21	27	4	24	3	0	0	0	0	51	9
22	20	4	26	4	2	1	0	0	49	9
23	11	4	20	6	0	2	0	0	33	10
24	21	4	26	5	1	1	0	0	48	10
25	16	5	7	5	1	0	0	0	24	10
26	7	1	23	5	0	0	0	0	30	6
27	5	1	16	6	0	0	0	0	21	7
28	5	0	11	2	0	0	0	0	16	2
29	7	2	13	2	0	0	0	0	20	4
30	8	2	12	1	0	0	0	0	20	3
31	10	3	13	2	0	0	0	0	23	5
Sept. 1	5	2	13	1	0	0	0	0	18	3
2	1	0	4	0	0	0	1	0	6	0
3	6	2	5	1	0	0	0	0	11	3
4	5	1	7	0	0	0	0	0	12	1
5	4	0	3	1	0	0	0	0	7	1
6	6	1	5	0	0	0	0	0	11	1
Total.	1165	270	865	340	174	92	86	46	2295	752

* One case, and one death in Walnut Street Prison.
† One death in Pennsylvania Hospital.
‡ One case do. do.
§ One case do. do.
‖ Including five new cases and one death at the marine barracks.

Table showing where the Cases of Private Practice occurred.—(Continued.)

Date.	Kens.	N. L.	P. T.	City.	South.	Moya.	W. Phil.	Total.
Total to August 10	43	79	10	152	78	81	1	444
11	3	10	2	29	16	15	0	76*
12	7	5	3	27	12	12	0	66
13	8	8	4	29	24	21	0	94
14	8	4	5	22	19	9	2	70*
15	4	0	6	13	7	5	1	36
16	5	6	0	24	17	10	0	62
17	0	2	6	24	9	7	0	49†
18	1	3	2	24	13	9	1	53
19	3	3	1	6	4	3	0	20
20	6	3	1	9	10	1	1	31
21	1	4	0	11	4	7	0	27
22	1	3	1	9	3	3	0	20
23	1	2	0	3	3	2	0‡	11
24	6	4	1	6	3	1	0	21
25	3	0	0	3	8	2	0	16
26	3	0	1	1	1	1	0	7
27	1	0	0	1	3	0	0	5
28	0	0	1	0	4	0	0	5
29	0	0	3	2	0	2	0	7
30	2	1	3	1	0	2	0	8
31	1	1	1	3	3	1	0	10
Sept. 1	1	3	0	1	0	0	0	5
2	1	0	0	0	0	0	0	1
3	0	0	2	1	2	1	0	6
4	0	0	0	0	3	2	0	5
5	0	2	0	2	0	0	0	4
6	0	0	0	3	3	0	0	6
Total.	109	143	52	406	249	197	6	1165

The following table exhibits the whole mortality, and also that from bowel complaints for the 1st week in September for five successive years.

1828.—1st week, ending September 6th. Whole mortality, 109; of which, the deaths from cholera morbus were, adults, 0; children, 7; Total, 7.—Diarrhœa, adults, 3; children, 3; Total, 6.—Dysentery, adults, 1; children, 2.—Total, 3.—Total from bowel complaints, 16.

1829.—1st week, ending September 12th. Whole mortality, 92; of which, the deaths from cholera morbus were, adults, 0; children, 9; Total, 9.—Dysentery, adults, 2; children, 2; Total, 4.—Total from bowel complaints, 13.

1830.—1st week, ending September 11th. Whole mortality, 94; of which, the deaths from cholera morbus were, adults, 0; children, 2; Total, 2.—Diarrhœa, adults, 2; children, 2; Total, 4.—Total from bowel complaints, 6.

1831.—1st week, ending September 10th. Whole mortality, 94; of which, the deaths from cholera morbus were, adults, 1; children, 7; Total, 8.—Diarrhœa, adults, 1; children, 3; Total, 4.—Dysentery, adults, 2; children, 5; Total, 7.—Total from bowel complaints, 19.

1832.—1st week, ending September 8th. Total mortality, 129; of which, the deaths from cholera morbus were, adults, 2; children, 15; Total, 17.—Malignant cholera, adults, 13; children, 5; Total, 18.—Diarrhœa, adults, 5; children, 5; Total, 10.—Dysentery, adults, 2; children, 1; Total, 3.—Total from bowel complaints, 48.

* Including one case in Passyunk. † Residence of one case not given. ‡ Two cases in Passyunk.

THE

CHOLERA GAZETTE.

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Letter on the Cholera Asphyxia, now Prevailing in the City of New York; addressed to James Bond Reed, M. D. Chairman of the Medical Board, Savannah. By JOHN W. FRANCIS, M. D.

RESPECTED SIR,—Your kind letter was duly received, and I have several times attempted to write you an answer; but such has been the severity of my professional engagements, that the present is the first leisure I could command for the purpose. We have, indeed, become "unfortunately familiar with the disease;" and this circumstance alone authorizes me to make this communication to you, and to your medical board, should you deem it of sufficient consequence to submit it to them.

I was, at first, among those who rejected the idea that the India cholera had appeared in Canada, and considered the disease of Montreal and Quebec, as owing its peculiar character and virulence to a combination of causes, such as we know usually gives malignity to endemical and epidemical disorders in certain latitudes. When the committee, appointed by our Board of Health, made their report, that the Canadian disease was similar to that which had for so many years prevailed in Asia and in Europe, I was the less incredulous, inasmuch as one, (Dr. Dekay,) of the medical gentlemen of that committee had been practically conversant with the Asiatic cholera, in its epidemic form, while he was in Constantinople, some short time before. As the history of the progress of the Asiatic cholera now left us little room to doubt that New York would ere long be visited by this pestilence, I could not remain indifferent to the first intimations that were given of its appearance among us, and I accordingly saw, in consultation with Dr. Powers, the first cases which were reported to our Board of Health, as prevailing in that part of the city called Cherry street, near James-slip, on the East River. This, I believe, was on the 27th of June. From the suddenness of the attack, the train of symptoms, and its rapid and fatal termination, no question existed of the complaint being essentially different from the ordinary cholera morbus, which we encounter each revolving season. A map of the city of New York will enable you fully to trace the progress of the disease. After several fatal cases had occurred in Cherry street,

the disorder appeared on the opposite side of the city, near the North River, in Reed street, Duane street, &c.; thence it showed itself in Laurens street near Canal street, next in Orange street, Cross street, Mulberry street, and in other contiguous streets; and broke out with extreme malignancy at and around a spot denominated the Five Points. All this was effected within about the close of the second week. Since that time it has displayed its force most extensively throughout the city, and cases have occurred simultaneously miles asunder from each other. The disease has raged with greatest mortality in the sixth ward. The reports of interments, by the city inspector, show that about two thousand six hundred deaths have already taken place from the cholera; and, notwithstanding the received opinion that a prevailing epidemic swallows up all other disorders, we have had a season of sickness, from other complaints, much greater than ordinary. The remark, nevertheless, is of frequent repetition, that affections, in nowise congenerous, have not rarely put on the livery of the prevailing epidemic.

I need not attempt to describe the symptoms which mark the invasion of the disease, nor those which characterize it when it is fully formed. They must be known to you from the writings of such authors as Annesley, whose account of the Asiatic cholera I deem the best; Kirke, whose pamphlet on cholera asphyxia is also excellent; the tract of Dr. Thakrah, on the cholera of Leeds, and other productions. There is no disorder in the nosology more distinctly marked there is none less liable to be forgotten, when once particularly observed. The declaration is abundantly verified, that the disease almost always commences with a deranged condition of the digestive organs, such as a disturbed state of the stomach and bowels, sickness, and an uneasy sensation in the whole track of the intestinal canal; vomiting, diarrhœa, pains in and about the epigastric region, a sense of weight, heat, burning with thirst at the pit of the stomach, and a feeling of exhaustion. The tongue is various, furred, slimy, pale, leaden, red, and occasionally swollen. Sometimes spasmodic contraction of the abdominal and thoracic muscles occur. The appetite often not impaired, but digestion laboured and imperfect. These, or a part of these, are by some pronounced the precursors of the complaint. When the disorder is more advanced and deeper seated, we generally find a greater distress of the thoracic and abdominal viscera, the spasms are occasionally of the clonic kind, like those of violent colic. There is greater præcordial weight, of visceral fulness. The extremities, both superior and inferior, lose their temperature and become colder as the disease advances; the skin is covered with a cold, raw moisture; the integuments, especially of the extremities, seem shriveled, or sodden, or water-soaked, or doughy; the tongue is cold, sometimes icy, the respiration is more laboured, and the expired air of a chilly dampness; the eyes are sunken, invested with a dark or livid circle; the pulse, which at the coming on of the disorder is sometimes more frequent than natural, is now small, contracted, and, finally, can scarcely, or not at all, be felt at the wrist.

But you are not to depend upon the regular occurrence of the premonitory evidences of the disease, nor of their going through their entire course, as I now trace them to a fatal termination. Many cases of cholera have taken place among us, in which the premonitory signs, or symptoms, were wholly absent, and the complaint has so suddenly invaded, that the stage of collapse has been

fully formed within some two, three, or four hours. Nay, death has closed the scene within two or three hours from apparent good health. As in cases of yellow fever, some are violently assailed while walking the streets; and I have known three cases of children attacked by the cholera while in lively exercise at play. A most striking peculiarity of this complaint, in many instances, is, that the intellectual powers, unless overwhelmed by coma, retain their wonted integrity to the last. Often there is an entire absence of all suffering some time before death; and the observation is no less philosophically true than eloquent, that the mind seems to sit unimpaired and serene amidst the ruins of organic life.

I hardly know a greater misnomer than the appellation *cholera* to this prevailing epidemic. The absence of all bile, either in the ejections by vomiting, or in those from the bowels, is almost pathognomonic; the fluids thus liberated are often brownish, or more frequently colourless, or quite distinct from biliary matter; and if biliary discharges are exhibited, they are among the most favourable circumstances, whether occurring at the invasion of the disorder, or after it has been subjected to the operation of remedial agents. As to the term *spasmodic*, spasm is, perhaps, less frequent in this disorder than in our common cholera morbus. In this opinion I am fortified, by the ample experience and observation of my friend, Dr. Hugh McLean, of this city. Spasms do at times occur, and their violence may denote the greater danger of the case; the nervous power being at times rapidly exhausted by their conjoint action, and the causes by which they are induced; a peculiar mobility in the nervous system may predispose to the spastic rigidity. Fortunately, in a large majority of instances, these spasms are easily subdued by powerful friction, with potent stimuli. The term *asphyxia* is most consonant to the strongest pathognomonic feature the physician witnesses. This state of asphyxia occurs earlier or later, in the progress of the disease, depending upon habit of body, exciting cause, means of relief, &c. I have seen it within a couple of hours from the period of invasion. In some intractable cases it occurs even earlier. This asphyxia seems to me, moreover, to constitute almost the essence of the disorder; for all our prominent indications are to disburden the system of its two deadly grasp, and restore the circulation to its wonted functions. This view of the nature of cholera asphyxia, seems to be more clearly established, when we consider the phenomena which the disease exhibits upon inspection after death. Many post obit observations have been made by physicians of our public institutions, and some few in private practice. The brain has been found surcharged with dark viscid blood; the sinuses, in some cases, containing considerable effusion of serous, occasionally of sanguineous fluid; the membranes often turgid; effusion between the arachnoid membrane and pia mater. Sometimes the arachnoid was deprived of its transparency. In the spinal column were evident traces of previous increased vascular action and effusion. As to the thoracic cavity, the heart and larger venous branches have been found loaded with heavy black blood, often coagulated, and there was at times apparent what the older pathologists denominated polypi. Sometimes the parietes of the heart seemed thinner than natural; sometimes the heart was found empty, and powerfully contracted. Discolorations or patches were, in a few instances, seen on the heart, and effusion within the pericardium. I have seen the blood released from the large veins,

preserving the tenacity and appearance of a tarred rope. Dr. Depeyre found in a majority of his dissections, that the lungs were collapsed or shrunk, and frequently natural; others have observed them heavier than natural, or gorged with black blood.

The abdominal viscera evince, to a greater extent, the influence of diseased action. The mesentery was, in many instances, overloaded with blood. The appearances of the stomach are various: its contents are occasionally a watery, brownish fluid, or a very pale yellow or turbid fluid: sometimes this organ was found empty and contracted. The mucous coat seemed in most instances affected; and cases were not unfrequent when, upon removing the mucous coat, which could often be easily eroded or rubbed off, the inner coat was seen surcharged and its vessels greatly congested. Sometimes the stomach put on appearances similar to those which obtain in cases where sudden death has been occasioned by drinking cold water in the summer season, a species of stellated inflammation, (ecchymoma,) if I may be allowed the words, arising, I suppose, from the inordinate action of the organ when its blood-vessels were so unduly injected. I have a drawing of an example of this sort, and it so resembles others in my possession, taken from cold water cases, that I felt a good deal strengthened in my pathological views by this coïncidence. Examples also might be seen where the stomach was entirely unaffected. In two cases which came under my inspection, the subjects of which had died by violent cholera, the superior portions were exsanguine and colourless, the inferior of a deep vermilion colour, and the pyloric portion thickened and contracted. The small intestines were in almost all instances contracted, occupied with air, and their vascular ramifications loaded with dark blood; the duodenum seems especially vulnerable to the morbid cause, the ileum more disgorged than the jejunum, especially its inferior section. All the smaller intestines, I may say, seemed plentifully surcharged, their inner coats softer and paler than natural: rare examples might be found of like morbid changes throughout the whole intestinal canal. The liver was sometimes natural, frequently engorged with dark blood; in several cases the ducts were entirely obstructed or strictured: the gall-bladder was most generally empty, or possessing a small quantity of dark bile: the pancreas bore little or no particular marks of increased vascular fullness: the spleen varied and was sometimes surcharged.

I have designedly been thus minute in stating the changes wrought by diseased action; but you are not to infer uniformity in these appearances; they varied much, depending upon individual constitution, previous organic disorder, or chronic functional derangement. Much depended upon the duration or sudden fatality of the case. These differences in pathological anatomy, were displayed most upon a comparison with different brains, and the derangements of the viscera of different subjects. While in some the vessels of the brain seemed full, in others they were almost empty; and the serous effusion of the ventricles was, in many cases, altogether absent: while again, in some the mucous surface of the whole intestinal tube, seemed blanched and exsanguine; in others, it possessed little deviation from the healthy state; and in others was turgesced, of a blue or dark purple colour. But not to enlarge at this time, I must refer you to Andral, (Pathological Anatomy,) for some admirable remarks, which tend to illustrate these points. While marks of inflammation were seen in some,

Dr. Morrell, of the Bellevue hospital, who has made many *post mortem* inspections of cholera subjects, affirms the occurrence of this blanched or livid state of the alimentary tube, as more frequent than any other condition he witnessed. In some dissections, made by Dr. Hobart, this whitish colour of the mucous membrane was also particularly noticed.

A good deal has been said by pathologists, concerning the blood in this disease. The engorged state of the heart and greater vessels, of the mesenteric veins, and the like appearances in the brain, of dark, viscid, and tenacious blood, show strong resemblance in the phenomena after death, occasioned by cholera, to the cases induced by lightning, to death caused by drinking cold water while inordinately heated, and to the morbid changes arising from the sudden and violent extinction of life by other causes. In extracting blood long previous to the cessation of life, this *non-vital* state of that fluid was often manifested. Hence, then, I infer that the more immediate cause of death in cholera is by congestion, and by the changes which the constituents of the blood undergo. But I am not permitted to enlarge at this time. If you ask me for a pathological explanation of the morbid phenomena of cholera, I must candidly reply I am not able to give it. It seems to me, however, reasoning from analogy, in the cases of sudden death by cold water, by lightning, by inhaling carbonic acid gas, and the like, that most of the abnormal appearances we find in cholera; as well as the symptoms and train of disordered action, depend upon an impression received first upon the great ganglionic system; secondly, on the blood, thus creating the asphyxia so conspicuous above all other symptoms, in every case of strongly-marked cholera, particularly in its collapsed state. I therefore consider the disease as the consequence of a noxious agent operating primarily upon the nervous system, and secondarily upon the blood-vessels or vascular system. I shall endeavour, at another time, to enlarge upon these imperfect views. I cannot but think that the latest experimental facts, in respiration and in animal chemistry, give countenance to the hints now thrown out. See the experiments of Brodie, and the late observations of Dr. Davy. Corroborative proofs of the soundness of this pathology would seem to arise from the circumstance of the rapid changes and decomposition which the defunct cholera subject undergoes. This was by no means uniformly the case; the occurrence, however, sometimes took place within two or three hours after life had departed. Flaccidity of the muscles sometimes continued as in cases of death by lightning, several hours after death.

(To be continued.)

Cholera at Troy, New York.

Troy, September 8th, 1832.

Hon. George Tibbits, Mayor, and President of the Board of Health.

Sir,—The following inquiries were addressed, by the Special Medical Council of the city of New York, indirectly to the Board of Health of this city. The communication having been referred to me, I herewith transmit a brief reply.

1st. "What was the date of your first case of *malignant cholera?*

2d. "Was it preceded, accompanied or succeeded by a general prevalence of diarrhœa?

3d. "What was the supposed origin of the first cases—was there any evidence that they were communicated from a foreign source?

4th. "Have you seen any facts to prove cholera contagious?

5th. "What peculiarities have you observed in the diseases of the past spring and winter?"

In answering the foregoing inquiries, allow me to premise, that the population of Troy is about 13,000.—The health of the city is generally good, and our population free from malignant diseases—and that intermitting fevers are rarely seen except occasionally cases of foreign origin. During the prevalence of the *epidemic cholera morbus* there have occurred in the city, in round numbers, 50 fatal cases, and with very few exceptions, they have occurred in persons more or less accustomed to the intemperate use of alcoholic drinks. I believe I can safely say in the "excepted cases" the disease in *every instance* was attributable to gross imprudence or neglected diarrhœa.

Question 1st. The first case of epidemic cholera morbus reported to the Board of Health, occurred on the 16th of July, and proved fatal. The patient was a man of dissipated habits, and in consequence had been exposed the night previous to attack, to cold and dampness, followed by diarrhœa. The usual symptoms characteristic of the disease, supervened. He died in the afternoon.

Ques. 2d. Previous to the existence of the above case, there was observed a general tendency to gastric derangement, more or less severe. This obtained mostly in adults. Some time anterior to the breaking out of the cholera, and during the continuance of it in our city, there was evidently a peculiar constitution of atmosphere inducing disease and increasing the number of cases of bowel complaints. This had been noticed by most of our physicians, and in the reports of the day, the Board of Health recognised the fact.

Ques. 3d. The first cases were obviously of domestic origin, and could not be traced to any "foreign source." The first cases, as well as subsequent ones, were found in constitutions injured and worn out by previous irregular habits; among persons living in close, damp, unventilated and crowded apartments; and also in that class of individuals who are imprudent in eating and drinking, exposing themselves after fatigue to the dampness of the night air, and who, from ignorance or carelessness, neglect for hours or days the premonitory symptom, diarrhœa. It is believed that every fatal case may be attributed to some obvious, local, exciting cause.

Ques. 4th. There has appeared nothing in the history of the disease in this place to induce a belief of its contagious nature. Facts are decidedly in favour of its non-contagious character. It is true there have been instances where two or three have died in the same house, and at first view favouring contagion. The subsequent cases, however, can perhaps in every instance be traced to the same exciting cause with the first, and probably superadded to this, personal anxiety and fatigue. So far as the fatal character of the disease is concerned, it has been strictly local. When fatal, it has been confined principally to certain sections of the city, generally filthy, and for the most part in the immediate vicinity of dampness, especially damp and wet cellars. In many whole neighbourhoods not a case has occurred.

Ques. 5th. Physicians have remarked that for the last six or nine months diseases in general have in the early stages indicated more than ordinary debility, and have not consequently allowed depletory means to the extent that is common. During the spring and forepart of summer, diseases approximating intermittent fevers in some of their characteristics and differing in others, were common and unusual, so much so that they excited the observation of the faculty at the time, and were subjects of professional speculation afterwards.

I have thus answered, so far as practicable, the inquiries of the Special Medical Council of New York, but cannot flatter myself that it will be altogether satisfactory to them, or to many others of the profession.—So far as *facts* are stated, the Board and our community generally can attest; the *opinions* are my own, and for their correctness I appeal to the profession generally, and to the "Board of Physicians" you have appointed, in particular.

In connexion with this subject, I beg your indulgence for a few moments while I offer a few remarks in reply to one or two questions frequently put by individuals in reference to the measures your Board have adopted relative to the epidemic, and the best means to prevent the introduction and spread of the disease.

I will confine myself at this time to two questions, *viz.*—

1st. "As most of the profession here and elsewhere are non-contagionists, why did the Troy Board adopt a system of quarantine from the time the disease appeared at Quebec and Montreal?"

The idea of contagion probably had little influence with the Board in instituting quarantine regulations; certainly it had none with the writer in advising those sanitary measures. The object was not to prevent the introduction into the city of contagious disease, but to prohibit a mass of ill-clothed and unclean foreigners from entering and mingling with a dense foreign population already existing among us, and thereby exciting disease not only among themselves, but also among those with whom they might come in contact. The number of emigrants quarantined at Green Island, was about seven hundred, probably not one-half of the number that would have quartered themselves in our city, had no such regulations been adopted. Most of them were miserably poor, filthy in their persons and clothes, and worn down with hardship and fatigue. Under such circumstances, who cannot perceive the injurious consequences that would have resulted from their admission in this state into a populous town? Besides, those restrictions were in fact essential charity to the emigrants themselves. They were fed and clothed, they recovered from their fatigue, they had an opportunity to be relieved from their sickness and distress, by those very restrictions, proving a real, substantial charity, rather than a useless, arbitrary restraint on their freedom and happiness.* In addition to these considerations, it is very questionable, whether in a pecuniary point of view, the expense was not well invested. Had a different course been adopted, the alarm of our citizens would have been unnecessarily increased—our inhabitants would have removed, and there would have resulted a total stagnation of business, and pos-

* It is worthy of remark, that out of the seven hundred emigrants on the island, but one individual died, and that an aged woman, having suffered much from hardship and fatigue, was brought to the island sick, and died four days after. The individuals were detained from four to six days on the island.

sibly many valuable lives lost through the excitement of fear. In whatever light we view it, the whole system appears salutary, and such as would, under like circumstances, recommend itself in all future time.

2d. "Why did the Troy Board originate and adopt a course in their reports not previously sanctioned by the practice in other cities, both here and in Europe, reporting all the deaths in the city, with their causes? Why did they not report *cases*, as is the practice elsewhere?" In a free country, public bodies possess the right to adopt those measures which, in their opinion, will best conduce to the interest and happiness of those, for whom they act, provided their measures do not interfere with the rights of others. The question then arises, "which of the two modes of reporting will best subserve the interests of community?"

A little reflexion will settle this question. Two objects are presented. One is, that community shall be put in possession of every thing that is desirable that they should know; another is, that the public should not be deceived and unnecessarily alarmed by reports, that cannot in the nature of things be correct, and must necessarily convey erroneous impressions.

Medical men will readily perceive, that in the incipient stages of this disease, it requires no common judgment and discrimination to decide what is, and what is not cholera. In some cases that might occur, it is more than probable, that two or five physicians might disagree: the consequence therefore of reporting cases, involves difficulties—cases might, and probably would, be reported as cholera, that were not; and others that were, would be omitted. In addition to this, no legislative enactments could enforce regulations requiring reports of *cases*. Self-defence demanded a different course by your board, and a course too, against which these objections would not lie.

The Board were actuated by other motives than those stated—a sincere desire to give the public correct information in relation to this matter. By reporting all the deaths and their causes, you give the community the tendency, extent, and result of disease of whatever character, and by not reporting *cases* you withhold from the public a prolific source of evil, and in many instances, an exciting cause of disease, for the reason that there is less difficulty in ascertaining when an individual is dead, than in the commencement of disease, to define accurately the nature and name of the disease. The information given by your reports is more accurate and just than it would have been, had you adopted the other mode. Not relying altogether on the reports of physicians, you superadded to these, daily and weekly reports from the superintendent of the common burying-ground, and also from the Roman Catholic Priest and Sexton. It is unnecessary to add, that reports under such circumstances, and coming from such sources, could not be wide from the truth, unless, indeed, the *integrity* of the Board of Health, should be questioned, as yours has been by some, kind hearted, charitable, disinterested neighbours.* Other Boards have followed your course, and should this scourge again desolate our land, I doubt not your plan will find many advocates.

Before I close this communication, permit me to advert for a moment to the fact, that previous to the existence of the epidemic here, there was, in common

* Reference is here made to the Albany newspaper reports.

with other places, some cases of what in common parlance, has received the appellation of cholera-phobia, or cholera mania. These cases were quite common for a week or two previous, and like other maniacal cases, produced much excitement. These cases magnified every thing into cholera, and what, for want of existence could not be magnified, was manufactured.—In this remark I make no personal allusions; idle reports were circulated of this character, and I regret to add, that one of these was endorsed, and that officially too, by a respectable physician in Albany. This is the more inexcusable, as it was unprovoked and uncalled for. An old adage, and one deserving occasional thought, "do as you would have others do," had not at that time a very conspicuous place on the tablet of memory.

Respectfully submitted,

C. S. J. GOODRICH, M. D.

Physician of the Board.

Reasons why the Medical Staff in India did not consider Spasmodic Cholera contagious. By S. Hood, M. D. Brighton.

The opprobrious epithets and criminal accusations which have been so liberally heaped on the Indian Medical Staff in the cholera controversy, merit some reply; and as the profession have now an opportunity of forming their own opinion, and the nation reaping the consequences of the popular cry of contagion, in want of employment, stoppage of trade, and a falling revenue, perhaps a few reasons for thinking the cholera not contagious in the East, may now be heard with patience.

Spasmodic cholera is not a new disease; it is mentioned in the vedas, and called in the varied dialects of Hindostan, Woba, Sheni, Viduma, Visuchi, and Mordechim, which last words seems to have been misnamed Mort de Chien by the French soldiers, as cholera morbus became personified by ours into Corporal Forbes—and it must be confessed they have surpassed the doctors in their nomenclature.

At an early period of our Indian wars, when the Madras European force were only about one thousand strong, fifty of them were suddenly carried off by this epidemic. When the spasmodic cholera appeared in November, 1818, at Madras, Mooyakeddeen, physician to the late Nabob of Arcot, informed me that, so far back as 1790, being as long as he could recollect, he had seen the same disease every year during the winter monsoon, and that he saw no difference in it that year from any other, except in the increased number of cases. In other words, this disease is endemial every winter among the natives of the Coromandel coast, as the biliary cholera is in England in July and August. In selecting cases of cholera from the garrison, I never saw the soldiers nearest to the cholera patients attacked by it; and in the hospital the same inability of this disease to propagate itself from man to man, was equally manifest. Mr. Bell correctly observes, that the epidemic approached Madras by land, through the communication with Calcutta, and all the coast where the disease prevailed, continued open by sea during the whole of 1817 and 1818. It would, therefore, have been a perverseness of judgment, if the medical officers of Madras and Fort St. George had considered an epidemic, which could not be imported by ships, contagious on land.

Every Indian practitioner knows also that the spasmodic cholera establishes for itself a sort of capricious morbific boundary line, beyond which, for a time, no communication, however frequent, can make it extend. The Indian reports, and Mr. Bell's work, prove this fact beyond a doubt; and if proof were wanting, the following instances may be added to the mass of information already published. Two Sepoy regiments, encamped at Agra, were separated only by a road; one corps was violently assailed by the epidemic, while the other escaped entirely, though the intercourse between them was constant and unrestricted. If the healthy corps had in this instance cut off all communication with the other, when should we have heard the last of the advantages derived from a sanitary cordon? A light infantry battalion, returning from the Deccan war to Bombay, was severely attacked by the epidemic at its bivouac: a havildar stated to the commandant, that there was no cholera a few hundred yards further on beyond the nullah; the regiment, carrying the sick along with it, marched beyond the morbific boundary, and the plague was staid; not a new case occurred at that time in the corps. A cavalry officer, proceeding up the Ganges to join his regiment in the Upper Provinces, came to a bend in the river, which formed a small peninsula, and his boatmen advised him to shoot across the isthmus, while they rowed round to take him up on the other side. On his way across he passed a village literally bisected by the epidemic, which was ravaging one part of it, while the other was quite healthy. This morbific boundary seems also to extend to the ocean. In 1823, while Commodore Grant's squadron of three ships lay off Madras, the crews of two vessels were attacked by the epidemic; and though the men of the third vessel held free intercourse with their sick companions, they escaped scathless. The two unhealthy ships put to sea, got rid of the disease, and on their return, they found their companion where they left her, still healthy. It is a well-known fact, that the Marquis of Hastings and Sir Thomas Monro, men not likely to act long on false principles, often ordered troops to be marched beyond the limits of the disease, a custom which I believe is continued to this day.

The peculiar influence which produces spasmodic cholera, is connected with the atmosphere as well as the earth; an experienced Indian practitioner can often foretel its attack from the state of the weather. It is well known that thirty men, on the weather side of the Company's ship Berwickshire, suffered from the epidemic, while few or none of the crew, on the lee side, were affected. In October, 1818, the East India Company's ship lay at anchor in Languo Roads with a healthy crew, one hundred strong, and the wind on shore. One night the wind changed to a land breeze, and in the space of an hour and a half afterwards, seven of the sailors, who slept on deck, were taken ill of cholera. Mr. Horslay, with that good sense which characterizes him, ordered the whole crew to go below, and the ports to be closed. Thus were all the ship's company exposed, in a confined air, to the animal effluvia of seven diseased persons, yet not one new case occurred, after the crew were removed from the deck. Two inferences may be drawn from the above facts; first, that the cause of cholera is sometimes connected with the atmosphere, and that that cause cannot be electricity, otherwise the deck of the ship could be no shelter: secondly, that the exhalations from cholera patients, cannot convey the disease to others. It is also a well-known fact, that all the East Indian cotton, which has entered our markets these last fifteen years, is more or less impregnated

with all the egesta of cholera patients, the dust of which has been, during that period, respired by the cotton spinners with absolute impunity. It was from the belief, that cholera cannot be propagated from person to person on board ship, that an Indian practitioner, when the quarantine was enforced last year, said, that if His Majesty's Ministers gave one year's revenue of the empire, as a premium to import the cholera in a Baltic vessel, they would not procure one case before the month of November.

The contagionists admit, that infectious disorders require considerable time to pass from one individual to another, but in the East, this epidemic does not follow this law of contagion; it falls upon a community like a shower of grape-shot. It was decided in the King of Siam's Council, that it is caused by a monster, which might be scared from his coast, by making a horrific noise: he marched out against it, at the head of fifty thousand subjects, but he lost five thousand in one day; and returned vanquished from the campaign.

A Persian gentleman observed to one of my friends, "we were apprised that the cholera was in Shiraz, by finding one morning, when we awoke, that it had carried off two thousand inhabitants the night before." Perhaps there might be a little Orientalism in this statement, but smaller numbers will better illustrate that there is not sufficient time for it to pass from man to man by contagion. Even supposing that the first man taken ill on board the Warren Hastings infected the other six sailors, how came the whole seven to lose the power of infecting the rest of the crew when carried below? The right wing of a King's regiment, on its route to Cawnore, encamped one night on the banks of a river; and the first thing done next morning, was to consign two officers and eight privates to the grave. The first persons taken ill was an officer, who lay down in his tent to die, therefore he could not have infected the soldiers. "In 1827, we marched," says Major Robinson, "from Trichimopoly for Bellooy, and though we passed through a considerable portion of country where the disease prevailed, we had not a case during the march; but of a small detachment which followed us a month or six weeks afterwards, the officer and nearly half his men died near Baugapilly." Indeed, it is so common for a regiment or a ship to lose a number of men the first day this disease begins, that it is unnecessary to dwell on a fact so notorious.

But not only is sufficient time to propagate the spasmodic cholera wanting, but the rapidity of recovery from it equally militates against the idea of its being contagious. It is no uncommon thing to see a patient, on the very verge of existence one hour, and nearly well the next: or, to use the phrase often quoted, "the dead man rose and walked away." Can a patient, labouring under any of the contagious diseases to which the epidemic has been compared, be made to rise and walk away in this manner? All the infectious disorders with which I am acquainted, require, under the most judicious treatment, some considerable time before their influence can be expelled from the human body, and a healthy action reëstablished in the organs affected; yet the spasmodic cholera, which assails every nerve, artery, viscus, muscle, and membrane of the body, may be eradicated in an hour.

From the above facts, and numberless others of a similar nature, it is quite evident that neither the effluvia nor egesta of choleric patients communicate the disease; that it cannot be propagated in ships, like other contagions, otherwise the East Indiamen must have imported it fourteen years ago; and that the cause

of it is sometimes in the air, oftener in the earth, on the surface of which it chalks out for itself temporary morbific boundary lines, which no human power can vary or controul. There are some men's mind so constituted, that when any two occurrences happen simultaneously, it is immediately argued that they stand in the mutual relation to each other of cause and effect. It is next to impossible for the spasmodic cholera to change its limits in a thickly-peopled country, without some of its inhabitants moving in the same direction with the disease; and an unhappy traveller who sinks under it, is reproached as the cause of the public calamity. If the inhabitants of St. Kilda, who are all attacked by an epidemic catarrh* on the arrival of every vessel from the main land, reasoned in this manner, they ought to cut off all intercourse with the rest of the world, to save themselves from influenza. Not content with accusing the Indian Medical Staff of being sunk in the Cimmerian darkness of more than Bœtian stupidity, and of causing the spasmodic cholera to ravage Europe, from their culpable neglect of duty, the contagionists liberally applaud their own knowledge of science and logic. The following is a specimen of their logic, only worthy of being refuted, because it is often repeated in conversation:— "Formerly," say they, "small-pox and measles were considered not contagious; the Indian practitioners think the same of spasmodic cholera; small-pox and measles are contagious, ergo the spasmodic cholera is contagious also." This reasoning, applied syllogistically, would, with equally facility, prove sabre cuts and gun-shot wounds contagious, precisely because naval and military surgeons think the reverse.

My opinions on spasmodic cholera have not been formed without much reflexion; nor are they of recent date, got up to serve a purpose; they were recorded in French in 1821, and in English the year following; and though no contagionist, I then stated that Europe may likely come under its dreadful scourge. The event has happened, and now that the epidemic is here, and judging from its previous history, I have no doubt that it will prove only a temporary visitation, as it seems to observe the same erratic and capricious progress in Europe that it did in the East. In the above remarks, I have spoken of the Indian Medical Staff as being unanimously non-contagionists; and till the alarm was sounded from Europe, there were none in Bengal, one or two in Madras, and three or four at Bombay, who believed in its contagion; and to this hour I know not one contagionist among all my Indian friends.

Dr. R. Christison on the Treatment of Cholera.

I have been requested by Mr. Aitchison this morning, to reply to a letter of yours, dated 6th instant, in which you beg him to supply, for the use of the Dutch Government, some information relative to a new mode of treatment which has lately been practised here for cholera; I do so with much pleasure, but regret that, in some respects, the information I have to communicate is necessarily defective.

I must begin by observing, that we have had an opportunity of trying all the previously recommended remedies, and that I am convinced they are all of

* Vide Macauley and Boswell.

very little use in genuine virulent cases of the epidemic cholera. In proof of this I may mention, that in one of the districts under the jurisdiction of our Board, a suburb village called the Water of Leith, from which I have now collected very full and accurate returns, and where every possible means were brought to bear on the disease, both in the way of treatment and for arresting its progress, it appears that all the customary remedies were resorted to, under the immediate directions of experienced surgeons, and with the advice of the most eminent members of the profession in the city; yet it turns out that scarcely any cures were accomplished amongst decidely violent cases. Eighty-five cases of cholera, in all, occurred in the village, and thirty-eight were cured. Of these cases, there were seventeen mild cases, nineteen severe cases, and only two violent cases. Undoubtedly several, probably many, of the cases, simply severe or mild, might have become violent, without attention, and the treatment being actually enforced. What I mean to urge merely is, that *when cases had once become violent*, the ordinary kinds of treatment were very rarely of much use. I have had an opportunity of personally witnessing the same fact throughout the whole course of our epidemic in the city; and I may perhaps be allowed to say that I am an impartial judge, because, as the department I was entrusted with—the collecting and keeping the medical returns, took up my whole time, I did not undertake the personal charge of the treatment of any cases; but, nevertheless, had extensive opportunities of seeing what was practised by my brethren in all quarters.

This much being premised, you will be better prepared to appreciate the probable value of the new treatment, and will not be surprised to find that, after all, the proportion of cures is not likely to be very much increased.

The last authorized account I have had an opportunity of hearing, is to the following effect:—In Leith nineteen had been treated, and five of these were considered in a fair way. In Edinburgh eighteen had been treated, and seven were either well or considered safe; several more were alive, but in a very doubtful state; and in every instance, without exception, where the treatment failed, there was found after death such extensive old organic disease of the visceral organs, especially of the liver and kidneys, as would in all probability have rendered a similar event inevitable in the instance of any other severe disease; such, for example, as fever. I cannot therefore but infer, that the ultimate result of the cases is such as to hold out the strongest encouragement to a further trial, although I am far from thinking that the utility of this remedy is fairly established by our experience. When it is considered that the trial of it was made in very bad cases only—in such cases, indeed, that, according to our previous experience, not more than two or three of the whole thirty-seven would have come round *under any other treatment*—that, in fatal cases, extensive disease of old standing was found invariably; and, in fact, that a very large proportion of our whole cases in the city have occurred in persons of dissipated habits, or broken-down constitutions, the numerical results will certainly appear worthy of notice.

As to the immediate effect of the treatment, no question whatever can exist. No other remedy has any thing like the *immediate* effect of the injection of the saline solution into the veins. In a very large proportion of cases of a kind like those in which it was used, the other modes of treatment have entirely failed to restore the pulse and check the collapse; and in most of the cases

where some reäction was brought about, it was imperfect and transient. The new treatment, on the other hand, has, (with, I believe, no exception,) been followed at once by restoration of the pulse and subsidence of collapse. Every medical man who has seen its effects in this respect, agrees in being astonished at its immediate results. An individual who lies pulseless, almost speechless, deadly cold and shrivelled, will, in thirty or forty minutes, present a good pulse, a general warm respiration, a full florid cheek, and an open, lively eye. Nay, what is very generally remarked, when the body is moderately relieved from severe suffering of any kind, he begins to be talkative, and cracks his jokes with his attendants. This I have myself witnessed, and there is scarcely any medical man of note in the city, who has not had occasion also to observe it. Several individuals who have been brought thus far round, have either died of the subsequent stages of reäction, or have fallen again into the state of collapse; and, after repeatedly doing so, have at length died in that stage. At present, then, you will remark, I speak of its *immediate* effects, which are undoubted and most striking.

The dangers to be anticipated from this mode of treatment, are, so far as I see, three. Air may be introduced into the veins with the injected matter. This is a material difficulty, which must be guarded against by careful attention on the part of the operator. 2dly. The vein, roughly handled by the introduction of the tube, and its maintenance in that position for some considerable time, may inflame. This may be justly considered a formidable risk; in point of fact, the vein has inflamed more or less in several cases—I do not remember exactly in how many—but in none has the inflammation been fatal, or very serious.

I can scarcely doubt, however, if the operation were practised in many instances, and a considerable proportion of individuals to live long enough for the inflammation to run its usual course, we should find some deaths imputable to this cause—probably not a material number.

3dly. The introduction of so much saline matter into the blood, although *the salts are the salts of the blood,* may be eventually followed by some constitutional injury, which cannot at present be anticipated. This is a conjectural objection, reasonable certainly, yet not borne out by observations hitherto made. The principle of the treatment is, that the blood is defective *in water,* and in its salts; and that, by supplying the deficiency, we keep up the circulation; and this may enable the system to throw off the disease. My own experiments, which have been extensive, agree with those of all former experimentalists, in showing a great deficiency of water, and likewise with those of some who have found the salts too defective. In fact, in consequence of my analysis, I recommended one of our hospital physicians, Dr. Davidson, three months ago, to try the very remedy which Dr. Latta has actually employed, and should certainly have given it a trial, had I been at the time in charge of cholera patients.

The mixture used is different in Leith and Edinburgh. In Leith the quantity of saline matter employed has not been so large as in Edinburgh, where the mixture in use consists of 120 grains of common salt, and 40 of carbonate of soda, dissolved in five pounds of water; of this, from five to six pounds are injected into a vein in the arm, in the course of thirty minutes; and ten pounds are frequently injected at this rate without stopping. The temperature is about 110°, or as high as 115° Fahrenheit, when rigor is apt to be induced. Rigor, indeed, is apt to follow in all circumstances, but is prolonged when the fluid is

much under 110°. The injection is sometimes repeated twice, or oftener, in one day; in two days forty pounds have been injected.

The instrument used is Read's patent syringe, with a fine tube for the vein fitted to it. Severe vomiting often follows, against which the best preventive hitherto appears to be ten or fifteen drops (in each injection of seven or ten pounds,) of a solution of muriate of morphia, (one part of muriate to twenty-five of water.) In the saline mixture some have occasionally added a little white of egg, (albumen,) on the supposition that albumen is defective in the blood. But it has not been found useful, and in point of fact, if I may trust my own experiments, the albumen of the blood is not defective at all, or at least immaterially. A fair trial has been made of warm water without the salts, but the immediate effect was obviously less marked and much less lasting. Along with the saline injection, means are used for warming the body by tin mattresses, into which steam is conveyed. No other treatment of material consequence is combined, except merely to palliate symptoms as they occur. Blood-letting is not practised; opium, if given at all, administered only in small doses, to check vomiting or purging. The spasms cease immediately after the injection is begun. Several cases, by the way, have been recovered when the collapse was previously so deep that the spasms had ceased; a state always considered very alarming.

Such are the leading facts I have to communicate. Should you require further information, I beg you will address me direct for the purpose. I certainly think you may, with great propriety, recommend the Dutch government to have the method of treatment tried.

Edinburgh, June 9th, 1832.

Progress of Cholera.

New York.—Whole number of deaths in the *city of New York* from cholera during the week ending September 15th, 128.—*Rochester*. The whole number of cases in Rochester from the commencement, is 400; deaths, 116. But two or three cases were reported by the Board of Health the week ending on Monday last—and the village is considered entirely free from the pestilence.

New Jersey.—*Paterson*, for the week ending September 10th, cases 13, deaths 5.

Massachusetts.—*Boston*, September 11th, 5 deaths; Sept. 12th, 3 cases, all fatal; Sept. 13th, 1 case; Sept. 14th, 5 cases, 1 death; Sept. 15th, 2 cases, 1 death.—*Charlestown*, September 11th, 1 case.

Rhode Island.—*Providence*, September 11th, 1 case.—*North Providence*, 2 cases, 1 death.

Maryland.—*Baltimore*, September 11th, deaths 20; Sept. 12th, deaths 25; Sept. 13th, deaths 17; Sept. 14th, deaths 19; Sept. 15th, deaths 18; Sept. 16th, deaths 8; Sept. 17th, deaths 5.—*Frederick*, for the week ending September 11th, 7 cases, 3 deaths.—*Queenstown*, September 2d, 4 fatal cases.—In *Washington county* the cholera has been fatal in a great many cases—in the lower part of the county, the canal labourers are sickening and dying daily.—In *Hagerstown* there has been 1 case, which did not prove fatal.—In *Boonsborough*, 2 cases, 1 death.—*Sharpsburg* being immediately in the vicinity of the canal, has felt the effects of the disease more severely than any place in the county—report stating that as many as 6 and 7 were dead at one time, though

we believe none of them were citizens.—In *Williamsport* there has been 1 suspicious case.

District of Columbia.—September 11th, cases, 29; deaths, 6; Sept. 12th, cases, 16; deaths, 8; Sept. 13th, cases, 40; deaths, 6; Sept. 14th, cases, 22; deaths, 10; Sept. 15th, cases, 33; deaths, 3; Sept. 16th, cases, 8; deaths, 0; Sept. 17th, cases, 23; deaths, 6.—*Alexandria.* Sept. 13th, cases, 1; death, 1.

Virginia.—*Richmond.* From September 7th to Sept. 12th, cases, 6; deaths, 6.—*Smithfield.* August 24th to Sept. 2d, cases, 31, deaths, 26.

Fortress Monroe.—September 8th, Dr. Robert Archer, surgeon U. S. Army, states that "the disease commenced on the 20th ult. since which time we have had 58 cases of cholera; of these, 38 were whites, and 20 blacks; of the whites, 34 were soldiers, 2 soldiers' wives, and 2 children; 12 soldiers, 2 white women, 2 white children, and 9 blacks, (total 25,) have died. There are remaining on hand 8 cases, 7 of whom are out of danger, and 1 continues doubtful.

"In every case that has occurred at this post, the disease may be traced to imprudence in eating or drinking, or gross neglect in not making known the precursory symptoms.

"We have had no new case within the last twenty-four hours, and the disease, I hope, will now disappear entirely from amongst us. The Commanding Engineer, Capt. Talcott, at my suggestion, very promptly discharged his black labourers, on the appearance of the epidemic, or the mortality would have been incalculable."

Hampton.—This town and the adjacent country has suffered much from the cholera within the last two weeks; besides a large number of our black population, several respectable and valuable citizens have fallen victims to the disease.

Pennsylvania.—*Philadelphia.* Whole number of deaths from cholera during the week ending Saturday last, 8.

The following table exhibits the whole mortality, and also that from bowel complaints for the 2d week in September for five successive years.

1828.—2d week, ending September 13th. Whole mortality, 90; of which, the deaths from cholera morbus were, adults, 1; children, 5; Total, 6.—Diarrhœa, adults, 1; children, 5; Total, 6.—Dysentery, adults, 1; children, 0.—Total, 1.—Total from bowel complaints, 13.

1829.—2d week, ending September 19th. Whole mortality, 104; of which, the deaths from cholera morbus were, adults, 0; children, 3; Total, 3.—Dysentery, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 6.

1830.—2d week, ending September 18th. Whole mortality, 88; of which, the deaths from cholera morbus were, adults, 0; children, 6; Total, 6.—Dysentery, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 9.

1831.—2d week, ending September 17th. Whole mortality, 108; of which, the deaths from cholera morbus were, adults, 0; children, 8; Total, 8.—Diarrhœa, adults, 1; children, 2; Total, 3.—Dysentery, adults, 2; children, 2; Total, 4.—Total from bowel complaints, 15.

1832.—2d week, ending September 15th. Total mortality, 124; of which, the deaths from cholera morbus were, adults, 5; children, 17; Total, 22.—Malignant cholera, adults, 8; children, 0; Total, 8.—Diarrhœa, adults, 1; children, 1; Total, 2.—Dysentery, adults, 5; children, 1; Total, 6.—Total from bowel complaints, 38.

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Letter on the Cholera Asphyxia, now prevailing in the City of New York; addressed to James Bond Reed, M. D. Chairman of the Medical Board, Savannah. By JOHN W. FRANCIS, M. D.

(Continued from page 165.)

But let me hasten to that part of the letter which I am aware you will consider, at the present exigency, more important than these speculations—*the treatment of cholera.*

Notwithstanding the numerous publications on this topic, the medical men of this country, as well as those abroad, advance opposite methods of treatment. As in the time of old Daniel Defoe, the German mountebank had his infallible nostrum against the plague of London, so we have pretended adepts in the prevention and cure of cholera. The diversity of opinion among our faculty arises as much from the different periods or stages of the disease, to which their therapeutical principles refer, as to the discordant pathology which they maintain. You may distinctly observe three stages in the complaint: first, that which embraces the forming or premonitory symptoms, such as I have already stated; more or less of these will invade every subject, and they will vary in force in different individuals, and be modified by accidental circumstances. The second stage constitutes that period when the disorder is further advanced, when the visceral congestion has taken place, accompanied perhaps by spasms, oppression of the intellectual faculties, and a tardy circulation. The third and last stage is that of collapse, frequently alas, the fatal stage. Accordingly, therefore, as our means of relief are applied to these different stages, will they more or less differ. In the first or forming stage, attention to the primæ viæ, relieving the bowels of their wonted crudities, and adjusting the common functions of the system, are the objects to be fulfilled. A dose of castor oil, repeated perhaps, the administration of the common eccoprotic mixture of rhubarb, magnesia, and mint water, or a liberal dose of calomel, with a few grains of aloes, or of jalap and crem. tart. may suffice. Hundreds of cases, in the incipient form of cholera, have by these means been arrested; and we are further to remember, how essential it is, that the feculent discharges should be restored to

their ordinary natural character. In the second stage, that of congestive formation, while we attend to the condition of the primæ viæ, let us not forget the importance of blood-letting, the internal use of calomel, blended at times with very small doses of opium; when irritability of the stomach, a tendency to spasm, or other morbid symptoms, point out the combination: the application of blisters to the abdomen, or sinapisms largely applied over the epigastric region; tepid fomentations up the bowels, by means of enemata of water, catnep tea, &c.; the free use of frictions, of a stimulating nature, renewed again and again, to restore the harmony of the circulation, diminish coma, and relieve the labouring viscera. In the third stage, that of collapse, all our efforts will too often prove unavailing. Yet the success which has resulted, in numerous instances, even in so discouraging a state, justifies the physician in assiduous perseverance. Some prescribers, even in this state, have recourse to the lancet; if blood can be drawn from the arm, this is a reason for persisting in the attempt: in despite of the most disheartening prospects, by local hot bathing, or by frictions, the blood has at length flowed, the pulse relaxed, the heart been relieved, and the circulation restored. But this happy event is of rare occurrence; the cerebral congestion, the abdominal fulness and tension, and perhaps pain, upon pressure, now call in, as proper auxiliaries, leeching, cupping, followed by the extensive application of mustard and vinegar cataplasms to the bowels and feet, bottles of hot water to the feet, almost unremitting efforts in exciting the surface, by frictions with warm flannel or the flesh brush: and among the liniments now most employed, are the two following—equal parts of brandy, camphorated spirit, and Cayenne pepper; or spirit of turpentine, camphorated spirit, and Cayenne pepper: the body in general, and the superior and inferior extremities, are to feel the effects of a free attrition with the liniment, renewed at short intervals: some use hot vinegar and Cayenne pepper—others freely aq. ammon. Dr. Roe, of the Greenwich hospital, instead of these means, employs very generally, mercurial ointment, with camphor and Cayenne pepper. The prescription is as follows. He rarely uses internal remedies—Ung. mercur. one pound; pulv. capsic. ann., four ounces; camphor, eight ounces.

As a means of quickly rousing the cold surface, and acting on the deserted capillaries, Dr. Dekay uses, and, I am informed with happy effect, equal parts of Cayenne pepper and camphor, and lard, blended with a moderate quantity of muriatic acid: as a rubefacient, is reported to be very rapid in its action. The actual cautery has been applied, and some have had the temerity to make use of enemata of tobacco. I do not think the due value has been placed upon the use of copious intestinal injections of warm water, with or without salt, in the different stages of the disease. I have used most freely, in the collapsed stage, the liniment of turpentine, camphor, and tincture of capsicum, sometimes with cajeput oil, tincture of flies, &c. and in several appalling cases in this stage, with entire success.

Need I say any thing to you on the preposterous practice of large doses of opium or laudanum, in any of the stages of this complaint? I am sure it is unjustifiable, both from the phenomena which the disorder exhibits, and from autopsic examinations, yet there are advocates for this curative method, who do, inconsiderately enough as it seems to me, use this narcotic. I know that the irritability of the stomach, the looseness of the bowels, and spasms, may be

alleviated by opium or laudanum, and that this remedy, when these symptoms predominate, is indicated; but why still further add to the depressed nervous energy, the spasmodic and vascular congestion, by large anodynes, when irritability and spasms do not occur? I repeat, opium increases the depression of the vital powers: rather then, as is already intimated, endeavour to remove this state of oppression, so characteristic of the disorder, by relieving the alarming internal congestion by blisters, external irritation, cupping, leeches, and warm fomentations, or by the warm bath, if at hand, &c. It is hardly too much to say, that sinapisms, and other external stimulants, are deemed among the indispensable means of cure, in every formidable case of cholera. Allow me again to add an opinion that the laudanum method will augment the congestive condition of the brain and spinal mass, add to the labour and ineffectual efforts of the heart and lungs, and thus multiply the difficulties to reäction. No doubt the cerebral determination has, in many cases, been increased by this anodyne practice. For the axiom, that opium is improper where blood-letting is indicated, applies with peculiar force in cholera asphyxia.

Some of our physicians, imbued with the Broussaian doctrines of disease, urge, as the most efficient cure, the liberal application of leeches, and the internal use of ice. Unquestionably beneficial must be the employment of leeches, either to the head, or to the abdomen, or to both, provided their application is timely; and ice, in small quantities, repeatedly taken in the manner of pills, has in a number of instances, allayed very irritable stomachs, and proved salutary in diminishing that inordinate burning and thirst which some patients suffer. But this practice, however, is not energetic enough, and I apprehend few severe cases of cholera, much less those of approaching collapse, have been cured by it.

Another practice which has been highly extolled, is that denominated the camphor treatment. With the advocates of this method of cure, camphor is the sole therapeutical agent: rarely is any other admitted by them. The treatment is generally from one to three drops of the spirit of camphor, taken in a little water every hour, or two hours, according to circumstances, until a reaction has completely set in. You have ere this, most probably, received flattering accounts of the success of this practice, in all the different forms of stages of this disease. I would not question the benevolence and humanity which have prompted to have recourse to this article, as the great means of cure: the remedy is, in my opinion, inefficient, and preëminently calculated to aggravate, at least one formidable symptom, the cerebral determination. Moreover, Orfila has too well pointed out the peculiarities of the action of this drug, to give us any cheering views of its sanitary operation in the present epidemic, and toxicological science rejects such aid in this impending crisis. In short, the camphor treatment in cholera asphyxia is the wrestling of a pigmy with a giant.

The mercurial practice, to the point of salivation, has been urged by many; and it is recommended by others, to keep the system under the moderate action of mercury, both as preventive and curative. I cannot but think that this practice is fraught with error. Mercury, by the peculiar irritability and debility which it often induces, adds to the predisposition to the disease, and when formed, cholera, in a majority of cases, is too rapid in its course to be checked by the uncertain and tardy salivating influence of calomel, or other mercurials.

That our list of mortality by cholera has been enlarged by this method of treatment, is the opinion of some of our best prescribers. Let me not lead you into the error that I am opposed to mercury. I am sensible of its importance, and rely on it often when given, liberally, if you please, with a view of restoring the natural secretions of the bowels; and for this purpose it is indispensable. Inasmuch as cholera seems never to be formed where these secretions are natural, so, perhaps, the complaint is never fully removed, until these alvine excretions are brought to their usual character.

You well know, from ample experience, that when local disorder is deeply seated, the system is less susceptible of counter-irritation; and that a proportionably longer time is requisite to attain the object in view: hence, from the very nature of cholera, the mercurial action is not so readily induced, and the disorder advances from this cause, and the probable neglect, in the meanwhile, of other means. If it be true, as has been reported, that by powerful friction, the salivating operation of mercury can be excited in six hours, even in collapsed cases, I am ready to accede to the opinion, that the article deserves a conspicuous place in our list of appropriate remedies. But may not the favourable reports of its beneficial operation be, in some instances, chiefly owing to the powerful friction this method of cure demanded? My judgment, however, may be biassed on this contested subject. All I would then urge is, that a sound discrimination be exercised in judging if time sufficient be left to give a fair prospect, that the constitutional action of mercury can be secured, ere all hope of recovery is cut off.

Among the available means, then, which we are to employ when apprehensive of the collapsed state, or when it is actually formed, are the free employment of frictions or rubefacients, sinapisms, the internal use of stimuli, such as sulphuric ether, brandy, ammonia, &c. But there are few of us who can largely boast of success, when we have to encounter the *blue* cases. These are the worst forms of collapse, and occur most frequently in gross inebriates.

Apprehensive that I may prove too tedious in my details, and thus render these cursory observations less satisfactory to you, I will briefly sum up the method of cure which seems to me most available, since the cholera has appeared among us. I have stated that the premonitory signs of the disease involve an irregular action of the functions of the stomach and intestinal canal. The calculation is a safe one, that at least sixty or seventy thousand persons have experienced, in some form or other, the detrimental influence of that mysterious cause which now pervades our atmosphere. Hence, disorders of the stomach and bowels have been, and are, abundantly prevalent: diarrhœa sometimes for a few hours only, often of several days continuance, has preceded the setting in of cholera; this diarrhœa has been carried off by castor oil, by the ecoprotic mixture, by blood-letting, by calomel and pulvis purgans, or the like. In numerous other instances, the patient having wholly overlooked this most usual, premonitory symptom, has been suddenly brought under the influence of cholera in its malignant form. In these cases, where this too frequent and morbid discharge of the alvine passages has been disregarded, it has been pathologically inferred, that the thinner portion of the blood has been carried off, and hence the inspissated, or viscid condition of the circulating mass of the vascular system. In such cases, too, a greater debility has existed, and the disease,

when fully formed, has more triumphantly sustained its course; whereas, when this derangement has been of short duration, and the tone of the system consequently been less impaired, our sanative means have proved more efficient, and the physician's office has been gratefully and happily executed. It would seem, therefore, that the amount and duration of the premonitory alvine discharges, form at least some criterion of the crassitude of the sanguineous mass, and furnish data to regulate our prognosis.

There is a state of reäction which occurs, in some instances, when the patient survives the collapsed stage, which much resembles a depressed, continued fever: the coma, the suffused countenance, the slight febrile heat, restlessness, pulse, &c., sufficiently designate it. I need not dwell on the treatment. In this consecutive fever, which is often greatest where internal stimuli have been injudiciously used, blood-letting or cupping may be advantageously employed: the alvine excretions are to be removed, which are often enormous in quantity, and offensive, and the case subjected to the common principles of cure. In this sequela there is great debility, which will often continue ten or fifteen days.

I am well aware, that in the treatment of cholera, objections are urged by some of eminent rank, against the use of the lancet; but others of equal respectability have persisted, and have had no reason to regret their practice. When, however, the constitution is subjected to the jurisdiction of the second, or rather collapsed stage of cholera, the most liberal application of sinapisms, over the thoracic and abdominal regions, and to the feet, and the potent liniments already noticed, are our chief support. In fine, we must strive to restore the circulation to the constricted capillaries, remove cerebral congestion, release, as it were, the heart, the better to enable it to propel its contents: we are to administer, internally, such stimuli as the peculiarities of temperament and habits demand.

There is one fact, I must here observe, which induces some to give a preference to the lancet rather than to leeches, where the detraction of blood is indicated, and we can command the flow. Leeches very inefficiently do their duty on the cold and deserted surface of a cholera subject; and hence, too, sinapisms are far more serviceable than blisters. A healthy discharge from blisters is not often witnessed.

I here offer a passing remark, which might with more fitness have been made elsewhere in this hurried letter. Though you will find the observation often repeated, that cholera is preceded by diarrhœa, you are not uniformly to depend on such premonitory evidence, even where the intestinal canal is affected. Several individuals, whose habit of body was generally loose, have experienced the reverse, and suffered from costiveness, which eventuated in an attack of cholera. As you are familiar with a peculiar disorder of the south, and of certain warm latitudes, characterized by occasional fever and chronic looseness of the alvine excretions, it may be well enough to bear in recollection, that the premonitory diarrhœa of cholera is, in some cases, not unlike that too often fatal looseness. The late Dr. Baillie, of London, has described in part this disorder in the Transactions of the College of Physicians. I have seen a few examples of the disease in patients from the southern states. As might readily

be inferred, the cases of cholera which occur in temperate habits, bear the lancet with less advantage than other subjects.

The success which crowned the adventurous experiment of injecting the saline solution into the veins of some few desperate cholera cases abroad has emboldened several of our practitioners to make a like trial here, both in public and in private practice. You will find, in a late number of the London Lancet, the details of the foreign experimenters, Dr. Latta, Dr. Craigie, Dr. Mackintosh, and others, founded upon the recent investigations of Dr. O'Shaughnessey, concerning the changes which the blood undergoes in malignant cholera, and the practical views entertained by Dr. William Stevens, of Santa Cruz, on the state of the blood in yellow fever. Of about forty-two subjects, in which our practitioners have had recourse to this method of cure, four only, as far as I can learn, have been thereby saved. Two of these successful experiments were made in Crosby hospital, under the charge of Dr. Rhinelander, where, I believe, thirteen cases have been tried. In the first successful one forty ounces were injected, of a solution composed of the carbonate of soda one drachm, of muriate of soda two drachms, dissolved in six pints of water. The patient was a female, in the collapsed state. In the other successful case, a female in like hopeless condition, had a similar injection, to the extent of one hundred and five ounces. The largest quantity of the saline injection that has as yet been introduced by Dr. Depeyre, by whom the two fortunate experiments were made, was three hundred and thirty-two ounces. The injection was made of the temperature of blood warmth, or rather higher, and introduction into the median cephalic vein. Dr. Depeyre says he will hereafter try the vena saphena. From the examples which I have seen of this practice, I should deem it justifiable only in the extreme instances of collapse, when every other prospect of cure was lost. In such forlorn condition the saline injections are fully justifiable. The resuscitation of a patient by the saline liquids presents a change from the collapsed state, that, indeed, like galvanic life, seems next to miraculous; but after beholding this gratifying spectacle, the struggle of reänimation which soon ensues, exhibits a contest with vitality and death too terrific for delineation even by Fuseli. The cerebral engorgement and the spasmodic workings of tenacious existence set at nought description: and still, I would maintain, there are cases in which venous saline injections ought to be used. Forsan scintillula lateat.

In the few autopsic examinations of subjects dead, after venous injection had been employed, great cerebral congestion has been found, and air within the heart, mesentery, and large blood-vessels. This circumstance led Dr. Depeyre to lay aside the usual forcing apparatus, and substitute a barometrical glass tube, four feet long, with a funnel at one end, and a gum-elastic tube, twelve inches in length, at the other. The tube terminates in a delicate pipe, and a small stop-cock. It possesses decided advantage over the syringe, and air is effectually excluded. The air was, doubtless, a prominent cause of failure in several of the cases.

You will thus see, sir, from this brief notice, that the treatment of cholera asphyxia, like the physiological reasoning on the cause and nature of the disorder, exhibits much diversity of principles. Nevertheless, I think you are furnished

with some sound therapeutical indications, and the greater success in practice of some in combating the disease, is proof demonstrative that even in our speculations a preference is sometimes to be given.

I purpose saying a few words on the peculiar character of this pestilence. It is conceded by all, that the origin of epidemic diseases is still enveloped in great obscurity; and the theories on this subject, whether referring to a distempered state of the atmosphere, to exhalations from putrid animal or vegetable matter, or to specific contagion, have been alike conjectural and unsatisfactory. The cholera, like all preceding epidemics, has exercised, but without any very useful results, the ingenuity of the speculative and philosophical observer. Whether the materies morbi of cholera claims a sidereal or a telluric origin, the atmosphere is the medium through which it operates. It prevails in all climates and at all seasons; it exists in every variety of soils; on mountains and in valleys, in marshes and on rocks, in dryness, and in humidity. Unlike influenza and some other specific diseases, its ravages are independent of winds and currents; neither the analysis of the gases of the atmosphere, nor barometrical or thermometrical investigations, solve the difficulty of its birth, and we are baffled in reviewing its progress to ascertain the peculiar influence of localities in producing it. The inhabitants of the dense city and the barren plain are subjected to its devastating power. Such, it must be admitted, is the fact, as relates to cholera asphyxia: yet so many anomalies appear in the career of this disease, that future observation and research are demanded, the better to discover its concealed cause, and the principles of its inter-communication. We must admit a distempered atmosphere, from whatever modifying agencies, and where men most do congregate, and local impurities most abound, there we infer an atmospheric condition, from which cholera derives aid, to give strength to its venom, and wings to its extension. Deviations or extraordinary vicissitudes in the state of the seasons, and unfavourable localities, are perhaps conspicuously to be classed among the pestilential and coöperative causes. It follows in the tract of human intercourse. Predisposition to the disease is acquired, and the exciting causes which call it forth, embrace the innumerable circumstances connected with the economy of man in every state and condition: errors in diet and regimen; poverty, and its concomitants; wealth, with its indulgencies; ill-ventilated situations or apartments; the influence of fear, and whatever undermines the physical energies. The cholera courts the inebriate and the imprudent; the sober and the temperate are not exempt from its grasp; it attacks infantile existence, manhood, and old age; the voluptuary and the ascetic; both sexes, and all colours; the unacclimated stranger, and the native citizen. To record its numerous occasional and exciting causes would require pages. Our prophylactics, therefore, must be summarily stated: the earliest attention is to be given to the premonitory diarrhœa; and among the essential requisites are pure air, personal cleanliness; food for the hungry, raiment for the naked; the avoidance of extremes of temperature, rigid dietetics, great moderation in the use of ardent drinks, or rather their total prohibition; the mind sustained by conscientious resolution, and a fixed confidence in a protecting Providence.

That localities influence the character and extent of the pestilence, and aggravate its type in particular places in New York, we have multiplied proofs; but there is something in the march of this disease which eludes our powers of

detection. As if to add to its mysterious career, it has recently made its appearance in the village of Harlaem, situate about seven miles from this city, where its malignancy and fatality have, within the period of a few days, far surpassed the worst results we have encountered among the most wretched and depraved of our population. I am credibly informed, that of sixty cases there was not a recovery. Three of the doctors, all I believe the place could boast of, fell beneath its stroke. Our latest accounts of its progress show that it has propagated itself through our beautiful western country, from Albany on the Hudson to Buffalo on Lake Erie. Its extensive ravages give but a too well-grounded apprehension that it is destined to pervade our land.

I have expressed the opinion, that the physiognomy of cholera asphyxia renders it, when once practically known, indelible on the memory; and I would, with all due deference, guard you against adopting the belief that the epidemic disease now prevailing, is only a modification of the usual cholera morbus of the United States. In whatever attire it approaches, you will find it a stranger. Equally earnest would I be to caution you in too hastily supposing that the malignant cholera is the same, or a disease similar to the spotted fever, or malignant pleurisy, or sinking typhus, as certain disorders have been termed. Nosology cannot classify a more distinctive disease than the prevailing cholera; and the confounding the spotted fever, the malignant pleurisy, and the sinking typhus of some of our northern and eastern states with this strikingly characteristic disease is discarding the leading principles which govern in the classification of morbid phenomena. You may deem these remarks superfluous; but, inasmuch as some have pronounced an identity in these diseases, and extolled, as the best method for the treatment of cholera, the almost unmeasured internal use of the diffusible stimuli, such as brandy, ether, and the like, and the excessive employment of opium, and other narcotics, I have no hesitation to add, that a like fatality would follow such practice in cholera as was witnessed from this empirical method many years ago, when spotted fever prevailed so extensively among us. See the report of the Massachusetts Medical Society on the treatment of the spotted fever by this unwarrantable practice.

Medical records abound in the declaration, that upon the invasion of pestilential diseases, the first cases are generally of most malignancy and fatality; and facts of this sort are sometimes explained on the principle that those unfortunate individuals were most susceptible of the action of the noxious cause. In the progress thus far of the epidemic cholera among us we still meet with examples marked by as formidable symptoms, and of as rapid termination, as at the commencement of the disease; and hence it is to be regretted, that some of our authorities have promulgated the opinion that the complaint is already of a mitigated type. Whatever our hopes, we have as yet no such grounds of congratulation. Look, too, at the history of the Montreal pestilence.

There is another error, fraught with much hazard, which has lately received the sanction of authority. The medical council of our board of health have invited our absent citizens to an early return, and assert that those who have fairly passed through one attack of the disease, in the form of diarrhœa or of malignant cholera, may expect exemption from another. Be assured, this declaration is wholly untenable. There is no such immunity from a second attack of cholera, and our proofs establish a contrary doctrine. Cases are within

the experience of several of our practitioners, of persons who had fairly gone through a first attack, and have fallen victims to a second. Very lately an individual had a protracted recovery from a third attack.

On no former occasion has New York, frequently visited by the dreadful ravages of the yellow fever, exhibited a more melancholy spectacle. Of a resident population of two hundred and twenty thousand, and of transitory inhabitants more than twenty-five thousand at the time of the first occurrence of this pestilence, at least one-third are now dispersed in every direction. It is impossible to give you at present any just view of the number of cases and deaths; the former are but too imperfectly reported to our board, and hence the number of interments seems extraordinary when compared with the reported cholera cases. About the middle of July the disease was most rife, and on one day of that month we had three hundred and eleven cases in public and private practice—interments one hundred and fifty-six. When we advert to the situation of the larger portion of those dependent on their daily labour for their daily food, it requires no effect of the imagination to picture the consequent distress. To the medical faculty, let me observe by the way, the inhabitants of this city are most deeply indebted at this moment. A small part, indeed, have fled, recreant to their honour and their duty; but the great body of them have, thus far, evinced to my own personal knowledge, a degree of courage and industry, which no hazard or difficulty has overcome. To no class of our citizens are pestilential diseases more injurious in their prudential consequences: exposure to disease and death, with no other remuneration than the consciousness of duty, is the necessary attendant on every epidemic pestilence. When this formidable disease shall have disappeared from among us, and its history be recorded by the faithful historian, the skill and humane exertions of the medical profession, the munificence of the affluent, and the disinterested benevolence of all classes will not be forgotten.

Excuse the imperfections of this letter, written amidst the cares of an anxious crisis. With the wish that yourself and your fellow-citizens of Savannah may escape every practical knowledge of the disease, I remain, with sentiments of high personal regard and respect.—*New York Mirror.*

New York, August 16th, 1832.

Commencement of the Cholera in New York.

To Walter Bowne, Esq.

Sir,—The Special Medical Council, in reply to the communication of His Excellency the Governor, to the Board of Health of the city of New York, and by the Board referred to them, beg leave to state—

That there is strong reason to believe that a case of malignant cholera was observed as early as the 24th of June, the subject of which was an old inhabitant of this city, a temperate man, living at the corner of Gold and Frankfort streets. About the end of the month, four more cases occurred in the practice of the same physician who had visited the first, in a family residing in Cherry street, three of whom died, being two children and their mother; the father,

who was first taken sick, recovered. All these were decent and cleanly people, and their habits temperate—they were Irish emigrants, who had left Canada about the 1st of May, and had been five or six weeks in the city.

The subjects of the next cases were also Irish emigrants, who had been five weeks in the city; they were intemperate people, and were said to drink beer at the funeral of the subjects of the preceding cases. They all died, as did also several, who were at their funeral, and in a state of intoxication. Further than this, we are not in possession of any facts which have a bearing upon the question of the introduction of the malady by importation, either by sea or land. Within three days from the occurrence of these cases, it appeared simultaneously in various parts of the city. At first it chiefly attacked drunkards and prostitutes: the latter were also commonly intemperate, and the disease still continues to fall with most severity upon the same unfortunate class of people.

It carried off labourers who worked under the hot sun, who drank ardent spirits or cold water to excess, or who had eaten full suppers. Attacks occurred most frequently in the night. It made no distinction of colour, and did not spare women or children; but the latter being less exposed to its exciting causes, were less frequently affected. A great number of old and debilitated persons have been carried off. Some error in diet commonly preceded its attacks.

The members of the Special Medical Council have been very careful to make the most extensive inquiries of the physicians under their direction, and generally among their medical friends, concerning the premonitory symptoms of the disease, and thus far the important fact is confirmed, that the invasion of cholera is, with very few exceptions, preceded by some notice of its approach: unless it has been brought on by a gross violation of the rules of living, as dictated by prudence, and laid down by this Council. Intimation of its approach is most frequently given by uneasiness or looseness of the bowels. The results of our inquiries go likewise to prove, that in this stage the disease is very much under the controul of medicine, judiciously adapted to the particular circumstances of the case.

A want of due attention to the premonitory symptoms, especially to looseness of the bowels, is followed by aggravated cholera, and too frequently by death. The certainty of great danger, when the warning is neglected, and the equally strong assurance of safety, when these symptoms have been removed by proper remedies, should induce every one to be watchful of the first appearance of disease, and prompt in meeting them. Yet we still continue to see the most extraordinary infatuation upon this subject. With some, the calls of business—with others, the indulgence of improper habits, and the carelessness incident to an irregular course of living, prevail over their better interest, divert their attention from the danger that awaits them, and continue to occasion nineteen-twentieths of all the deaths that occur: while others, by indiscretion in diet or regimen, or unavoidable exposures, are led to the same unfortunate end.

The disease, not only in the city of New York, but in Harlæm and Yorkville, has usually selected a number of victims in the same house, (usually, but not always, a crowded or filthy one,) sometimes sweeping off a whole family. It next attacked other houses, not contiguous to the first, but in the same vicinage;

and while thus extending in one neighbourhood, would suddenly appear in some remote part of the city, and follow the same course. It is now most prevalent in those parts of the city and islands where it has most recently commenced.

We have strong hopes that the epidemic has reached its acme in this place. The other diseases proper to this season of the year, begin to show themselves, and the cholera seems to decline as they advance.

In the foregoing observations, we believe we have answered the inquiries of His Excellency the Governor, and we respectfully submit them to the disposal of the Board.

A. H. STEVENS, M. D. *President.*

Unsuccessful trial of Dr. Stevens' Saline Treatment in Malignant Cholera.

Rochester, July 21st, 1832.

To the Secretary of the Central Board of Health.

Sir,—Being strongly impressed with the hope that the chemical pathology of the blood, as shown in Dr. O'Shaughnessy's able analysis, would lead to a more rational and certain mode of treatment in this disease than any hitherto laid down; and, at that time being strongly excited by the simple mode of treatment recommended by Dr. Stevens, (on this principle,) and lauded by him with such praise and success in his practice in the Cold Bath Fields Prison, was determined to give this remedy a fair and unbiassed trial on the first opportunity that should occur.

An opportunity soon presented itself, by my having charge of an hospital ship attached to the convict establishment at this port, where the cholera had assumed a very malignant character.

Three cases were selected for trial, of the admissions during one day.

Case 1.—The medicine was given every hour, as recommended by Dr. Stevens, together with dry heat, frictions, mustard poultices, and injections of hot salt and water; but notwithstanding the most unremitting attention of myself and assistants to the faithful exhibition of this remedy, he died in about twenty hours after admission, or after he began to use the medicine.

Case 2.—Used the same remedy as in Case 1, immediately upon admission; died forty-eight hours after he commenced to take the medicine. Neither of these cases showed the least symptom towards reäction during the whole period under treatment.

Case 3.—Was likewise put under the same mode of treatment as the two preceding cases, but observing them sink so rapidly under the saline treatment, and believing, from much experience in this disease, both in India and in England, that I had superior remedial powers at command, the saline treatment was accordingly laid aside. A mustard emetic was immediately given; bleeding by leeches from the region of the heart and præcordia; ten-grain doses of calomel, five of capsicum, given every hour; the mustard sinapisms, dry heat, and a diffusive stimuli, given as occasion pointed out, with a table-spoonful of cold

water, as the craving for drink was excessive. The salt-water enema was continued, with an addition of ℥j. of the ol. terebinthinæ to each; by which treatment reäction was soon established, and he is now at duty.

From my own practice and experience, and in that of some of my friends, of the saline treatment, I have no hesitation in stating my opinion that it is a remedy, *per se*, totally inert in the collapsed stage of cholera.

I can, however, state, that the hot saline enemata, when combined with the ol. terebinthinæ and the mustard poultices, as recommended by Dr. Stevens, are most valuable remedies in the stage of collapse from cholera.

I have the honour to be, Sir, yours obediently, &c.

JOHN ANDERSON, M. D., Surgeon R. N.

Extract from another letter from Dr. Anderson, same date:—

During the last week I have had twelve boys in a complete state of collapse; they have all been treated under the plan pointed out, and I am happy to say that reäction has been established in all of them, with only one exception; and even this case, I trust, will still do well. It is rather singular, but true, that I have as yet lost no case where reäction has been once fairly established.

(Signed) JOHN ANDERSON.

Statistics of Cholera in Hungary.

The population of Hungary is 9,500,000. In three months, 265,000 were affected with cholera, of whom one-half died. In the city of Pesth, however, of which the population is 60,000, and of whom 12,000 were attacked with cholera, 1,800 only died. This difference between the mortality of the disease in the capital, and in the small towns, and in the country, is attributed by Dr. Haberlé, to the repugnance of the peasants to medicine, and the late period at which they applied for medical advice. The whole number of persons attacked during the prevalence of the epidemic, was 538,339, of whom, on the 12th of April, 298,541 were cured, 237,408 died, and 2,390 were under treatment.

Digest of Reports issued by the Board of Health of Montreal, arranged by weeks, ending on Saturdays, inclusive, at 8 P. M.

Weeks ending	Cases.	Deaths.	Total cases.	Total deaths.
June 16	-	-	1709	261
23	1280	632	3289	893
30	234	155	3523	1059
July 7	124	94	3647	1153
14	75	61	3722	1214
21	96	70	3818	1234
28	160	131	3978	1415
Aug. 4	180	136	4158	1551
11	88	101	4246	1652
18	54	79	4300	2731
25	48	68	4348	1799
Sept. 1	37	54	4385	1853

Mortality of the Cholera at Quebec.

The resident population of Quebec is estimated at 27,000, and it is supposed that during the prevalence of the epidemic that the passenger population was 10,000, making a total of 37,000, of whom, up to the 3d of September, 2218 died of cholera.

The following table shows the interments and actual deaths from cholera at Quebec, from the 8th of June, (the day on which the malady first appeared,) to the 2d of September, inclusive. It is taken from the registers kept by the clergy.

June	9	6				Brought over					1654
	10	7				July	23	8			
	11	29					24	9			
	12	27					25	12			
	13	70					26	7			
	14	92					27	6			
	15	143					28	9			
	16	120					29	10			
	17	97					30	10			
	18	112					31	8			
	19	117				Aug.	1	8			
	20	122					2	9			
	21	70					3	9			
	22	78					4	5			
	23	34					5	17			
	24	33					6	8			
	25	49					7	10			
	26	40					8	4			
	27	31					9	11			
	28	21					10	19			
	29	38					11	11			
	30	33					12	18			
July	1	31					13	23			
	2	21					14	10			
	3	25					15	16			
	4	17					16	27			
	5	24					17	22			
	6	18					18	33			
	7	10					19	26			
	8	9					20	23			
	9	14					21	13			
	10	15					22	17			
	11	7					23	16			
	12	12					24	7			
	13	11					25	8			
	14	8					26	16			
	15	8					27	24			
	16	8					28	11			
	17	8					29	11			
	18	7					30	13			
	19	11					31	11			
	20	6				Sept.	1	13			
	21	8					2	15			
	22	7									
Carried over		1654				Total					2218

Progress of Cholera.

CANADA.—*Quebec.* September 11th, deaths 4.—*Sorel.* Total cases up to Sept. 5th, 85, deaths 29.—*Kingston.* During the week ending Sept. 12th, 3 deaths. By accounts received from Fort Coulange, dated Aug. 29th, it appears that the cholera had reached that vicinity, (two hundred miles up the Ottowa or Grand river.)

NEW YORK.—*City of New York.* The whole number of deaths from cholera during the past week, ending Sept. 22d, was 70. Whole number since commencement, 3,395.—*Albany.* Two deaths during the past week from cholera.—*Brooklyn.* During the week ending Sept. 19th, deaths 14.—*Syracuse.* Week ending Sept. 12th, cases 3, deaths 2.

RHODE ISLAND.—*Providence.* September 13th and 14th, cases, 3; deaths, 1; Sept. 20th, case 1.—*Seekonk,* Sept. 20th, 1 case.—*Johnston,* Sept. 21st, 1 case.—*Cranston,* Sept. 19th, cases, 4; deaths, 1.

MASSACHUSETTS.—*Boston.* "The cholera is certainly a dangerous subject. It is quite sufficient to hazard an opinion about it on one day, in order to have a fact turn up inconsistent with it on the next. Recently we expressed a strong hope that cases were to be as they had been, few and far between, and that the alarm arising from the appearance of the disease would prove its greatest evil. This had scarcely gone to press, ere two or three were added to the number of cases; and scarce a day has passed since, without a new one. It now appears, that from the 9th to the 16th, a period of eight days, thirteen cases have occurred in this city. Of this number, six happened within an hundred feet of each other, in a location near the western end of Elliot street, where the land is very low, and the cellars have been for some time past known to be wet and offensive. No other circumstances is known, common to these cases, which serves in any degree to explain their occurrence. All these cases were fatal. Another case occurred on the 10th, in a yard leading from Essex street, which was noticed as the residence of a Mrs. Ryan, who had died on the 7th. The lower part of this yard is a pier built out a short distance over flats, which, at low water, are uncovered to a great extent, and emit an offensive odour. The individual seized, was notoriously intemperate, and had probably been taking an unusual quantity the preceding twenty-four hours. This case too was fatal. Another case occurred in a cellar in Broad street, in a woman about fifty-five years of age, represented as accustomed to use ardent spirits, but not in excessive quantities. The cellar itself is reported as having been overflowed occasionally at high tides, but being at present in good order. She is reported convalescent. Another case took place in Jefferson street, in a woman of excellent character and habits, who had been nurse to one of the patients in Elliot street for three or four hours. The case terminated fatally. The last case was that of a woman residing in Short street, who is said to have been under the influence of mental depression for some weeks, and to have suffered from diarrhœa for several days. This account—as will be all future ones we shall give—is written early on Monday morning.

"Thus far then, at least, it would appear that the cholera has not become the reckless, indiscriminate destroyer of human life; but that for the most part, its unfortunate victims have indulged in habits, or been placed in circumstances, such as are found in general to be predisposing causes of disease. That between

these circumstances and the occurrence of the disease, there existed the relation of cause and effect, we dare not venture to affirm; but such at least is the encouraging view of the case, and therefore we are willing for the present to adopt it. One case seems to have some bearing on the question of contagion; but as the patient referred to participated in the exposure to the same local cause, it is reasonable to admit that she was affected by this in common with the others. In fine, we must live and learn; that is, if we are permitted—for if there ever was a time when the maxim of Hippocrates—*Ars longa vita brevis*—was well exemplified, that time is certainly the present."—*Boston Med. and Surg. Journ. Sept.* 19.

Connecticut.—*Hartford.* Week ending Sept. 17th, cases 4, deaths 3.—*New Haven.* Last week deaths 3.

Pennsylvania.—*Philadelphia.* Total number of deaths for the week ending 22d inst. 6.

The following table exhibits the whole mortality, and also that from bowel complaints for the 3d week in September for five successive years.

1828.—3d week, ending September 20th. Whole mortality, 97; of which, the deaths from cholera morbus were, adults, 0; children, 4; Total, 4.—Diarrhœa, adults, 0; children, 1; Total, 1.—Dysentery, adults, 1; children, 1.—Total, 2.—Total from bowel complaints, 7.

1829.—3d week, ending September 26th. Whole mortality, 103; of which, the deaths from cholera morbus were, adults, 0; children, 4; Total, 4.—Diarrhœa, adults, 0; children, 1; Total, 1.—Dysentery, adults, 0; children, 2; Total, 2.—Total from bowel complaints, 7.

1830.—3d week, ending September 25th. Whole mortality, 84; of which, the deaths from cholera morbus were, adults, 0; children, 1; Total, 1.—Diarrhœa, adults, 0; children, 2; Total, 2.—Total from bowel complaints, 3.

1831.—3d week, ending September 24th. Whole mortality, 86; of which, the deaths from cholera morbus were, adults, 0; children, 3; Total, 3.—Dysentery, adults, 4; children, 3; Total, 7.—Total from bowel complaints, 10.

1832.—3d week, ending September 22d. Total mortality, 108; of which, the deaths from cholera morbus were, adults, 9; children, 4; Total, 13.—Malignant cholera, adults, 6; children, 0; Total, 6.—Diarrhœa, adults, 0; children, 5; Total, 5.—Dysentery, adults, 2; children, 3; Total, 5.—Total from bowel complaints, 29.

Erie. September 13th, cases 2, deaths 2.

Marcus Hook. The cholera has broken out with great violence.

Delaware.—*Wilmington,* September 21st. The whole number of cases in this place and vicinity, in a population of near 10,000, was 85, deaths 35.

Maryland.—*Baltimore.* September 18th, deaths 4; Sept. 19th, deaths 4; Sept. 20th, deaths 10; Sept. 21st, deaths 8; Sept. 22d, deaths 2; Sept. 23d, deaths 6; Sept. 24th, deaths 4.—*Hagerstown.* Sept. 19th, 4 cases and 1 death during the week.—*Frederick.* Sept. 4th to 15th, cases 7, deaths 6. Whole number to Sept. 18th, cases 23, deaths 11.

District of Columbia.—*Washington.* September 18th, cases 21, deaths 5; Sept. 19th, cases 31, deaths 9.

Virginia.—*Richmond.* September 13th, cases 5, deaths 1; Sept. 14th, cases 7, deaths 2; Sept. 15th, cases 7, deaths 3; Sept. 16th, cases 6, deaths 3; Sept. 17th, cases 10, deaths 6; Sept. 18th, cases 8, deaths 2; Sept. 19th, cases 10, deaths 5.—*Smithfield.* Whole number of deaths from the 26th of August to the 16th of September, 32.—*Hampton.* Whole number of cases 40, deaths 20. In the country around Hampton the cholera is raging with unexampled malignity, along Mill Creek particularly. On the 13th and 14th one physician had 15 cases, besides many of other diseases. He says—

"I have sometimes five horses at my door at once, from as many opposite directions, all extremely urgent. I find it impossible to attend to half who send for me, although I start before sunrise, and am seldom through until twelve at night."

The same physician in a letter to the editors of the Norfolk Beacon, dated at Hampton, the 14th inst. relates the following facts:—

"I had two extraordinary cases yesterday. I was sent for almost at the same moment to three cases of cholera. I went first to see one at Mr. George Hope's, about one mile and a half from town, a negro about twenty-eight; he was attacked about three in the morning, and I saw him about ten; he was then entirely pulseless, cold and clammy; voice so feeble as to be almost extinct; raging thirst and very restless. I regarded the case as hopeless, but nevertheless commenced operations. I remained an hour with him, and directed his master to let me hear from him in the afternoon. I then went to the others; one of them I found precisely in the situation I have just described; I remained a short time with him, and when I left him thought he was dying. I heard nothing from the first one, at Mr. Hope's, until a quarter past twelve at night, when I had just reached the shop and was preparing some medicine. I then received a note that he appeared to be just breathing his last, and desiring to know what should be done for another who was threatened. I replied to it, urging Mr. Hope not to leave him so long as he continued to breathe. I learned this morning that, just before the arrival of my note he was supposed to have *died* and was *laid out*. Mr. H. sent to town and had his *coffin* made and the *grave* was dug on the farm. *To-day he is quite smart, and to-night I may almost pronounce him convalescent!*

"The same circumstances occurred in the second case, though the patient, an aged negro, is not in so fair a way to recover as Mr. Hope's man. I have several on hand doing well. Of the two who died to-day, one was taken this morning and died before I reached the house, the other was an old woman about eighty. I have seen a white man to-day, in whose case the disease was induced by dining yesterday on greens. I think he is probably dead before this. The disease has, with scarcely an exception here, confined itself to the intemperate and imprudent. I believe Mrs. Willis is the only exception, and she suffered with irritation of the stomach and almost constant vomiting for a month or two previous. Of the other two whites who have died, one was extremely intemperate, and the other as imprudent in eating as it was possible to be, having 'dined on clabber,' eaten a whole watermelon, unripe, green peaches, &c. on the day preceding her death. My child made the fourth, and his bowels were exceedingly irritable."

North Carolina.—*Elizabeth City.* From the 9th of August to the 8th of September, there were 76 cases of cholera and 10 deaths.

PHILADELPHIA—CAREY & LEA—CHESNUT STREET.

THE

CHOLERA GAZETTE.

VOL. I. *WEDNESDAY, OCTOBER* 3*d*, 1832. No. 13.

On the Treatment of the Malignant Cholera, by Small and Frequent Doses of Calomel. By JOSEPH AYRE, M. D., Hull.

Agreeably to the pledge which I gave in my last letter published in the Lancet, I now proceed to report the result of my practice in cholera. When I first addressed you on the pathology and treatment of this disease, I had had but one case of it under my care, and when I last wrote I had had but three. They were, however, severe cases of it, and they all recovered. Since that time I have had seventy-three additional cases, making the whole number seventy-six, of which sixty have been returned cured, five are under treatment, and four of them out of danger, and ten have died. The whole of these patients were attended at their own homes, and most of them under every possible disadvantage. The treatment pursued was the same in all, and was in strict conformity with the views of the disorder which I have advanced, and with that which I inculcated in the Lancet as suited to it. The *exclusive object* sought for, has been to restore the secretion of the liver, and the means employed for this purpose have been no less exclusive, and have wholly consisted of calomel and laudanum, given in small quantities and frequently repeated. The dose of calomel was one or two grains, and of laudanum one or two drops, given every five, ten, or fifteen minutes, according to the urgency of the symptoms, and duration of the treatment. The calomel was given alone as soon as seventy or eighty drops of the laudanum had been taken, or the purging and cramps were abated. The calomel was continued uninterruptedly until a substantial abatement of the disease was produced, and the only limit set to its use was in giving it at progressively wider intervals. In several late cases I have trusted to grain doses, with a drop of laudanum given with each, and renewed every five minutes for two or three hours, and then every ten minutes, until a decided impression was made upon the complaint, when they were repeated every twenty minutes, and afterwards every hour, until at length they were discontinued. The average quantity of calomel which I have given has been about eighty grains, and the highest quantity 176 grains. Soreness of the mouth has only occurred in about a dozen cases, and chiefly in those in whom the disease was least severe, or when it was continued after the collapse was wholly removed; for pending the

continuance of that stage, no effects upon the mouth are produced by it. At the moment I am writing a patient has just come out from the collapse under this treatment, who has had a suppression of urine during fifty-eight hours, and who has taken nearly 150 grains of calomel in single grain pills, and yet without any soreness of the mouth, or any other inconvenience from it. He is now nearly convalescent. The average duration of the disease in those who recovered under this treatment has not been more than four or five days, and in a very few only were there any consecutive fever. For by the prompt and very liberal use of calomel in *small* and frequently renewed doses,—and it is, I may once more repeat, *indispensable* to their efficacy that they be small,—the secretion of the liver becomes early restored, and that inflammatory reäction in the hepatic circle is prevented, which would otherwise ensue as a consequence of its congested state. Hence, in many instances I have found the most rapid recoveries to occur in patients in whom the disease was most intense. A child, (E. Soutter, of Wincombe,) five years of age, who was literally "livid, cold, and pulseless" on the Wednesday morning, was walking out on the Saturday, recovered; whilst another child, (E. Holdstock, of Machel-street,) eleven years of age, whose attack of the disease was far less severe, but whose treatment was at first far too inert, became affected with the consecutive fever as the result of it, and narrowly escaped after a fortnight's illness, and after a plentiful employment of leeching to relieve it. In the former of these cases there was an early and complete renewal of the secretion of the bile, and a consequent remedy to the congestion, and the urgent symptoms which arose out of it,—in the latter the secretion was only very partially renewed, and the result was, an inflammatory state in the hepatic circle, and the consecutive fever as its effect.

There has necessarily been much variation in regard to the duration of the disease prior to my being called to it. In no instance has the disease proved fatal where I have seen it before the collapse has become established and the pulse extinguished. Many have recovered after this has happened, and some even after it has been so several hours. One-half of the cases has been in women, and the other half was shared nearly equally by men and children. The most tractable cases have been of children, and the least so of men and the aged of both sexes. When the collapse is complete, and the patient is aged, or a male adult, the stomach in many cases appears insensible to every stimulus, and the calomel has no effect in any way either upon it or upon the complaint. When a favourable impression is produced under these circumstances of extreme collapse, it is generally rather two hours from the commencement of the treatment.

The characteristic marks of the disease that can alone be relied on as such, are the vomiting and purging; but especially the purging of ricey, broth-like, or gruelly motions, with an entire suppression of the urine, if the disease be not arrested. In every case excepting in young children, there have been cramps. In some the cramps were wholly confined to the lower part of the body, which was the case with all the patients that came under my care during several days. The intensity of the cramps furnished no criterion by which to judge of the intensity or danger of the disease. They will abate and be renewed whilst the patient is progressively advancing to recovery. The ceasing of the vomiting

and purging of the peculiar fluids, whilst at the same time the weight above the chest is relieved and the pulse keeps up or is restored, are the best indications of the patient's improvement. The renewal of the urine may be delayed for many hours after these signs of improvement, and the case will still terminate well.

In the cases which terminate favourably, the ricey motions become changed into those resembling tar, and these into others less dark, until the natural fæcal condition is restored. In some few cases I have had reason to believe that the motions were tar-like from the beginning, but these were of the milder form of the disease. When the disorder proves fatal, the stools before death are frequently changed from the ricey colour to the appearance of gruel of a reddish hue, and resembling the washing of recent flesh.

In conducting the treatment of this complaint, I have scrupulously avoided the admixture of other medicines with the calomel, that no error might be committed in the conclusions to be deduced from the practice. I have not exhibited a single emetic, or once employed bleeding or leeching, until after the stage of collapse had passed away, and then only on a few occasions. No inconvenience appeared to arise from an unrestrained allowance of cold water, nor any great advantage from much external warmth. I never used the vapour bath, nor any other means of giving warmth than what the ordinary methods would supply, and indeed so directly have I aimed at restoring the secretion of the liver, and so fully and confidently have I relied on it as the great instrument for removing the whole train of alarming and distressing symptoms, that I have ordinarily neglected to resort to what have been accounted by most as the approved means for affording a temporary relief to them. When the fluid purging was excessive, I have used opiate glysters, and castor oil when the stools became black, and when no further calomel was wanted. I generally have endeavoured to see my patients every two or three hours during the period of danger, and to avoid any delay in beginning the treatment, have provided them at my first visit with a few pills, and the necessary doses of laudanum, until they could be procured from the cholera station.

I shall now detail very briefly the circumstances which appeared to lead to, or influence, the unfavourable termination of the ten fatal cases, that thus a more accurate judgment may be formed of the results of the treatment which I have recommended, and of the obstacles which prevented its greater success. The first case that proved fatal was a poor destitute woman, between fifty and sixty years of age, who had been recently and frequently affected with the lead colic, and who, from living alone, was not discovered to be in the disease until many hours after the commencement of the attack, and when she was livid, cold, and pulseless. She died in two days. The second was the mother of a large and destitute family, who was induced from her own, or others prejudices, to neglect the taking of her medicines when first ordered. She died in twelve hours. The third case was an infant, who was brought fully out of the state of collapse, and was in a favourable state for recovery, when the mother steadily refused to use a warm-bath and other needful means, and insisted upon its being left to its fate. The fourth was the case of a child twelve years of age, who had been declared by previous medical attendants to be in an utterly hopeless state of collapse, and *abandoned as such*, but who was fully restored from this state. On

the fourth day after this collapse, the tongue had become clean and moist, the pulse calm and about 86, sleep natural, skin of a proper temperature and colour, and the secretion of the kidneys restored after seventy-six hours suppression, when an orange and some improper diet were given, and an irritation was set up in the stomach, which was soon communicated to the head, and which carried off the patient in the course of a few days. The fifth case occurred in a most destitute woman with a sick husband and a large family, who refused all assistance during many hours, and was afterwards greatly neglected. The sixth case was a young woman whom I found pulseless, and who for six hours before my visit had been treated profusely with stimulants, and with a most inordinate quantity of opium. The seventh was an old man in whom the disease operated fatally, by bringing into a morbid action some previously existing disease. The eighth was also an old man whom I first saw in the night, and in the most extreme collapse, and who had suffered long and severely from want of every kind. The ninth patient was a very destitute aged woman, who had been in the disease twelve hours, and, living alone, had concealed it. She was subject to fits of slight derangement, and was livid and pulseless, and apparently deranged, when I saw her. The tenth case was a man whom I saw only when dying, and who had been first seen in the night, and prescribed for by a medical apprentice. The poor man was subject to attacks of asthma, and appeared to be dying from an overwhelming congestion of the lungs. He died three hours after my visit.

I will not trespass upon your pages, or upon the time of your readers, by restating the views I entertain of the nature of this disease, or my reasons for the treatment which I recommend for it. Every thing I have seen of the disease, and experienced in the treatment of it, serves but to confirm the opinion I had formed of both. The essence of the disease is an interrupted secretion of the bile, and the *remedy is that which restores this secretion.* In the most intense forms of the disease, such a cause, indeed, may seem inadequate to account for its phenomena, but, like every other disease, it has its gradations of severity, and the mildest form of it maintains a resemblance to the severest, proving, as in the instance of the mild and confluent small-pox, their common origin and nature. It has been affirmed that the cases of the disease differ so much as to require a diversified mode of treatment; but the very contrary of this has appeared to me to be the fact, and the only difference in the treatment demanded to be made is, chiefly in the frequency of the times for repeating the calomel, and the greater or less occasion for the subsequent employment of leeching and the antiphlogistic remedies. In every case there is a repressed secretion of bile, and in every case there is a necessity for calomel to restore it. Emetics and even stimulants may occasionally, and, as it should seem, by accident, restore it, and these last may sometimes even support the patient through the struggle, and thus appear to be the remedy. But their action is indirect, and their success is, in a measure, accidental, and must generally fail, whilst calomel, as possessing the specific property of promoting the secretion of the liver, is at once a medicine that claims not merely to be united with others in the treatment, but to be relied on as a specific in this complaint, and to be employed to the exclusion of all others. Such indeed has been the course I have pursued with it, and such has been the course pursued with it by my intelligent young friend

Mr. Sharpe of this town, who has followed my method in every thing, and who having seen and especially attended with me nearly all the cases I have had to treat, assures me that his own experience in the result of the practice with the cases he has had privately to treat, completely corresponds with what he had observed with me, and establishes in his mind the same conviction which is fixed in mine, that calomel given in minute and frequently renewed doses, is endowed with a property of controlling and arresting it, which no other medicine, or combination of medicine, has ever had assigned to it, or will, if I mistake not, be ever found to possess.

Hull, June 28th, 1832.

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*On the Epizootic Disease at Choisi-le-Roi.** By M. Carrere, late Interne des Hôpitaux.

During the disastrous progress of cholera in Paris, the village of Choisi-le-Roi, while perfectly free from the epidemic, was the scene of an epizootic disease, of which domestic poultry were the only victims. In the history of many other epidemics, we find coïncidences of this description, of peculiar diseases affecting the lower animals, while pestilences were decimating mankind. Sometimes horned cattle, at other times horses, have been especially attacked; but there have not been recorded more than two or three examples of epizootics among birds. Chabert and Boronio have, it is true, described some diseases of birds, observed in France and in Lombardy, but the characters of the affections they describe, are totally different from those observed at Choisi.

The cholera had scarcely appeared at Paris, when it was generally reported that a disease of most destructive mortality was raging among the poultry throughout the commune. Here, as at Paris, the cry of "poisoning" was loudly made; all persons who were persuaded that the food and drink of mankind were mixed with poison, found no difficulty in convincing themselves that similar villany was practised in the poultry yards. But the mortality soon reached such a pitch, that this idea was abandoned, and then it was generally reported, that the cholera was the cause of the epizootic.

Wishing to arrive at the source of these rumours, I learned, that since the 3d of April, a vast number of fowls had perished in several houses situated in different quarters of the hamlet. During the first days of the disease, the number of deaths had been very considerable, after which period, the birds were killed by the owners on the occurrence of the first symptoms. In one fowl-yard, of eighty cases, one or two alone recovered. Many remedies, amongst others bleeding under the wings, had been in vain resorted to. *A considerable quantity of the diseased fowl had been eaten by the inhabitants without any bad effect.*

The causes of this malady appear to me altogether unknown, and I saw no reason for supposing it to be contagious. Nevertheless, when a single death

* Choisi is situated about five miles from Paris on the banks of the Seine. It is considered a remarkably healthy village.

occurred in a fowl-yard, the mortality only ceased when it had no more victims to destroy. The most cleanly poultry feeders suffered as severely as the most filthy. The kind of food had no influence on the disease. The fowls at large in the streets of Choisi were attacked with equal severity with those perpetually confined or occupied in incubation. *Rabbits, geese, and ducks, however, lived with impunity in the same yards where the hens were universally perishing, and three turkeys only were affected.*

The disease, generally speaking, commenced in the morning. The hens were noticed to be dull and weak, their wings drooping, and their crops distended with undigested food. In a few cases the disease commenced during the day, and lasted four-and-twenty hours. The respiration was short and hurried, the motions of the heart accelerated, and diminished in force in proportion to their increase in velocity. In almost every instance there had been numerous whitish, liquid dejections. The gullet was distended with thready mucus, which escaped from the beak. The combs were of a livid red colour, and the tint deepened to a violet as death drew near. After the disease had lasted from two to five hours, convulsions usually finished the sufferings of the animal, and death was rapid in proportion to the quantity of the evacuations. In many cases I have learned, that the coldness of the sick birds was very remarkable. A few recoveries were noticed towards the termination of the epizootic. As far as I can find out, about five hundred fowls died of the disease, or were killed in consequence of the development of its symptoms.

After death, the colour of the skin was the same as in fowls strangled without being bled. The bodies were warm for at least three hours, and the cadaveric rigidity was very remarkable.

I have taken much pains in seeking for any pathological alterations which might explain the cause of the disease, but my research was quite in vain. The brain was white, and free from congestion. The heart was bloodless, and of its usual consistence. The aorta contained fluid blood. The lungs were rosy and crepitating. The mucous membrane of the œsophagus frequently showed little papillæ, surmounted here and there with a white point, like a minute grain of sand, adhering to the centre of the papilla. The crop always contained food; the gizzard was strongly contracted; the intestine presented occasional reddish patches, especially in the situations where little parcels of worms were found. The liver was gorged with black and tarry blood; the gall-bladder distended with thick green bile.

This epizootic is quite different from the "*maladie charbonneuse*" of Chabert, and from that described by Boronio. Neither has it any analogy to the "pip," for the tongue was always in a natural state.—*Journal Hebdomadaire.*

Dr. Caldwell on the Cholera at Montreal.

Montreal, June 24th, 1832.

Dear Sir,—I am just recovering from an attack of spasmodic cholera, and am still so weak as to be unable to enter into any minute detail; but so far as my strength will permit, will answer the queries you have put.

And with regard to the first, have to remark that, although it first appeared amongst the emigrants, the inhabitants have since suffered in a much greater ratio.

2d. In the first instance, it was principally confined to the lower orders, but for the last ten days it has seized indiscriminately all classes.

3d. If you are acquainted with the localities of Montreal, you will recollect a small creek or rivulet that runs immediately in rear of the town, and very nearly throughout its whole extent from east to west: it has undoubtedly confined itself in a great measure to the line of that channel, and the small alleys running up from it; so much so, that I think I am perfectly correct in stating, that 90 cases out of the 100 have occurred on the contiguous banks or alleys running from them.

4th. Two-thirds of the medical men have been attacked, and I believe all have felt its influence more or less. There has been only one death, but that is accounted for from their being enabled to seize the first moment of attack, and not to any immunity they otherwise enjoyed.

5th. The duration of the disease has been from four to twenty-four hours; the most frequent termination, however, from seven to twelve. Adult age has exhibited a much greater susceptibility to the disease than early life, and may be accounted for from the apprehensions of the latter not being so easily excited. Fear unquestionably predisposes most powerfully, and such is the effect of the epidemic influence on the nervous system, that all are more or less affected by it.

6th. We have not had it in our power to carry the post mortem examinations to any great extent: in the first place, from the increasing demand for medical assistance night and day, and latterly, from the greater number of medical gentlemen being laid up. In the few cases that have been examined, great venous congestion has existed throughout the abdominal viscera, more particularly the stomach, intestinal canal, and mesentery; and in several instances where the disease has been protracted for twenty-four or thirty-six hours, sphacelus had taken place. I have not had an opportunity of seeing the head opened.

With regard to the treatment, you will see an article in the *Gazette* of last week, by Dr. Arnoldi, which strikes me as being the most rational. There is another by Dr. Stephenson, in the *Courant* of yesterday; but there is this objection to the means he suggests, that in genuine Spasmodic Cholera, the irritation of the stomach is so great, that liquids of no kind will be retained for an instant.

In my own practice, I confess to you, and I would strongly impress it on your mind, that I have derived more advantage from what may be called preliminary treatment, than from that during the actual attack. Cholera is invariably preceded by symptoms of gastric derangement—such as constriction or obstruction of the præcordia, or a sense of corrugation of the upper orifice of the stomach, loss of appetite, white furred tongue, nausea, occasionally slight diarrhœa, with thrilling sensations of heat through the bowels, and different parts of the body. These symptoms may continue from a few hours to a day or two, according to the degree of predisposition and susceptibility of the individual, and also the degree of concentration that may exist in the atmospherical influence at the time. The moment these symptoms showed themselves, I directed the patients

instantly to send to me, and gave them from gr. x. to xv. of hydrarg. cum. creta. according to the age and strength of the patient, and in two hours followed it by tart. potassæ dr. ii. in a little warm veal or chicken broth, and repeated it every second hour until it operated freely. Nothing seemed to allay the gastric irritation so well as the soluble tartar. In many instances it seemed to act as a charm, and I do not know a single instance of any one who went through the influence of this treatment that was subsequently attacked with cholera. In some instances, it was necessary probably to repeat it once or twice; and where the tongue was much loaded, I added two or three grains of the sub-muriate to it.

In the convalescent stage, if much disposition to spasmodic action remained, I have derived great advantage from the cajeput oil, in doses of from fifteen to twenty-five drops, particularly in females, mixed with laudanum, magnesia, &c. according as circumstances indicated. These hints will, I trust, enable you to meet the disease should it unfortunately find its way to your city, with more confidence than I did at the outset. Epidemic has for the last two days completely subsided, and has been succeeded by fever of a low synochus form.

Believe me, dear sir, very truly yours,

W. CALDWELL.

Proposal to Administer Salines in Cholera by the Natural Process of Absorption and Assimilation, instead of Injecting the Veins.

To the Editor of the London Medical Gazette.

Newcastle, July 20th, 1832.

Sir,—If I saw any good reason for believing that either new light had been thrown upon the nature of cholera, or any material improvement had taken place in the method of treating that formidable disease since its first visit to this place, I should not have troubled you with this communication; and it is only from a conviction that many hazardous experiments are constantly made use of in the treatment of a disease which, under the most judicious and philosophical management, is too often necessarily fatal, that I am induced again to endeavour to draw the attention of my professional brethren to the necessity of accurate reasoning, and of forming distinct and definite indications of cure, while prescribing for cholera patients. But it will probably be maintained by the advocates of the favourite practice of venous injection, that it is founded upon accurate chemical analysis and strictly philosophical argument—that the immediate effect of the disease is to deprive the blood of its watery and saline constituents, and that the most obvious remedy must therefore consist in replacing them with similar materials. But granting, for a moment, that it were possible thus directly to restore the deficient principles of the circulating medium, (though perhaps a more direct method still would be to inject into the veins the matter discharged from the intestines,) is it philosophical to suppose that we can thus remove the diseased action by which its qualities have been so remarkably altered? If even we could succeed in bringing the circulating mass to the condition in which it was at the commencement of the disease, it by no

means follows that the diseased action which *has* already *will not* again deprive it of its defective parts. But how different is the process we pursue from the more elaborate one by which the blood has been originally formed! Compare it with the mysterious processes of chymification, chylification, assimilation, and gradual admixture; and how crude and imperfect must it appear! The whole theory, too, of injecting the veins, must depend, for its consummation, upon the matter introduced becoming intimately mixed with the black, tarry, deteriorated blood which remains in the vascular system; but how is this to be accomplished? How often must it run the round of the circulation, vigorously impelled, before such a thorough combination of two heterogeneous fluids can be brought about? Forgetting, for an instant, the desperate nature of the disease for which this desperate remedy has been suggested, and considering itin the abstract, what effect should we expect to result from it? I would answer, precisely the effect which it has been found actually to produce—a temporary stimulation of the action of the heart and arteries, to be soon followed by painful oppression, and, before long, its complete extinction. I repeat, that, reflecting upon the probable result, such would have been the anticipated, and such have been the actual consequences, of injecting large quantities of foreign unassimilated matter into the veins. Of course I speak of the general rule, for the few exceptions that have taken place are but to be considered as anomalies—remarkable ones it must be confessed, and well calculated to excite attention and give rise to interesting inquiry; but they are too few to warrant a general pursuit of the practice, and the recoveries which have taken place ought more properly to be considered as having occurred *in spite*, than in consequence, of the treatment.

For the truth of the preceding remarks, I need only refer your readers to the various cases recorded in the late numbers of your own journal—temporary amendments followed by a more speedy death than would otherwise probably have taken place, is the history of nearly all; and I must think the exceptions are fewer than would have taken place under a different plan of treatment. But though it appears to me that a wrong application has been made of the knowledge which we have attained, (through the labours of Dr. O'Shaughnessy in particular,) of the chemical alterations sustained by the blood in the course of an attack of cholera, I am very far from undervaluing such information: on the contrary, I consider it as affording a very useful indication in the treatment of the disease; and if the crude notion of supplying the deficient materials immediately to the circulating mass appear to me unphilosophical, far otherwise is the intention of introducing it through the medium of the absorbents and assimilative process. Such an indication may, with strict propriety, form a part of a rational and philosophical plan of cure. But it may be asked, how can it be accomplished? I answer, by introducing into the stomach and intestines the same matter which has been so profusely thrown into the veins. Four pounds of warm water, with saline and alkaline substances in solution, may be injected at one time into the intestines, and large quantities of gruel, salted to the taste of the patient, may be drank with little or no hazard of being rejected, especially if the gastric and intestinal irritation be previously allayed by a dose of calomel and opium. This fact I have satisfactorily put to the test three several

times during the present week. The first patient, (a man about sixty years of age,) in whom the vomiting and purging of enormous quantities of rice water had gone on for seven hours, whose extremities were blue and wrinkled, and whose pulse was totally imperceptible, rallied to such an extent as, but for his advanced age, (which I consider a perfect barrier to recovery in such severe cases,) would have warranted good hopes of success; and in the other two, (both females,) whose cases were less severe, though sufficiently marked, convalescence has been the result. I would suggest, therefore, in addition to the principles of treatment which it was my endeavour to establish in my lately published Essay on Cholera, that the deficient ingredients of the blood—those which have been removed by the profuse discharges which characterize the disease—should be supplied to the circulation, not by direct injection into the veins, but through the natural processes of absorption and assimilation. As I conceive it is the direct tendency of the treatment recommended in the work referred to, to restore organic function, I cannot consider it a valid argument against this practice that no such processes as absorption and assimilation can go on during the continuance of the deranged action which constitutes the disease. It is true that our attention must be directed to the twofold object of checking this action and of restoring the havoc it has made on the stamina of life: the first may be done with considerable certainty; but in the second appear difficulties which I fear neither the venous injections nor the substitute I suggest, will be able always to overcome.

I am, sir,

Your obedient servant,

T. M. GREENHOW.

Dr. Taylor on the Cholera of New Brunswick, N. J.

To the President of the Board of Health of the City of New Brunswick.

The following is a brief sketch of the general form, under which the cholera has presented itself to the subscriber, during the latter part of July and August last; and likewise of the course of treatment which he has adopted and sanctioned, both in private and hospital practice.

This disease, in some cases, passes through four distinct stages. The first, which may be called premonitory, and was of almost universal occurrence, is marked by derangement of the stomach and bowels—diarrhœa, with or without pain or tightness about the region of the stomach—nausea, and sometimes slight affections of the head, as dizziness, pain, vertigo, &c. &c. The evacuations are at first of a dark brown or yellowish colour, and gradually become more unnatural until they assume the appearance of rice gruel. The pulse varies from ninety to a hundred strokes in a minute; and with some it is hard, and others soft. The coat on the middle of the tongue resembles in colour the ashes of hickory wood, while the edges are perfectly clean, and of their natural ap-

pearance. This stage may continue from a few hours to a week or ten days.

The treatment consists principally in the use of mild but efficient cathartics, of an alkaline and tonic character. Those of a saline and drastic nature generally produce disappointment and unfavourable results. My prescription has uniformly consisted of one drachm of calcined magnesia and twenty grains of rhubarb, or ten grains of calomel and twenty grains of rhubarb, according to the violence of the symptoms, or circumstances of the patient; followed, in two or three hours, by thin Indian meal gruel, observing a strict abstinence from all other aliment for twenty-four hours, and afterwards restricting my patient as nearly as possible to the following articles of diet: beef, mutton or lamb, roasted or broiled, bread twenty-four hours old, and toasted, crackers, boiled rice, full grown potatoes, tea, weak chocolate, and toast water or rice water for drink: total abstinence from ardent spirits in any form, wine of any description, fermented or acid liquors; (opium, with a few exceptions, was prejudicial.) The above treatment generally resulted in a speedy and preserved a permanent cure; unless my patient was under the sedative effects of fear, when it required in addition to the above remedies, some light tonic and neutralizing course, to restore the lost tone of his stomach and bowels. The difficulty of cure was always in proportion to the influence of fear; and the symptoms were renewed upon every accession of news, that bore on its wings an increase of cholera.

The second stage is characterized with vomiting and purging of whitish liquid, (the diarrhœa of the first stage having altered from its brownish or yellowish fæcal character to immense discharges of a fluid resembling rice water,) cramps, at short intervals, beginning in the extremities, but soon extending to the trunk and sometimes the head, and rapidly increasing in violence—severe pains about the region of the stomach, liver, &c. &c.—great thirst and demand for cold water—the pulse somewhat accelerated, and the coat on the tongue considerably thickened.

In this stage the free use of calomel, combined with opium for its antispasmodic and astringent qualities, must be instantly resorted to, and vigorously and perseveringly pursued. Soda powders, or effervescing draughts, ice internally, sinapisms to the stomach externally, are useful in allaying the sickness and assuaging the thirst; but *calomel alone* is to be depended upon for controlling the vomiting and restoring the suspended secretions. The sulphate of quinine may also be given in large doses with advantage, especially if the disease verges toward the third stage, or state of collapse. As external agents, we may use hot bricks, sand bags, &c.—spirituous and vapour bathing—frictions with sulphur, chalk and spirit of turpentine, with flannel—ligatures applied tightly around the extremities. In this stage, an all-important, and, I am ready to affirm, an indispensable object, is to maintain the natural, and promote the increase of the temperature of the body, even to profuse perspiration.

In the third stage, or state of collapse, the patient presents the following appearances and symptoms: countenance cadaverous—features pinched—eyes sunk in the head, surrounded by blue circles, and the balls turned upwards and

backwards—skin cold, damp, and bluish, especially at the extremities, sometimes over the whole body—fingers and toes shrivelled, as if macerated in hot water—pulse nearly or quite obliterated—voice altered, or gone—breath cold—evacuations sometimes continued, at other times entirely suspended, sometimes discharged involuntarily and unconsciously—secretion of urine entirely suspended—cramps sometimes severe, at other times gone.—Distress, anxiety, and great restlessness attend this stage of the disease. Here is a departure of the fluids from the surface to the centre of the body, and accumulation about the heart, stomach, and small intestines; perhaps to supply the great waste produced by the frequent and large evacuations. This accumulated excitement may, in some degree, account for the great thirst, uneasiness, and distress about the epigastrium, to counteract which, the ordinary doses of medicine have no effect. Here all the secretions of the system are locked up, and the balance between its different parts totally destroyed; a circumstance which rarely, if ever, occurs in the same degree, in any other disease. This is what constitutes its formidable and terrific character, and that which every practitioner views with dread and alarm for the safety of his patient. Here, with all his mental faculties in full operation, and sometimes more acute than ordinary, recollecting a short time before he was walking the streets, and attending to his ordinary avocation, he now in a state of despair, looks up to his physician with intense anxiety, and asks, with the deepest interest, in a whispering tone, "doctor, must I die? Can't you help me?"

In order that this appalling state of disease may be overcome, remedies of the most potent nature, administered with promptness and perseverance, must be applied. All the remedies of the second stage, with an increase of their quantities, and the indefatigable efforts of the physician and attendants, are required to bring this stage to a successful termination. From forty to sixty grains of calomel, combined with ten grains of quinine, repeated every half hour, or hour, according to the circumstances of the patient, has been my principal, and I may add most successful remedy. Whenever two or three of these doses are retained, warmth and moisture return, the eyeballs resume their wonted motion, with returning animation, and the whole body begins to show signs of life restored to the dead.

The fourth stage is that of reäction or consecutive fever. This does not always occur, nor when present, is it always in proportion, either to the mildness or severity of the previous attack. The most important symptoms are those of congestion of the brain, lungs, liver, &c. &c. This stage is least apt to occur after the calomel treatment. The secretion of urine is restored in excess, and requires the most careful watching and attention.

The treatment of this stage consists in bleeding, local or general, purging, antimonials, blistering, &c. to such an extent as the symptoms may require; followed, if necessary, by mercurial alteratives for a few days, and finally by laxatives.

The following are the practical results of the treatment on the above plan. Of one hundred and seventeen cases in private practice, seven deaths—of twenty-seven hospital patients, twelve deaths. The great disproportion of the cases and deaths of the latter description of patients, was owing to the time ne-

cessary to convey them to the hospital, and the fatigue they must necessarily endure in the transportation. Some, on their arrival, were past all rational prospect of benefit from medical aid, and two were actually dead.

With regard to the contagious nature of the cholera, I can confidently affirm, from all my observations, touching this subject, among the sick and dying, and those from whom life had departed, that the disease is *not contagious* under any circumstances! and that those facts which have suggested such a suspicion, were only predisposing or exciting causes. A long catalogue of facts and circumstances, recorded by many of the most eminent physicians of Europe and America, might be produced to confirm this opinion; but this is neither the time nor place for such a discussion.

Animal matter, deprived of life by the cholera, does not so readily decompose, or run into putrefaction, as from other diseases. To account for this we must recollect, that heat and moisture as well as air, are necessary for producing decomposition.

In every instance where death has occurred, the stomach and bowels have been completely emptied—the heat of the body dissipated—and the fluids poured out, so as to leave it comparatively dry, or deprived of the elements of putrefaction, long before dissolution occurred. An instance presented, in the hospital, on one of the warmest days in August, where a patient died at 4 o'clock in the morning. Owing to circumstances beyond our controul, and a disposition to ascertain the degree of susceptibility to decomposition, his interment did not take place till four in the afternoon. During these twelve hours, I inspected the body several times, at intervals. At my last examination, which was a few moments before 4 o'clock, no signs of putrefaction appeared, and the body was more inodorous than when in health.

Another important fact, and which, more than all others, tends to secure us against the disease in its malignant form, and which is confirmed, not only by my own observations, but also those of many others, is, that a diarrhœa always precedes cholera asphyxia! and that it is curable and under the controul of remedial agents. This circumstance disarms the disease of its terrors, unveils the mystery in which it has been wrapped for years, and affords the greatest temporal comfort to those that had seemed without hope. But lately the destroying angel stood in the midst of us, with his arrow fixed and bow drawn, ready to let fly the deadly weapon, whilst half mankind lay crouching in terror at his feet, or idly sought to avoid by flight, a fate which seemed as sudden and inevitable, as dreadful. But amid the darkness and horror of the scene, the hand of mercy was at length discovered, at once holding up the beacon of danger, and pointing out the means of escape—and many, even of those who appeared already selected for destruction, found fresh reason to acknowledge, with humility and gratitude, that those dispensations of Providence which, at first view, wear the semblance of misfortune, are often only blessings in disguise.

A. R. TAYLOR, M. D.
Health Officer.

New Brunswick, Sept. 13th, 1832.

Table showing the progress of Cholera at New York.

July.	Cases at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of cases.	Deaths at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of deaths.	Deaths as reported by the city Inspector.
4th	7				7	4				4	
5th	15	3			18	10	2			12	
6th	11	13			24	8	7			15	
7th	42	13	30*		85	6	6	13*		25	
8th	29	13			42	10	11			21	
9th	18	30	57†		105	4	10	14†		28	
10th	44	22	43		109	6	13	25		44	
11th	45	31	53		129	10	15	25		50	
12th	32	39	48		119	10	16	25		51	
13th	27	39	35		101	10	22	17		49	
14th	43	43	29		115	15	29	22		66	
15th	60	53	20		133	28	31	15		74	
16th	92	50	21		163	45	32	17		94	
17th	60	63	23		146	19	29	12		60	
18th	65	59	14		138	22	36	14		72	
19th	114	76	11		202	42	28	12		82	
20th	132	66	28		226	48	42	10		100	992‡
21st	191	100	20		311	61	33	10		104	116
22d	154	76	9	2	241	50	35	5	1	91	152
23d	163	42	26		231	46	17	20		83	108
24th	188	51	22	35	296	57	22	7	10	96	106
25th	99	45	10	3	157	21	32	5	3	61	110
26th	75	48	14	4	141	23	21	7	4	55	73
27th	73	46	3	0	122	23	18	5		46	63
28th	93	49	1	2	145	37	26	4	1	68	70
29th	61	58	1	2	122	19	15	3	3	40	85
30th	62	35	3	3	103	14	19	3	3	39	47
31st	59	52	1	9	121	23	20	3	2	48	53
Aug. 1st	47	39	4	2	92	13	24	3	1	41	53
2d	47	24	0	10	81	14	17	0	3	34	56
3d	48	36	1	5	90	14	8	1	1	24	38
4th	48	35	3	2	88	17	11	2	0	30	54
5th	57	38	0	1	96	21	8	0	0	29	39
6th	60	38	0	3	101	21	15	0	1	37	51
7th	57	31	0	1	89	19	12	0	1	32	28
8th	50	32	0	0	82	12	9	0	0	21	55
9th	47	26	0	0	73	18	10	0	0	28	34
10th	60	34	0	3	97	18	7	0	1	26	26
11th	33	41	0	2	76	18	15	0	0	33	47
12th	32	33	0	2	67	9	12	0	2	23	34
Total.	2640	1618	530	91	4877	865	735	299	37	1936	2490

* These include all in Bellevue Hospital from the 27th of June to the 7th of July.
† These include all in Bellevue on the 8th and 9th.
‡ Total to the 20th of July inclusive.

(Table continued.)

August.	Cases at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of cases.	Deaths at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of deaths.	Deaths as reported by the city Inspector.
Total to Aug. 12	2640	1618	530	91	4877	865	735	299	37	1936	2490
13th	63	41	0	1	105	16	6	0	1	23	36
14th	18	24	0	0	42	8	7	0	0	15	33
15th	33	29	0	13	75	14	8	0	4	26	27
16th	39	37	0	3	79	14	11	0	1	26	34
17th	28	25	1	9	63	11	8	1	1	21	32
18th	38	32	0	6	76	6	10	0	3	19	26
19th	28	27	1	1	57	9	9	0	0	18	25
20th	27	31	0	0	58	6	7	0	0	13	39
21st	24	20	0	8	52	8	6	0	4	18	16
22d	28	18	2	0	48	15	5	2	0	22	22
23d	31	36	0	5	72	17	7	0	4	28	31
24th	18	17	1	9	45	8	9	1	2	20	30
25th	20	17	0	0	37	5	9	0	0	14	16
26th	30	15	0	5	50	13	9	0	1	23	24
27th	29	9	1	1	40	12	1	0	0	13	38
28th	23	17	0	1	41	9	1	0	0	10	15
Total.	3117	2018	536	153	5814	1036	848	303	58	2245	2935

Progress of Cholera.

New York.—Number of deaths from cholera during the week ending Sept. 29th, 50: total since the 1st of July, 3,447.—*Buffalo.* For the week ending Sept. 24th, 3 new cases, and 4 deaths.

Rhode Island.—*Providence.* September 29th, cases 1, death 1.—*Pawtucket.* Sept. 26th, case 1.

Massachusetts.—*Boston.* "The cholera has again become a barren topic. During the last week, but one unequivocal case of the disease has been reported; and this occurred in an individual of intemperate habits, and who had been suffering with bowel complaints more or less for the preceding fortnight. He was carried to the Northern Hospital, and the experiment of injecting the veins was resorted to with temporary benefit. The case terminated fatally.

"It can scarce be doubted, that other cases have occurred, approaching in a greater or less degree to the character of spasmodic cholera, but not being sufficiently decided to make it necessary to consider them as such. Of this kind was the case of a boy in Leman's yard. Another case, which approached very nearly in violence to those reported, occurred on the 19th, but terminated favourably.

"We record it with no small satisfaction, that out of the few cases which have occurred, the saline injection has been tried in two. One of these was

given in detail in our number for last week. The other was the man Vincent, who was received at the Northern Hospital on the 20th. We understand that in this case the effect of the injection was very decided in restoring the circulation, increasing the temperature of the surface, and augmenting the vital powers generally. These effects were, however, less permanent than in the former case. The patient survived the operation twenty-five hours."—*Boston Medical and Surgical Journal.*

Pennsylvania.—*Philadelphia.* The whole number of deaths during the week was only 88, of which but 4 were from malignant cholera.

The following table exhibits the whole mortality, and also that from bowel complaints for the 4th week in September for five successive years.

1828.—4th week, ending September 27th. Whole mortality, 91; of which, the deaths from cholera morbus were, adults, 0; children, 2; Total, 2.—Diarrhœa, adults, 1; children, 4; Total, 5.—Dysentery, adults, 0; children, 1; Total, 1.—Total from bowel complaints, 8.

1829.—4th week, ending October 3d. Whole mortality, 87; of which, the deaths from diarrhœa, were, adults, 1; children, 1; Total, 2.—Dysentery, adults, 0; children, 1; Total, 1.—Total from bowel complaints, 3.

1830.—4th week, ending October 2d. Whole mortality, 91; of which, the deaths from cholera morbus were, adults, 0; children, 5; Total, 5.—Diarrhœa, adults, 0; children, 2; Total, 2.—Total from bowel complaints, 7.

1831.—4th week, ending October 1st. Whole mortality, 109; of which, the deaths from cholera morbus were, adults, 0; children, 5; Total, 5.—Diarrhœa, adults, 1; children, 1; Total, 2.—Dysentery, adults, 4; children, 5; Total, 9.—Total from bowel complaints, 16.

1832.—4th week, ending September 29th. Total mortality, 88; of which, the deaths from cholera morbus were, adults, 4; children, 3; Total, 7.—Malignant cholera, adults, 4; children, 0; Total, 4.—Diarrhœa, adults, 1; children, 3; Total, 4.—Dysentery, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 18.

Lancaster. The cholera has made its appearance in this place, and there have been 7 cases and 3 deaths.

Maryland.—*Baltimore.* September 25th, deaths 6; Sept. 26th, deaths 3; Sept. 27th, deaths 2; Sept. 28th, deaths 2; Sept. 29th, deaths 2; Sept. 30th, deaths 3.—*Frederick.* From the 11th to the 21st, 26 cases, 18 deaths.—*Hagerstown:* Within the week 5 deaths.

District of Columbia.—*Washington.* No complete reports are published. *Georgetown.* Deaths from cholera during the week ending Sept. 22d, 33.

Virginia.—*Richmond,* Sept. 28th. The disease, from all we can learn, has diminished on the hills, and increased in the lower parts of the town. Upon the whole, it has not probably decreased in frequency or malignancy. There are, conjecturally, 70 or 80 cases a day. We are approaching the conclusion of the third week: we may then hope it to abate. Several valuable citizens have died.—In *Charlestown,* on the 27th, 2 cases and 2 deaths.—*Hall Town,* among the workmen on the Road, 4 cases and 1 death.

THE

CHOLERA GAZETTE.

VOL. I. *WEDNESDAY, OCTOBER* 10*th*, 1832. No. 14.

Observations on the Epidemic Cholera, as it appeared in the City of Washington. By THOMAS HENDERSON, M. D.

To Jas. E. Stewart, M. D. Cambridge, Md.; Benj. F. Nourse, M. D. Cannonsburg, Pa.; B. W. Wheat, M. D. Dumfries, Va.; and Alex. F. Suter, M. D. Moorfield, Va.

GENTLEMEN.—Within a few weeks you have asked my views of the epidemic cholera. To one of you I addressed a letter founded on too limited experience in the first appearance of the disease in this city. Since then enlarged observation in treating this awful and novel disorder has induced me to modify my practice. The relations once existing between us, and your polite requests, render it my duty to make this communication. Circumstances of personal interest have led me to this mode of conforming to your wishes. We have in Washington fought the dreadful battle with cholera. On reviewing the contest in its fearful progress and fatal results, having so far escaped the jaws of the devouring monster, I realize somewhat of the

> "Faltering thanks to heaven for life,
> Redeemed, unhoped from desperate strife."

There is neither disposition on my part, nor necessity on yours, to consume time on speculative topics. Why discuss the telluric, meteoric, lunar, animalcular, electric, or malarial nature of the causes of cholera? You have seen and heard, and thought over all the ingenuity which has been fruitlessly expended on these topics. I am totally ignorant of the cause of cholera. Why discuss the question of contagion in cholera? Is it not so firmly settled by observation in this country, that the disease *is not contagious*, that the here and there examples to the contrary, as exceptions, *probant regulam?* Take fifty persons to a cholera hospital, and fifty other persons to a small-pox hospital, and you will see the difference between the propagation of cholera, and that of a contagious disease. The first case in this city precluded the possibility of its origin from contagion. I shall presume it granted that it is not contagious.

What then shall we discuss? I answer two practical subjects:—1st, The forms of cholera; and 2d, The treatment of cholera. In the course of my remarks some observations may be incidentally made on the pathology of cholera.

It may be presumption in me to touch these subjects after they have been descanted on so eloquently and ably by Chapman, Francis, and others. It has been a favourite reflexion with me, that truth is not the "child of authority," but the result of unbiassed reflexion on ample and unprejudiced observation. My observation has led me to conclusions, differing in some respects from those of the distinguished men above named. I am willing to have you and the profession at large to judge between us. Again, cholera, like all other diseases, is somewhat modified in its aspect by climate and season, and therefore demands corresponding modification of treatment. Hence the duty of southern physicians to cast their mite into the treasury of information on this important subject.

In alluding to the forms of cholera, it is unnecessary to go into a detail of symptoms. Your reading, reflexion, and particularly your observation, may enable you to fill up the outline. I will make a few remarks on the premonitory symptoms of the *choleric form of fever*.

This is strictly and properly the title of the epidemic. It is a form of fever. All the premonitory and actual phenomena, show it to be such. It may not be, as it is not, either a typhus, or synocha, a low or an inflammatory form. It varies in the grade of action. It varies somewhat in the organs, primarily and consecutively affected. There is, notwithstanding, a *tout-ensemble* in the disease which shows it to be a form of fever. Take this view of it, and you will be enabled to arrange principles and rules of practice; and with these, well ordered, you can practice confidently.

Dr. Causin, of this city, adopted and published the sentiment, that cholera was a form of fever—the *typhus putridus*—the *typhus syncopalis*. The doctor is a man of learning, and a highly honourable and respectable physician; and while he had a view of truth, it was but a glimmering of it. "He fired at the bird too quickly after it flew up;" if he had waited until the cases were more numerous, they would have shown that he was right in designating it as a form of fever, but wrong in attaching it specifically to typhus or to any other grade. The connexion of cholera with fever has been obvious since its introduction into Europe. Tabular estimates show that in India it was seldom preceded by premonitory symptoms; and, as rarely followed by the consecutive or febrile stages. We all know that it is very different from this in Europe, and certainly so in America. James Johnson has done good service to the profession, by proclaiming it in England, a form of fever. It is so, unquestionably, in America.

Like other febrile diseases, choleric fever has premonitory symptoms; symptoms produced by the poison, lurking into the system, ready for development on the application of exciting causes. Our malarial fevers are preceded by languor, pains in the limbs, nausea, and so forth. Choleric fever has appeared in Washington with the following premonitory symptoms:—

1. The person has *griping pain* with costiveness. In this case, there is a full pulse, and febrile symptoms. Where the pulse is active, blood-letting to a pint, in adults, acts decidedly. This should be followed by twelve grains of

calomel, and castor oil; the patient remaining within doors, and favouring perspiration.

2. There is a patient with *griping pains* and diarrhœa, the evacuations being yellow, free, and frequent, during the day—the pulse is here not active. In this case bleeding is unnecessary; while *twelve* grains of calomel and *one* grain of opium will remove the symptoms.

3. There is a case of *griping pain* with *dysenteric* uneasiness, frequent stools, straining, &c. In this, give the patient fifteen grains of calomel, with one grain of opium; this, followed with castor oil and barley water, will relieve the symptoms. The pulse is more active in this case than in the last, and bleeding is very necessary in such an event.

4. Diarrhœa sometimes exists without pain or fever. The stools are loose, yellow, or whitish. Here fifteen grains of rhubarb, with five grains of calomel, answer the indications; and ten grains of Dover's powder at night completes the relief.

5. You see a person with *griping pain* and *nausea*, without diarrhœa or dysentery. In this case, especially if the stomach has been loaded, an emetic of ipecacuanha should precede the exhibition of purgative medicine.

These are the principal forms of premonition. Observe in them how common *griping pain* in the bowels is; that this is accompanied with increased flow of bile, as in *diarrhœa*, or with suspended biliary secretion, as in the *dysenteric*, and in the first and last forms of premonition; or with mucous irritation as in the dysenteric. Observe, likewise, the febrile action in these forms; the grade of febrile action. Observe, also, how generally these premonitory symptoms prevail in a community; they indicate a derangement of secretion in the hepatic system, on the mucous surface and on the tongue, which is white. They show the heart to be irritated into a febrile state, and consequently demand bleeding, calomel, appropriate diet; and that exposure to the night air and malaria be shunned. Observe, lastly, that these premonitory symptoms continue from a few hours to as many days, nay, weeks.

The *choleric fever* appears in various forms. You are aware how comprehensive the term fever is. It is not limited to heat of skin, or activity of pulse to a cold or a hot stage. It is a *morbid condition* diversified in aspect; and he that is unable to detect fever in its congestive and collapsed, as well as in its open, undisguised features, has yet to learn the most important lesson in practical medicine. Choleric fever has assumed all forms in this city—congestion, collapse, excitement, typhoid, &c. I shall briefly detail the various forms which I have seen—this is my purpose, and my desire is to accomplish that purpose with perspicuity and *fidelity*. It may be important to you.

To identify choleric fever it has been said that a group of phenomena is necessary. Suspension of secretion, excessive thirst, vomiting, purging, embarrassed circulation, blue surface, cramps, cold skin and shrivelled extremities, have been assumed as essential. But cases of cholera occur, and daily too, where several of these symptoms are wanting. The epidemic commenced with us about the period when malarial fevers arrive, and it has been found here, as in the days of Sydenham, that an epidemic causes all diseases to wear its livery. Hence, where there were severe cramps alone, the case was choleric; so likewise when vomiting and purging without cramps, and so on. Most of our fever

cases partook of the character of cholera. Hence we are justified in calling it the choleric fever. It has, however, elsewhere plainly assumed the febrile character in premonitory, actual and consecutive symptoms. The title is, *therefore, generally proper.* I mean, however, carefully to distinguish between the premonitory symptoms and the actual cholera. In this city much confusion has arisen from want of judgment here. Vomiting and purging alone, cramps alone, vomiting and cramps, purging and cramps, rice water evacuations; these, with the strong case where the system is overwhelmed without any of these attempts at reäction, constitute cholera. Observe how different these are from the premonitory signs above detailed.

The forms of choleric fever which I have seen, are—

1. *The collapsed cholera.* 2. *The congestive cholera.* 3. *The typhoid cholera.* 4. *The synochal cholera.* 5. *The intermittent cholera.*

1. *Of the collapsed cholera.*—The most desperate grade of this fever is a compound of congestion and collapse, in which the latter greatly and suddenly preponderates. So sudden and so overwhelming is the shock given to the stomach and heart in many cases, that the patient is insensible to remedial efforts, and death speedily ensues. Here there is deep coldness of the surface; blue skin, and shrivelled extremities; entire cessation of action and of circulation in the vessels remote from the heart; feeble action of the heart itself; watery stools involuntarily passed; coldness of the tongue; in the worst cases neither cramp nor vomiting. The patient calmly and speedily dies. Here collapse prevails, nor will any means arrest it.

2. *The congestive cholera.*—There is a congestive form in which the skin, though not *cold,* as in collapse, is diminished in temperature; the pulse apparently feeble and soft, but really oppressed; the patient complains of great præcordial load, tossing the hand over the chest; respiration heaving, rarely panting; vomiting and purging of rice water fluid; violent cramps in the upper or lower extremities; great thirst; the secretions all suspended. This case tends rapidly to collapse, which may, in many cases, be prevented, if prompt measures be adopted. Too often the time is lost, and with it the opportunity to save the patient.

The forms above named, are conspicuous for two pathological states, the first almost pure *collapse,* the second equally uncomplicated *congestion.* This is not the only form in which there is some congestion; but here it is palpably predominant, and soon ends in collapse. It is of great importance to be able to decide on these conditions. Copious rice water evacuations which have induced debility, and cold skin with sunken pulse, show *collapse;* while cold skin, without debilitating evacuation of rice water fluid, but with præcordial oppression, may be more congestive than collapsed. The distinction is practically important. It is, however, mainly founded on the condition of the pulse. You know the oppressed, struggling action of the heart in congestion, as well as the feeble, fluttering pulse of collapse. It requires tact to decide.

You should be aware of the speedy termination of these forms of cholera fever. They result too frequently in death, but sometimes the patient returns rapidly to health, without consecutive fever.

3. *The typhoid cholera.*—In this form the peculiar symptoms of cholera introduced the disease. The serous vomiting and purging, the cramps, &c. usher

in the attack; but the skin is not below the natural temperature, in most cases a little warmer, the pulse soft, but with some fulness and volume; the tongue red at the edges, with white central coat; none of the coldness and pulseless state of *collapse;* and comparatively little of the præcordial anxiety, or of the oppressed pulse of congestion. Still the cholera was distinctly manifested in the suspension of secretion, the cramps, the vomiting, &c. In this typhoid form, the disease would assume a pure febrile course, would run on for eight or ten days, developing local determinations, and ending in death in many cases. It is not, however, my purpose to detail the course of any of the consecutive stages of choleric fever. Not only does this form take up a febrile course, but it will suddenly sink into collapse.

4. *The synochal cholera.*—In this the patient was seized with vomiting and purging, cramps, &c. while the skin was hot, the pulse full and strong, with all the phenomena of active excitement. Here obvious treatment cut short the disease; if not, the case continues not distinguishable from ordinary bilious fever. It must be great neglect, or very bad management, that allowed this form to be troublesome or fatal.

5. *The intermittent cholera.*—I saw several cases, which, with strict propriety, ought to be termed the intermittent cholera. The patient, seized with all the symptoms of violent cholera, emerged from danger under treatment, and in a few hours became calm. Forty-eight hours after, or at the expiration of the *tertian* period, the cholera symptoms were resumed in a mitigated form; the hot stage appeared, and sweating carried off the paroxysm. The subsequent attacks were evident intermittents.

Regarding these several forms, I know scarcely a case which is not fairly embraced by some one of these grades of choleric fever. In this, as in all epidemic diseases, it is true that there are anomalous cases which defy classification, moving in their own wandering spheres. Yet, in describing the disease at Washington, and that is my object, I can philosophically represent it in no other light. It may be, that a combination of ordinary malaria, with the peculiar choleric cause, has had some influence over the aspect of the disorder; but if it were to my purpose, and within the prescribed limits of this letter, it were easy to show that, elsewhere, the febrile pathology and analogy hold good. Thus, the views here taken, are more reasonable and legitimate than might at first sight appear admissible. These several forms of choleric fever would, no doubt, be found intercurrent; the synochal and typhoid forms running into congestive, and the latter readily assuming the collapsed form.

Nor can I allow that a fancy picture has been drawn. I have seen what has been described, and it is detailed because it may contribute to restore and arrange pathological views, which, in the confusion and discrepancy of the times, have, I think, been too much unhinged.

2. *Treatment of choleric fever.*—Your attention is now called to the second part of the subject, which is to give the practice pursued by me in this disease. I shall be as brief and practical as possible.

1. *Treatment of collapsed cholera.*—This is a most desperate case, and desperate attempts are justifiable. Yet observe the primary indication which is *to sustain and revive the sinking heart; for without this, every other end is useless or unattainable.* I know *bleeding* is considered as justifiable even in collapse; but

it is impossible to extract blood where the circulation has ceased in the extremities. *Cupping* may be done on the epigastric region. I know that emetics have been lauded as arousing the heart's action; but in no one instance, where I have seen them used, have they done so. If any thing will excite the heart, and restore capillary circulation, it is active, persevering friction with dry mustard, sinapisms most extensively applied, warm cordial drinks, such as hot mint julep, or warm paregoric, with brandy and laudanum enemata. If these fail, nothing is to be expected from calomel, although no injury be done by administering and hourly repeating it in ten grain doses. Should this cordial treatment arouse the circulation, the vein may be opened, and the effect of bleeding be most circumspectly observed. As the vascular excitement and organic nervous power are developed, calomel is to be freely given until the rice water evacuations are checked, or until secretion has commenced. Large doses of pure opium or laudanum do no good in this stage.

2. *Treatment of congestive cholera.*—In this grade of choleric fever the indication is not the same as in the collapsed form. Seeing the prostrate and apparently feeble state of the patient, a superficial or inexperienced practitioner might confound congestion and collapse. The indication *in congestion is to unload the large venous reservoirs, the lungs, and the right side of the heart, of blood, so as to enable the heart to act.* If the heart and visceral circulation be relieved of venous engorgement you will soon see capillary circulation, secretion, and open excitement. While, therefore, you use frictions and sinapisms as in collapse, *you withhold cordial drinks and stimulants* in congestion, and a vein is to be opened and blood fully drawn. Bleeding is here all important. If the vein can be made to bleed freely all the symptoms are mitigated, while the system is prepared for the operation of calomel. Nothing should induce you to stop the bleeding, short of taking twenty ounces, except the failure of the pulse; and in that event you will proceed to free abdominal cupping. I have bled a delicate female twice in four hours in this congestive form. As soon as the bleeding is done, give fifteen grains of calomel, and repeat five grain doses every half hour, or ten grains every hour, until *the stomach be quieted and the rice water stools cease.* The cramps or spasms are much relieved by ligatures, or by twisting a towel tight around the limb. As soon as the mustard plaster on the stomach irritates, remove it, and apply a large blister on the abdomen. In this form I have used enemata of starch and laudanum to check the purging. The sugar of lead and laudanum injections have been perfectly useless. The only nutriment or drinks to be allowed are mild teas or chicken water, and these never in larger quantities *than a table-spoonful at a time.* I have been totally disappointed in the effects of ice used internally.

Such is the treatment I have used in collapsed and congestive cholera. A few remarks on the mode of using some remedies appear proper just here. These are the desperate and rapidly fatal forms of choleric fever. They require, that if possible, the physician should remain with the patient until the case is controlled. Next, observe my mode of applying sinapisms; it is to direct them to be put on the thighs, and on the arms above the elbow; they should be very large. It is important to leave the legs and forearms for the purposes of friction. The sinapism to the abdomen covers that region. Again, the frictions should be very *constant* in collapse, but *not so constant* in conges-

tion. At first I used the Roe ointment, but after much experience preferred the dry powdered mustard. The frictions should not be too rough or severe; for uniform gentle friction with mustard on coarse flannel or woollen cloth is most favourable to invite and promote cutaneous circulation.

It is a very prominent consideration to decide on the extent to which you would carry the use of *calomel.* By this remedy you must accomplish two things. First, the *rice water* exhalations from the stomach and bowels are to be stopped; and, secondly, normal or natural secretory action is to be excited. To induce these two changes it requires from fifty to one hundred and fifty, and even more grains of calomel. It is curious to observe the pause which frequently takes place after *rice water* exhalation ceases, and before secretion commences. This pause occupies several hours, and all this while the bowels are constipated. It is here that the plan of treatment is to be varied, and active laxatives and cathartics must be given. Castor oil, cream of tartar, and magnesia, have been most relied on; but in my practice, *three* grains of aloes and *one* grain of calomel given every hour have not failed to bring off immense quantities of black, greenish matter, mixed up with flakes of thick mucus. It sometimes requires thirty grains of aloes to accomplish this, after which castor oil is sufficient. Salivation may arise from the use of calomel, but it is neither sanative nor desirable. In one case when the patient was *under ptyalism,* a friend informs me, the cholera came on.

Emetics have the high sanction of foreign and American authority. In presuming to differ with Dr. Chapman, as to their use, I must state what has occurred. In hospital practice, and in private consulting practice, I have seen them exhibited repeatedly. In no one of these instances have they been *the efficient remedy*—in several instances I have thought they were prejudicial. Therefore, in my own practice, I have never given an emetic of any description. They may, for a moment, arouse the flagging pulse, but it soon sinks the lower. I have never seen congestion dispersed by them—nor vomiting allayed by them—nor secretion restored by them—nor heat diffused by them; but I have seen the effects both of bleeding and calomel neutralized and thwarted by them. Several of our most eminent physicians regret having even occasionally used them; and it is certain, that where they were indiscriminately administered, as has been too much the case, the practice, to say the least of it, was not more successful than where they never were given.

3. *Treatment of typhoid cholera.*—In this the treatment is very obvious. As the tendency of the congestive form is to collapse, so is the tendency of the typhoid form to congestion and collapse. In this grade the volume of the pulse allows bleeding in most cases. Then the exhibition of the full and repeated doses of calomel until the secretions are restored; while frictions *are only used to relieve cramp,* the sinapisms are to be applied. In some cases of this grade the pulse will not bear bleeding from the arm, but cupping may be most freely done. Here it is that an obstinate febrile irritation follows, locating itself on the brain or gastro-enteritic membrane. The fever continues for days, and too often proves fatal. I rely on your general views of fever to direct your treatment.

4. *Treatment of synochal cholera.*—The method to be pursued is too simple to require much comment. Copious blood-letting is so plainly indicated, and

is so efficacious as to remove the severe symptoms, and bring the system promptly to obey the action of calomel. Blood-letting will often render mustard plasters and frictions comparatively unnecessary. Pursuing, as this form does, the progress of bilious fever, you are perfectly aware of the deliberate management of the case.

5. *The intermittent cholera.*—This requires bleeding, calomel, frictions, &c. and, recognising the paroxysmal form, you resort to the sulph. quin. as for a pure tertian.

Recollecting, gentlemen, that I have not designed to give you any thing but general considerations on the nature and treatment of choleric fever; that no minute descriptive essay, no analysis of the numberless pamphlets and volumes before me, no prosing of "my theory or pathology" of cholera; no formal systematic arrangement—that none of these have entered into my purpose, you will receive this communication as an effort to lay before you practical matter for reflexion and application.

I have said little of the use of opium, or of stimulants, or of camphor. I have no doubt the irritability of the stomach may be somewhat allayed in the first period of cholera, by giving thirty drops of laudanum with some peppermint and camphor. Again, laudanum with starch enemata, will be useful to check the washing catharsis—but beyond these, after seeing a few cases, I gave very little opium. In collapse, half a table-spoonful of hot paregoric is a good cordial.

Stimulants are as necessary in some forms and stages of choleric fever, as they are prejudicial in others. Warm wine, or strong brandy-toddy, or mint julep, are necessary to the treatment of the sinking powers in collapse; whether that collapse be primary, or be in the consecutive stages.

Camphor is not worthy of a single observation as a remedy in choleric fever.

Strongly tempted by the novelty and extent of the field for speculation to enter into its seductive region, I must restrain my inclination. How easy to descant on the surfaces exposed, and those not exposed to the poison! How striking the exemption of the brain from disease, while the pneumogastric and ganglionic nerves appear to bear the shock of morbid impression! How different the utter suspension of secretion, from the increased and deranged secretions in our malarial fevers—how curious the cramps, sympathetic of the primary irritation, wherever that is—but you will duly appreciate all these, and many other conspicuous pathological phenomena, which are so variously estimated by various theorists. I repeat that it is not my purpose to theorise; for not only would time, but qualification adequate to the object would fail me.

Yours, respectfully and truly,

THOS. HENDERSON.

Washington, Oct. 1, 1832.

Suggestions respecting the Cause, Nature and Treatment of Cholera.

By J. Parkin, Esq.

From an attentive observation of the course this epidemic has taken in those places and countries which it has hitherto visited, I have been induced to draw the conclusion, that a noxious matter or poison being generated in the earth,

has been diffused in the different springs in such situations, and that this matter being conveyed into the stomach produces that train of symptoms, which, commencing in this organ, afterwards extends, with more or less rapidity, to the whole system.

It being allowed that carbonic acid is given off from the surface of the body, and that it exists in considerable quantity in the alimentary canal, to a secretion from the lining membrane, its presence, in the latter situation, ought I think to be attributed. If so, to what purpose, it may be asked, has nature destined the gas thus furnished to this important part of the animal economy? In order to counteract, I would reply, by its well known antiseptic qualities, the injurious effects of any noxious or poisonous matter that may be taken into the stomach, either with the ingesta, or by any other means.

In the disease in question, I consider that either for want of the usual, or a sufficient quantity of this agent, or on account of the direct action of a poisonous substance on the vessels and nerves of the alimentary canal, preventing the secretion taking place at all, a noxious or poisonous matter being introduced into the stomach, will be thus left to exert its baneful influence without controul, unless carried off by nature or art, or unless an antidote is found capable of counteracting its action on the living body.

I am also led to conclude, that either by the absorption of the poison into the circulating system, and its immediate action on the blood itself, or in consequence of its influence, direct or sympathetic, on the respiratory nerves, the caloric which, according to the theory of Dr. Crawford, is given out by the union of the carbon of the blood and the oxygen of the atmosphere, is not evolved; and that, therefore, the natural temperature of the body becomes lowered, in proportion to the intensity of the cause thus operating on the respiratory process. As a corroboration of the truth of this argument, it has been ascertained that no carbonic acid existed in the expired air of a patient labouring under this disease.

From the above view of the subject, as well as from the result of some practical trials, I have been induced to consider that in cholera maligna or blue cholera, a remedial agent or antidote will be found in that substance which nature has herself furnished the system with, but which in this disease appears to be incapable of performing its allotted offices in the animal economy.

Carbon, therefore, in its simple and compound forms, is the substance which I conceive to be best adapted to remove the cause, and counteract the effects of that cause from which the disease in question originates, and is produced.

On the treatment of cholera.—Carbon being the remedy that I rely on in the treatment of this disease, the following is a brief outline of the manner in which I should recommend that substance to be administered, either in its simple or compound forms.

In cases where there is sickness or much irritability of stomach, carbonic acid gas is the form to which I should give the preference. The aërated soda water, or saline effervescing mixture, will offer a ready and convenient mode of administering this medicine. It should be given every ten minutes, and repeated notwithstanding its rejection by the stomach, until some benefit is derived from its use.

When diarrhœa or purging is present, in addition to the above, and as soon

as the state of the stomach will allow of it, recently prepared charcoal, in drachm or two drachm doses, should be administered every half hour, until the cessation of purging, and change in the character of the motions, from serous to feculent, will allow of the discontinuance of the medicine. In the collapsed stage of the disease, charcoal, or any other substance containing a large proportion of carbon, should be given in full doses, and repeated at intervals, varying according to the urgency of the symptoms, until, by the return of the depressed vital energy, and the increase in the diminished temperature of the body, it appears safe or necessary to suspend its use. When diarrhœa is present, in this stage of the disease, the charcoal may be administered without fear to almost any extent. In addition to the above, carbonic acid should be given in large and frequently repeated doses, and, for this purpose, water artificially impregnated with the gas, would be the most desirable mode of administering it, possessing as it does advantages of some consideration, being free from either an alkali or neutral salt. This, in the collapsed stage of the disease, especially if accompanied with diarrhœa, is, I consider, a circumstance of some importance.

In the consecutive fever, the above remedy, in either or all of these forms, is what I would strongly advise and recommend, only observing that in this case the dose may be less, and the intervals between the administration of each longer.

I have now only to state, in conclusion, that it is not intended, by the above plan of treatment, to prevent or entirely supersede the administration of all other remedies at present resorted to in this disease; still less is it wished to interfere with the adjuvants generally employed at the same time, as warmth, friction, &c. As regards stimulants they will of course be administered as the depression of the vital powers, or loss of nervous energy, may seem to require. The addition of an aromatic stimulant to the carbonic acid will be necessary and adviseable. The sulphuric ether, given to the extent of two drachms, with a drachm of some aromatic tincture, I have generally found successful, in India, in allaying the spasms, which, in this complaint, are frequently so troublesome and annoying.

J. PARKIN, Surgeon E. J. C. S.

London, July, 1832.

Report on the Epidemic Cholera lately Prevalent in the Maryland Penitentiary. By H. Willis Baxley, M. D. Physician to the Institution.

To the President and Directors of the Maryland Penitentiary.

In submitting the hospital reports for the past and present months, it is proper to make some reference to the cause of the unusual mortality with which the prisoners were visited during the former period. By referring to the hospital record it will be perceived that two cases of malignant cholera were reported in the month of June, previous to the official announcement of the disease in New York, and four in July. It was not until the 13th of August, however, that the disease made its onset in the more dreaded character of an epi-

demic. On that day two persons were attacked, and nearly every succeeding day added new subjects to the list until the 14th of September, since which time no case has occurred. No convict had been committed to the penitentiary since the 3d of July; on that day a woman was received from Somerset county, where the disease was not then in existence. The disease first appeared among the men.

At the commencement of the epidemic several persons sunk suddenly into fatal collapse who acknowledged the preëxistence and neglect of diarrhœa; and yet, with these examples of speedy mortality among them, there were found others who carefully concealed the premonitory symptoms of the disease, until the development of the stage of asphyxia gave evidence of its existence. This fact led to the early adoption of a strict system of medical police, and by constant investigation into the state of health of the prisoners, many were found labouring under incipient symptoms, whom carelessness, prejudice or self-confidence, would have led to a reckless sacrifice of life. It was observed that those whose digestive organs had been impaired to the greatest extent by previous irregularities, excesses, and habits of intemperance, were most obnoxious to the disease. Nor is it surprising that such a large proportion as one-half of the inmates of this establishment should have suffered from the influence of the morbific cause, when we consider that within the walls of no other institution, except those of an Alms-house, is there an assemblage of persons so remarkable for previous habits of depravity and licentiousness. In most cases habitual intemperance was found to have destroyed the capacity of resistance afforded by a healthful organic structure, and the first opposition having been overcome, little was left for the epidemic to accomplish in the production of more active disease.

To obviate as much as possible the evil effects of known existing causes, the efficient police of the institution was increased, and redoubled watchfulness was exercised to prevent the use of other articles of diet than those allowed, which were selected with entire reference to their wholesome properties. The number of meals was also increased, which rendered it unnecessary for the prisoners to take any portion of their allowance from table, which was strictly forbidden, and its enforcement had a salutary effect, not only in preventing dangerous excesses in some, and equally dangerous inanition in others of the healthy, consequent upon the otherwise uncontrollable practice of provision trading, but in securing the uninterrupted improvement of convalescents, many of whom had relapsed, and several died, from the effects of surfeit. The provisions consisted of tea sweetened with sugar, wheat bread and herrings, for breakfast. Bread and tea for supper. For dinner, beef and beef soup, or pork, bread, rice and potatoes.

In addition to the dietetic measures adopted for the preservation of health, others were resorted to. Personal cleanliness was enforced by the use of baths —the prisoners were clad in comfortable woollen clothing—extra bedding was allowed—the usual labour was not exacted—and every means of cleanliness and purification, both in the workshops and cells, were had recourse to that prudence could suggest. The cholera was in nearly every instance preceded by symptoms of greater or less duration, and more or less violence, indicative of disorder in the healthful functions of the stomach and bowels. Abdominal ten-

derness, soreness, pain, or simply a sense of uneasiness or distention; præcordial anxiety and oppression; a sense of burning, and frequently a rumbling of the bowels, as patients have often expressed it; perhaps lassitude and dizziness; any one or more of these with diarrhœa, with or without nausea and vomiting, existing sometimes for days, sometimes for a few hours only, constituted the most usual precursors of an attack. It is this stage of the disease that has received the name "cholerine," a term implying a less aggravated degree of pathological condition, constantly tending, and almost invariably terminating, in a most malignant and unmanageable form of disease, when neglected. The production of more or less violent symptoms, is not incompatible with the operation of the same powerful morbific agent, exercising its influence upon differently susceptible constitutions, and under a variety of modifying circumstances and exciting causes. Unless this be admitted we cannot account for the universal prevalence of gastro-intestinal disorders of a milder type constantly attendant upon the cholera in this country, and emphatically spoken of in the valuable documents of Drs. Rhinelander and De Kay of New York, and in the able report of Professor Jackson and Drs. Meigs and Harlan of Philadelphia.

No difficulty was found in controlling the disease before it had passed the limit above described. The texture invaded was evidently the mucous membrane of the stomach and bowels; and the pathological condition consequent upon the first impression of the cause was one of irritation. To meet the indications pointed out by this state of the organs, the following measures were adapted.—A strict avoidance of all aggravating causes of irritation; the use of diluent drinks, barley, rice, and elm water—also diluted lime water; diet of boiled milk, mutton broth, rice, tea, and stale wheat bread; the promotion of external warmth; the use of revulsive agents; principally friction; and entire rest by confinement to bed. These measures generally sufficed to remove the less violent symptoms. For the aggravated conditions, more energetic treatment was required, and on many occasions, venesection or cupping, was found absolutely essential to arrest the more active developments of incipient inflammation. One or both of these, with the salt and water emetic, especially to remove foreign substances, followed by calomel and pil. hydrarg. with or without rhubarb, opium, acet. morphia, or pulv. Doveri, ol. ricini with black drop, laudanum, or denarcotized tinct. of opium—the effervescing draught, sinapisms, and aromatic anodyne poultices, prescribed to suit the peculiarities of each case, were found sufficient in all cases to fulfil the indications of cure; not one, of more than one hundred patients who were subjected to this treatment, having sunk into collapse.

On the neglect of the before described *premonitions* of cholera, other symptoms of a far more formidable character were developed: in some few instances indeed, the first open manifestations of disease were a copious evacuation from the bowels, sudden prostration, and instantaneous collapse; the concentration of the cause, or the constitutional susceptibility of the patients being such, that they seemed struck dead at once. This sudden invasion of the disease occurred in but nine instances; a small proportion of the great number of cases which sustain the law of its gradual and less alarming attack, and in most of these, there had been long standing chronic diseases of the digestive canal consequent upon previous habitual abuses.

The symptoms of the more advanced stage of the disease were nausea and vomiting of a serous or rice water fluid, sometimes bearing a close resemblance to whey, soap-suds, or gruel, and generally containing albuminous looking flocculi. Frequent and copious dejections of a similar fluid, in some instances more than two gallons having been discharged in a few hours. Spasms of the stomach and bowels; great tenderness and heat of the epigastrium; cramps of the extremities usually commencing at the feet and seizing the upper parts of the limbs in succession; enfeebled circulation; pulse small, weak, and sometimes frequent, at others as slow as 40 to the minute; secretions arrested, no urine, bile, nor tears; features contracted, eyes sunk and surrounded with a dark areola; skin of fingers, toes, hands and feet shrivelled, and of a livid hue; tongue and general surface cold, and often exhibiting a tendency to discoloration indicative of cutaneous exudation and retreat of the more fluid parts of the blood, and stagnation of the remaining portion. This latter appearance in general marked the stage of confirmed collapse. The brain was unaffected, or only remarkable for diminished energy; a huskiness or peculiar hoarse whispering tone of voice, sense of suffocation, intolerant thirst, incessant tossing, and complaint of burning heat, even when the body was icy cold, also characterized this stage. The aggression of most of the above symptoms constituted what may be termed *incipient collapse;* an aggravation of these, a cessation of some and a development of others, consequent upon a greater enervation of the ganglionic system; a more enfeebled circulation, and a deeper involvement of various organs, constituted the stage of *extreme collapse*, or *confirmed asphyxia*, which has been justly considered the dying stage.

The treatment adopted to arrest the passage of the disease from the incipient to the fatal collapse, was founded upon what was believed to be the true pathological condition, about which there can be no doubt, whatever mystery may overhang the character and operation of the remote cause. This condition, as before intimated, is primarily one of irritation of the gastro-intestinal mucous membrane, resulting in inflammation and congestion, with consequent debilitating evacuations, deranged nervous sensibility, enfeebled circulation, suspended secretions, and universal disturbance of the various functions connected with the sympathetic system of nerves. This respondent disorder of the various organs might be reasonably expected, when we consider the extent of the morbific impression, upon a surface of relation greater than the whole external surface of the body—nor was the blanched appearance of this membrane, as discovered sometimes on autopsic examination, any proof of the previous absence of inflammation; this appearance was found only when there had been excessive serous discharges, by which the vessels were relieved. The indications of treatment were clear, and of the agents used for their fulfilment, blood-letting and cupping were of the first importance. These exercised a peculiar power in subduing irritation, removing congestion, arresting exhausting discharges, and unlocking the oppressed circulation; in many instances a contracted and feeble pulse becoming full, open, and more resistant, and the vomiting entirely ceasing under their use; and such was the salutary influence of the cups in relieving gastric oppression and spasm, that the patients often begged "for God's sake to let them stay on." It may be proper to state that of sixty cases of fully formed cholera with whom either venesection or cupping, sometimes both, were used, seven died. Of eighteen who

were neither bled nor cupped, nine died. Next to sanguineous depletion should be mentioned the saline emetic, sometimes combined with mustard, especially in cases of great insensibility and prostration; in some such cases the use of this remedy was attended with the effect of rousing the sluggish circulation, congestion was removed, reäction established, and blood-letting resorted to with happy results. On most occasions it was found a valuable adjuvant, and appeared to exert an influence independent of mechanical operation. Cutaneous action was diligently promoted by the application of dry heat, the vapour bath, and various external irritants—nor can I omit to refer to the benefit often derived from large poultices of hops or chamomile, or meal wet with strong hop water, frequently applied warm to the abdomen.

In aid of other means, calomel to reëstablish suspended secretions combined with camphor, small proportions of opium or acet. morphia, at first in a dose of fifteen or twenty grains, subsequently in smaller quantities frequently repeated, was made use of. Sulph. of quinine and acet. plumb. æther, aromatic spts. of ammon., spts. Mendereri, brandy; also enemata of decoction of oak bark, solution of alum, kino, and opiates, were resorted to with advantage as the indications of treatment required. Other remedies recommended on respectable authority were used in a few instances, particularly stim. mercurial frictions and venous injections; these were not found to sustain the high character attached to them by a few persons abroad. Our principal reliance was placed upon the treatment more particularly detailed, the success of which, and a sound pathology, forbidding an indulgence in random practice—and much was dependent upon the promptness, energy, and unremitting attention, with which the prescriptions were executed.

In concluding this exposition, which it has been due to the occasion to submit, I must bear testimony to the unceasing efforts of your superintendent and the other officers of the institution, (not one of whom contracted the disease,) in endeavouring to mitigate the devastations of this awful pestilence. Nor can I allow the opportunity to pass, without expressing my personal acknowledgments to my intelligent young friend, Mr. J. B. Owens, for his zealous aid in promoting the same humane object.

Baltimore, October 18*th*, 1832.

Mortality from Cholera in London.

In 1829, within the London bills of mortality, by what are commonly called *bowel complaints*, only 41 persons died, viz.

Of diarrhœa,	31
Of dysentery,	6
Of flux,	4
Total in 1829,	41

In the year 1830, the number of deaths by the same disorders are stated as follows:—

By diarrhœa,	19
By dysentery,	24
By flux,	10
Total in 1830,	53

The term *cholera morbus* appears in these bills, for the first time, on Tuesday, 21st December, 1830; and the first death by such a disease is recorded in the following week. The total number of deaths by bowel complaints, in the year ending December 20th, 1831, is thus given:—

By cholera morbus,	48
By diarrhœa,	33
By dysentery,	11
Total in 1831,	92

Of the total number of deaths by cholera morbus in the year 1831, (48,) there took place,

Prior to August,		12
In the autumnal months,		
August,	10	
September,	13	33
October,	10	
Subsequent to October,		3
Total in 1831,		48

The following table exhibits the deaths by cholera morbus in the first six months of the present year:—

In January,	0
February,	25
March,	250
April,	273
May,	52
June,	67
Total in the first six months of 1832,	667

The next table gives the deaths by cholera morbus in the month of July, as registered in the bills of mortality. The result will probably prove as great a surprise to your readers as it has done to me:—

In the week ending July 3, 1832,	55
do. do. 10, do.	108
do. do. 17, do.	158
do. do. 24, do.	380
do. do. 31, do.	305
	1006

The concluding table gives the total number of deaths by bowel complaints, in the first seven months of 1832:—

By cholera morbus,	1673
By diarrhœa,	25
By dysentery,	12
Total in the first seven months of 1832,	1710

Statistics of the Cholera in Albany, New York.

We have been favoured by our esteemed correspondent, Dr. H. Bronson, with a No. of the Temperance Recorder, in which we find "an authentic record of deaths by cholera in the city of Albany, from the commencement to the cessation of the daily reports, in the summer of 1832; omitting all under the age of sixteen years."

It appears from this paper that the number of deaths under sixteen years of age amounted to about 100. The number of deaths of persons over sixteen years of age, were—

Males	213		
Females	123		
			336
Native white	171		
do. coloured	24		
		195	
Foreign Irish	108		
do. English	15		
do. Scotch	4		
do. Welch	2		
do. German	8		
do. French	1		
		138	
Unknown		3	
			336
Intemperate	140		
Free drinkers	55		
Moderate drinkers, mostly habitual	131		
Strictly temperate, see Nos. 132, 303, 321, 333, 328	5		
Members of temperance society, see Nos. 200 and 276	2		
Idiot	1		
Unknown	2		
			336

Premonitory symptoms, diarrhœa, certain, 282; remainder unknown.

Ages	16 to 20	11	Ages	50 to 60	47	
	20 to 30	70		60 and upwards	36	
	30 to 40	108		Unknown	9	
	40 to 50	55				336

Health of Philadelphia.

The following table exhibits the whole mortality, and also that from bowel complaints for the 1st week in October for five successive years.

1828.—1st week ending October 4th. Whole mortality, 87; of which, the deaths from cholera morbus were, adults, 0; children, 2; Total, 2.—Diarrhœa, adults, 1; children, 0; Total, 1.—Dysentery, adults, 0; children, 2; Total, 2.—Total from bowel complaints, 5.

1829.—1st week, ending October 10th. Whole mortality, 67; of which, the deaths from cholera morbus were, adults, 1; children, 1; Total, 2.—Total from bowel complaints, 2.

1830.—1st week, ending October 9th. Whole mortality, 81; of which, the deaths from dysentery were, adults, 1; children, 2; Total, 3.—Total from bowel complaints, 3.

1831.—1st week, ending October 8th. Whole mortality, 102; of which, the deaths from cholera morbus were, adults, 0; children, 3; Total, 3.—Diarrhœa, adults, 0; children, 4; Total, 4.—Dysentery, adults, 3; children, 2; Total, 5.—Total from bowel complaints, 12.

1832.—1st week, ending October 6th. Total mortality, 81; of which, the deaths from cholera morbus were, adults, 2; children, 4; Total, 6.—Malignant cholera, adults, 2; children, 1; Total, 3.—Diarrhœa, adults, 0; children, 1; Total, 1.—Dysentery, adults, 1; children, 1; Total. 2.—Total from bowel complaints, 12.

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On the Pathology of Cholera. By ISAAC HAYS, M. D.

[Read before the Philadelphia Medical Society.]

THE unsettled state of medical opinion relative to the pathology of cholera, appears to be owing to the vicious methods employed in its investigation, rather than to any inherent or insurmountable difficulty in the nature of the subject. How indeed could any positive results be expected, when completely absorbed with the idea, that something entirely new and peculiar was to be sought for, inquirers disregard the known functions of the organs and the ascertained action of agents upon them—when the most limited and imperfect observations are received with all the weight of determined general facts—when the importance due only to the soundest deductions is bestowed on the idlest hypotheses—when, in short, the only certain method of arriving at truth is abandoned for the indulgence of the wildest vagaries of the imagination? That this course has been pursued for the most part in the investigation of cholera, the most casual examination of the various volumes, pamphlets, and essays on the subject, of which the press has been so prolific, will abundantly prove.* Need we adduce in evidence of this, the hypothesis seriously proposed by a German physician,† that cholera is a paralysis of the skin; or that of M. Delpech, that it is an epilepsy of the great sympathetic—that of certain Russian physicians, that it is a coagulation of the blood caused by miasms—that of Dr. Ochel, who considers it to consist in an increased secretion of bile, which fluid retained by spasm in the biliary ducts and gall-bladder, distends these parts, compresses the vena porta and vena cava, and thus arrests the circulation—or even the *lucid* explanation of the Royal Academy of Medicine, who state it to be a profound alteration of innervation with a particular catarrhal affection of the gastro-intestinal mucous membrane?‡

Passing by all these hypotheses, and many others of the same character, as unworthy a serious refutation, we shall proceed to inquire what are the symp-

* M. Bouillaud is one of the few writers to whom these remarks do not, to a greater or less extent apply. This distinguished physician in the true spirit of the physiological doctrine, has resorted in his investigations to the inductive method, and if he had taken a more comprehensive view of the subject, he would, no doubt, have left little to be desired.

† Dr. Casper.

‡ See M. Londe's report.

toms of cholera—endeavour to trace them to the organs in which they originate, and to the functions of whose derangement they are the expression—to analyze them, and determine their order, dependancies, and series—to ascertain the lesions discovered after death—connect these lesions with the symptoms—and finally establish the character of these lesions by comparing them with those produced in the same organs by agents whose mode of action is known.

Such a course of inquiry will embrace all the points connected with this subject, which, in the present state of our science, are capable of being satisfactorily determined—all investigations into the intimate nature and essence of the disease are idle and incapable of a positive solution.

First then, what are the symptoms presented by cholera?

From what we have seen ourselves of this disease, and from what we have gathered from the writings of the most careful observers in the various countries where it has prevailed, the following we believe may be laid down as its symptoms in those cases where the disease is uncomplicated, and where it runs such a course as to enable us to trace it through all its stages.

The earliest symptoms of disorder which present themselves, are furred tongue, diarrhœa, and general failure of the digestive powers, with pain or weight at the scrobiculus cordis, or some part of the abdomen, and frequently head-ache, tinnitus aurium, &c. Mr. Greenhow states, that there is sometimes increased vascular action, giving to the patient a feeling of unusual good health, and a greater excitement of spirits than is natural to him; much more frequently however the patient feels languid, weary, and oppressed, with a general feeling of undefined indisposition. This state often continues for several hours, or even days without being followed by the more characteristic features of the disease, or may even cease, the disorder proceeding no further. These are the symptoms from which the great mass of the population suffer wherever the epidemic influence prevails. This is what has been called the cholerine—it is the cholera in its mildest form, or rather in its first stage.

After these slight symptoms, and often some hours after a meal, or more frequently still at night, the patient is attacked with a sensation of violent oppression, of cardialgia, frequent nausea, almost constant and colliquative diarrhœa, with fluid discharges resembling rice-water; vomiting soon comes on, and after the common contents of the stomach, a clear watery fluid, interspersed with flocculi is discharged, and a feeling of exhaustion, sinking and emptiness is experienced. The powers of locomotion are speedily arrested; spasms affecting occasionally and by turns the whole of the muscles of voluntary motion, but particularly those of the legs, feet and hands come on; the pulse becomes small, weak, and accelerated; respiration laboured; tongue broad, pale and moist, &c.

This condition of things soon ushers in another still worse. There is now a distressing sense of pain and burning heat in the epigastrium,* with urgent thirst and desire for cold drinks; the blood forsakes the surface; the skin becomes cold, covered with a clammy, colliquative moisture, corrugated on the

* Mr. Annesley says that this is one of the *first* symptoms that the patient is sensible of, and that he has never seen a case of the epidemic wherein it did not exist.—*Sketches of the most prevalent diseases of India, &c. 2d edit. p.* 34.

fingers and toes, and inelastic; the lips are livid or blue, and the limbs and parts of the body assume the same colour; the pulse gradually decreases until it is no longer to be felt at the extremities, and finally even the action of the heart is scarcely perceptible on the application of the ear to the chest; the respiration is oppressed and slow; the breath cold; the voice feeble and altered; the eyes are sunken and surrounded by a livid circle; the features contracted, and the face exhibits a peculiar cadaverous aspect; the tongue becomes cold, and for the most part white with pink at the edges; bile and urine are no longer secreted; at this period the vomiting, purging and spasms generally abate, and sometimes entirely cease. The sensorial powers do not participate in this wreck of the organic functions; they are however dull, and the patient is usually drowsy, but when roused answers accurately all questions put to him. In some cases his sense of feeling appears acute, causing him to complain greatly of the heat applied to restore warmth to his surface; in other instances, however, the skin is said not to be sensible even to the action of chemical agents. It often happens that the patient dies at this stage, without convulsions, or any apparent pain, and more frequently without the knowledge of those who surround him, so insensible is the transition from life to death, and so strongly does the living patient resemble the corpse.*

When a fatal result is averted, either by the efforts of art, or the recuperative powers of nature, the skin beomes gradually dry and warm; the pulse is developed; the tongue slightly red; the respiration freer, &c. Should the reaction be moderate and sustained, the patient may now recover; but if on the contrary it is violent, the skin becomes hot, the eyes injected, tongue dry and encrusted, coma ensues, and death often closes the scene.

If this brief outline of the disease be accurately drawn, it would appear that we may trace in its progress five stages; viz.—1st, the initiatory stage; 2d, the onset of the disease; 3d, the stage of collapse; 4th, the period of reäction, and 5th, the adynamic or typhoid stage.

It must not be, however, supposed that these stages are to be recognised in every individual case. On the contrary, in many instances the disease never extends beyond the first, or the second stages; and again it sometimes runs through the first and second stages, with such rapidity, that they cannot be distinguished, and the patient appears to fall at once into collapse. It is in persons whose food is scanty, or of bad quality and indigestible, and especially in habitual drunkards, that these latter class of cases occur. These are the most fatal cases.

Considerable differences have also been observed in the symptoms in different persons and at different epidemic visitations. Thus at one period it has been distinguished by the absence of vomiting, and the prevalence of purging; on another, by the excess of vomiting, and though more rarely, by the absence of purging. Spasm has been generally present in one instance of invasion, and in another not distinguishable.†

In Paris it was observed, that in children, females, and very irritable persons, nervous symptoms predominated; the cramps were attended with true convulsions; symptoms were even observed which simulated tetanus, during the paroxysms of which the patient expired. In plethoric subjects, with large and robust bodies, the inflammatory form of the disease manifested itself more fre-

* Archives Generales, April, 1832. † Madras Report.

quently, the tongue was red and irritated, the epigastrium was the seat of acute pain, there was violent fever, very copious vomiting, insatiable thirst, and other symptoms demanding evidently an antiphlogistic treatment. In other instances the asphyxial type predominated—the blueness of the skin occurred early in the attack, and the death of the patient took place often very promptly.*

We have now pointed out what from our own observation and that of the best observers appears the usual succession of the phenomena of cholera—let us endeavour now to verify this statement—appreciate more particularly each of the symptoms, and determine their series.

The earliest symptoms of cholera, where the disease is not complicated, are those of *disorder* of the *digestive canal*, as uneasiness at the epigastrium, pasty tongue, inappetence, &c. This is now so well established, that it appears unnecessary to dwell upon it.† The cases in which the patient appears to fall at once into collapse, are those in which there is previous disease of the gastro-intestinal mucous membrane.

Purging is the most constant and among the earliest symptoms of cholera.

Dr. Lawrie in his report states, that "of all the patients admitted into the Albion Street Cholera Hospital, Glasgow, there has not been one in whom the disease did not begin in the bowels and stomach. In the vast majority, purging was either premonitory, or the first symptom. Some there were who said that nausea and vomiting first annoyed them, but all had purging early in the disease. In some there was no vomiting; in others no cramps; in a few the pulse, capillary circulation, and respiration were good; but all, to a man, had a discharge of characteristic watery fluid from the bowels. So much am I convinced of this, that I now consider watery purging essential to cholera, and have no hesitation, in my own practice, in pronouncing any disease not cholera in which this symptom is absent. The purging is usually unattended by griping pains. In every case which I have had an opportunity of watching from its commencement, the failure of the pulse, capillary circulation, and other symptoms of collapse, have been in marked proportion to the amount of fluid discharged, the rapidity of its discharge, and its approach to water in colour, consistence, and smell. I know no symptom by which a common diarrhœa or disordered stomach and bowels can be distinguished from the early stage of cholera."‡

In a few rare cases nevertheless, purging has been absent; but in such cases the intestines have been found on examination *filled* with the rice-water fluid. We have seen one instance of this; the disease was there complicated with strangulated hernia, and the passage completely obstructed—the bowels were prodigiously distended with the fluid alluded to.

The dejections are sometimes made without effort or uneasiness; at others, they are thrown out with great force, which has been compared to the squirt of a syringe. There is seldom much griping or tenesmus, although the calls are very sudden, and irresistible. In advanced stages of the disease, purging generally ceases, but in many cases a flow of watery fluid from the rectum takes place on any change of position.§

The matters evacuated, after the first emptying of the bowels, are most usually a clear, watery fluid, with white flocculi, resembling rice-water. Some-

* Archives Generales, April, 1823.
‡ Glasgow Journal.
† See Am. Journ. Med. Sciences, for Nov. 1832.
§ Madras Report.

times they are greenish or yellowish from a tinge of bile, or rather we suspect from a change in the secretion similar to that which the secretion of the mucous membrane of the urethra undergoes in gonorrhœa. They are occasionally turbid, or of a frothy appearance like yeast, or rose-coloured from a small quantity of blood; sometimes of a deep chocolate colour from a larger portion of this fluid, and sometimes they even consist of pure blood.

The quantity of the discharge is generally prodigious.

The following are the results obtained by Dr. Clanny, by an analysis of the dejected fluid:—Water, 989; fibrine, 6; carbonate of soda, 3; animal extractive, 2; Total, 1000.*

According to Dr. O'Shaughnessy, "all the salts deficient in the blood are present in large quantities in the peculiar white dejected matters."† MM. Rose and Wittflock of Berlin, and Dr. Kirk of Greenoch, also state the dejections to be alkaline. The existence of fibrine in the dejections is shown also by the analyses of Dr. Christie in India,‡ and Dr. O'Shaughnessy.§

Vomiting is a prominent and frequent symptom in cholera, but there are numerous instances in which it is entirely absent. In certain epidemic visitations in India, there was scarcely an individual case in which it was manifested.‖ It was present in a large majority of the cases which occurred in this city during the past summer. In some cases the stomach appears to be freely emptied; in others there is an ineffectual straining and painful effort to vomit, and a spouting up of any fluid which is swallowed, as if by an effort of the lower part of the œsophagus, rather than of the stomach itself. When collapse is fully established the vomiting usually ceases.

The matters expelled from the mouth are ordinarily at first the usual contents of the stomach, afterwards it consists of a whitish sero-mucous liquid more or less transparent, sometimes inodorous, and mixed with flocculi. In some instances this fluid is of a yellowish, and at others of a greenish tinge, from a mixture of bile, or a derangement of the secretion, such as we have already alluded to.

The quantity of fluid vomited is various, sometimes being prodigious, issuing from the mouth of the patient in an almost constant stream, at others the discharge is small.

Dr. Clanny states, that a careful analysis of this discharge has given him the following results:—Water, 991; fibrine, 5; albumen, 1; carbonate of soda, 2; animal extractive, 1.¶

Thirst and burning heat of the epigastrium are of very frequent occurrence, and are usually present early in the attack.

Spasm has been considered an essential feature in cholera; nevertheless, so far as relates to the muscles of voluntary motion, no symptom is more frequently wanting.** The muscles most frequently affected, are those of the toes and feet and calves of the leg; next to them, the corresponding muscles of the superior extremities; then those of the thigh and arms; and lastly, those of the trunk. In some instances trismus has occurred, and even emprosthotonos.

* Op. Cit. p. 112. † Lancet, Dec. 31, 1831. ‡ Observations on Cholera, p. 52.
§ On the Chemical Pathology of Cholera. ‖ Madras Report.
¶ Hyperanthraxis, or the Cholera of Sunderland. By Reid Clanny, M. D. p. 112.
** Madras Report.

In not a few cases, instead of spasms, neuralgic pains are experienced.

There is usually considerable *restlessness* in the early stages of the disease, the patient constantly tossing about and throwing his arms out of the bed, and this is said sometimes to continue throughout the disease. Not unfrequently from the commencement, and usually in the latter stages, the patient lies in the utmost tranquillity.

Sinking of the circulation invariably occurs in those cases in which the disease runs a full course. The period at which it occurs, depends upon the activity of the exciting cause, and the previous condition of the patient. Its degree seems also to be dependent *cæteris paribus* upon the profuseness of the evacuations.

The *condition of the blood* is very striking, being of a dark colour and thick consistence—coagulating imperfectly, and suffering little or no change in colour, on exposure to the air. The following are the results of analysis of a specimen of cholera blood, by Dr. Thomson, of Glasgow. We add that of healthy blood for comparison.

	Cholera blood.	Healthy blood.
Albumen	4.85	8.47
Fibrin	0.38	4.45
Colouring matter with albumen	27.45	7.39
Salts	1.19	1.30
Water	66.12	78.39

It will be perceived from this analysis that there is in cholera blood a great deficiency of water and of fibrine, an excess of albumen and colouring matter, and some diminution of the saline matters. The analysis of Professor Hermann of Moscow, of MM. Rose and Wittflock of Berlin, Dr. Clanny of Sunderland, also show that there is a deficiency of water in cholera blood.

It would appear from the experiments of Dr. Rayer that the serum of cholera blood is less alkaline than that of healthy blood;* and Dr. O'Shaughnessy states that it is nearly or entirely deficient in its alkaline ingredients. "Of all the free alkali contained in healthy serum," he says, "not a particle is present in some cholera cases, and barely a trace in others."† M. Lassaigne of Paris, in his chemical examination of choleric blood, found it to contain only a fourteenth of the usual quantity of fibrine.‡

This change in the condition of the blood does not occur however early in the disease. This has been most conclusively shown by Dr. O'Shaughnessy, who availed himself of the second eruption of cholera in London, to repeat his chemical inquiries relative to this disease, on a most extensive scale, and with a view, if possible, to decide the question, whether the alteration of the blood be primary or secondary, and to ascertain what are the conditions of the blood in the several stages of the disease. His investigations show, that—

"1st, in the *premonitory* symptoms, no alteration of the blood exists; 2d, in the cases in which the evacuations are trivial, and *cramps* form the prominent symptoms, the blood is also unaltered; 3d, the alteration of the blood consisting in loss of water and saline matter, only occurs in the collapse cases *preceded* by excessive rice-water evacuations; 4th, this alteration of the blood gradually dis-

* Gaz. Med. III. p. 347.

† Lancet, Dec. 31, 1821.

‡ Traite Pratique, &c. du Cholera-Morbus, par J. Bouillaud, p. 224, note.

appears, or increases in the fever stage, according to the aggravation or amelioration of the symptoms."*

Dr. Clanny also found the quantity of water in the blood scarcely at all diminished in the *incipient* stage of cholera, and Mr. Prater says, that in four cases in which he examined the blood in this stage, that fluid seemed to redden, contract, and to contain the ordinary proportion of water. p. 269. The change in the blood then occurs late in the order of symptoms.

The *respiration* is usually much disturbed and laborious, in some instances so distressing, that it could only be compared to the most violent attacks of asthma.

The air expired by patients who present the external phenomena of asphyxia, contains much less than the usual quantity of carbonic acid, according to Dr. Davy only one-fourth or one-third;† and it would appear from the experiments of Dr. Clanny,‡ MM. Guéneau de Mussey,§ Rayer, and M. Barruel, that the amount is sometimes even less. The last named gentleman says that he has ascertained that during complete collapse no change was effected in the chemical composition of the air respired—it contained no carbonic acid, and not an atom of oxygen had been absorbed.‖

The *secretion of urine* is usually lessened as the disease proceeds, and ultimately, in most instances, becomes entirely suppressed.

We have met with two instances, however, in which the secretion of urine was excessive, amounting to almost complete diabetes. This form, so far as we know, has not been described, it might be termed the diabetic.¶ The secretion from the intestinal mucous membrane is here replaced by an increased action of the kidneys. In neither of the instances in which we have observed this form, was there complete collapse, but the debility caused by the discharge was very great—there was extreme lightness of the head, and giddiness, which was aggravated after each discharge of urine. There was also slight diarrhœa, but not the profuse serous evacuations from the bowels observed in other cases.

The *skin* gradually becomes cold, generally clammy, and sometimes even covered with profuse colliquative sweat. As the disease advances it becomes corrugated on the fingers and toes, and assumes on various parts of the body a bluish, cupreous, and finally, a bronze hue.

The *intellectual faculties* are described by some writers as continuing perfect, in this disease, often even till the last moment; it must not, however, be supposed that they retain their ordinary vigour, and remain wholly unaffected amidst the wreck of the other functions. The mind is dull, though there is no positive *aberration* of intellect; and the patient often exhibits a total indifference to his fate, which is far from natural.

The examination which we have thus completed of the symptoms of cholera, shows that the only phenomena invariably present, are uneasy feelings of some description in the abdomen, with the discharge by vomiting or stool of a thin fluid like rice-water; and that when the disease runs a fatal course, the only symptoms constantly superadded are, alteration in the blood, sinking of the circulation, coldness and blueness of the surface, and lessening or suppression of most of the secretions. In its simplest form then, cholera consists in a dis-

* London Lancet, Aug. 11, 1832, p. 603. † Ed. Med. and Surg. Journal. ‡ Op. Cit. p. 64.
§ Gaz. Med. de Paris, T. III. p. 219, 278. ‖ Archives Generales, April, 1832, p. 605.
¶ Since this was written we have seen a notice of this form of cholera by Dr. O'Shaughnessy.

order of the digestive tube with discharge of a thin rice-water like fluid. Let us now inquire how the phenomena we have indicated as superadded, in fatal cases, result from this primary disorder of the alimentary canal.

The thickening of the blood is at once accounted for by the profuse evacuations into the digestive canal, which chemical analysis has shown to consist principally of water, and as all the secretions are derived from the blood, this fluid thus deprived of its water portion, necessarily becomes thickened.

The alteration of the colour of the blood arises to a certain extent, probably, from its imperfect circulation, since it has been shown by Professor Hassenfratz,* that arterial blood soon acquires the characters of venous, if it be not kept in constant contact with the air, and Mr. Prater says that he is quite satisfied from his own experiments of the correctness of this statement. The main cause of the blackness of the arterial blood would however appear to be an incapacity of reddening by the contact of oxygen arising from the loss of its saline matter and serum. Messrs. Stevens, Rayer, and Prater have found that it never fails to redden immediately on immersion in saline solutions.

The sinking of the circulation arises from two causes. 1st. The choleric evacuations suddenly and largely diminishing the amount of circulatory fluid, must, like profuse hæmorrhages, weaken the action of the heart; and 2d. The thickening and viscidity of the blood caused by the abstraction of its fluid portion must present a mechanical obstacle to its circulation.†

The coldness of the body is a necessary consequence of a suspension of the circulation, and from the same circumstances joined to the black colour of the blood, arises the livid or dark tint of certain portions of the body.

It is a law of the animal economy that the augmentation of one secretion produces a proportional diminution in others—hence the diminution or suppression of the urine and various other secretions is a natural consequence of the excessive discharges from the bowels.

We have now determined the series, relation, and physiological explanation of the essential symptoms of cholera. It is rare, however, for the disease to appear in so simple a form—most usually there is superadded one or more of the following phenomena; burning heat of the epigastrium; excessive thirst and desire for cold drinks; spasms of the voluntary muscles; laboured respiration; exalted sensibility or insensibility of the skin, &c. To justly appreciate morbid phenomena, every disease should be first investigated in its simplest form, it will be therefore proper to postpone the examination of the symptoms just enumerated until we have completed our investigation into the pathology of cholera in its simplest form.

If all derangements of the normal actions were indicated by constant and unequivocal symptoms, and the degree and extent of morbid lesions could be determined by the violence of these symptoms—their physiological explanation

* Annales de Chimie, Tom. IX.

† The debility occasioned by the watery evacuations from the bowels, the thickening of the blood arising from the same cause, and the mechanical obstacle which this condition of the blood offers to its circulation, are especially noticed by Morgagni in his invaluable work on the seats and causes of diseases. His own case, which he denominates a serous diarrhœa, and others of the character to which he alludes, were essentially the disease under consideration. We recommend to the attention of the profession that portion of his thirty-first letter in Book III., which treats of "Fluxes from the belly without blood."

would conduct us at once to a correct pathology. But as the symptoms furnish uncertain information of either the degree or kind of morbid actions, and moreover, as extensive and even fatal lesions frequently occur without any appreciable external manifestations, a pure physiological system of pathology becomes impossible, and we are compelled to resort to other sources to supply the necessary data for a complete pathology; the most important of these are furnished by an examination of the body after death.

The lesions observed on examination of the body after death from cholera, are found to vary according to the stage of the disease at which the patient dies, and their extent are influenced also by the duration of the attack. When the patient is carried off after only a few hours illness, little time has been afforded for *appreciable* disorganizations to be effected, and the morbid changes are of course less striking than in those cases in which the patient has survived for a longer period; but sufficiently manifest morbid alterations are always met with. We shall endeavour to sum up as briefly as possible these lesions, and shall commence with those observed in persons who have died in the period of collapse.

Upon opening the abdomen, the peritoneum is found to be quite dry, and we may remark, that all the serous membranes are in the same condition, and that little or no serum is found in their cavities. Externally the digestive tube is observed to be very much injected, and of a rose or violet tint. The different portions of this canal are also often more or less dilated by their liquid or gaseous contents. Sometimes we find a more or less considerable contraction either of the stomach or intestines. The intestinal parietes in some of their convolutions are commonly a little thickened, nearly as after general peritonitis, and may be said to be slightly infiltrated.* Intussusceptions sometimes occur; M. Gendrin met with them in the ilium in three cases.†

Observers differ in their descriptions of the colour of the mucous membrane of the digestive organs. M. Gendrin says that from the mouth to the anus it is generally of a livid tint, but admits that in a third of the cases evident traces of inflammation are met with;‡ whilst M. Bouillaud asserts that it is almost constantly red, with red points, and arterial and minute capillary injection.§ Mr. Orton says that "the stomach exhibited many extensive patches of a crimson colour, usually confined, in a great measure, to its inner coats. Similar appearances existed in the intestines, most remarkable on their inner surface, but appearing externally in a greater degree than in the stomach; they were much more evident in the small than in the large intestines, and often occupied large portions, or the *whole of the canal.* The degree in which these appearances in both stomach and intestines existed, seemed in general to bear some relation to the duration of the case, for in such as had been of several days continuance they were highly marked."‖ Those who assert that they have always found the mucous membrane pale in cholera, have been unquestionably deceived. It is true that this membrane often appears to be preternaturally pale; but we have found on careful examination that this is usually owing to the whitish, thick, and adherent mucus with which it is covered. When this mucus is removed, we have usually found the membrane injected, and not unfrequently intensely red.

* Bouillaud, op. cit. p. 252. † Monographie du Cholera Morbus Epidemique de Paris, p. 95.
‡ Op. Cit. p. 94. § Op. Cit. p. 254. ‖ An Essay on the Epidemic Cholera of India, 2d edit. p. 41.

The consistence of this membrane is not generally altered, but it is by no means uncommon to meet with it softened, thickened or thinned in places of greater or less extent.* Another very remarkable lesion of this membrane is its putrid or gangrenous disorganization. M. Bouillaud has met with this lesion once in the ileum, and six times in the large intestine.† M. Sandras states that there are often found in the lower part of the small intestines and in the large intestine, plates of a black-red colour, like ecchymoses, sometimes of so dark a tint that the German physicians considered them as more or less decided gangrene—these plates were from a few lines to several feet in extent.‡ Mr. Barry states, also, that he has very often found effusion of blood in patches beneath the mucous membrane of the stomach and bowels;§ and the same was very frequently observed in India, according to Mr. Orton.‖

Dr. Charles T. Jackson, who attended the pathological examinations of Professor Wagner at Vienna, states that "the uvula, tonsils, and pharynx, were covered with granulations, as also the base of the tongue." "These granulations," he adds, "vary in size from that of a pepper-corn to that of a pea, and are probably the mucous follicles altered by inflammation." Mr. Fergus, who attended the dissection of two hundred cholera subjects by Professor Wagner, states that the mucous membrane of the pharynx was often of a deep purple from injection of its vessels. "The mucous membrane," he adds, "seemed always, in acute cases, as if swollen in its whole extent; from place to place it was a bright red from numerous vessels."¶

The mucous membrane of the stomach over its whole circumference presents a multitude of small, white granulations, slightly grayish, presenting a very regular hemispherical projection. These granulations have no regular arrangement, and every where disseminated; they are still more numerous in the duodenum and jejunum than in the stomach. M. Serres says that they are so numerous and developed in the small intestines that the whole mucous membrane seems as if made up by them;** their number decreases towards the large intestines. On dissection these granulations are found to be the follicles of Brunner distended by a white, turbid fluid, and three times their natural size. This development of the follicles of the mucous membrane appears to be constantly met with in the early stages of the disease, even when death occurs within twenty-four hours.

"The isolated follicles, or the glands of Brunner," says M. Bouillaud, "are those particularly which we observe more or less tumefied and developed; nevertheless it is not uncommon to meet at the same time that lesion in the plates of Peyer or the clustered follicles. This hypertrophy, this species of erection of the follicles of the mucous membrane of the digestive tube prevails sometimes through the whole extent of this immense membrane; and this gastro-intestinal eruption, sometimes distinct, at others confluent, imitates to a certain extent the variolous eruption in its first stage. The number of follicles developed, when the eruption is confluent, is truly incalculable. We will only say, that any one who has seen this kind of eruption, will not consider the calculation of M. Lélut, by which the whole number of follicles in the alimentary mucous membrane is estimated at forty-two thousand, to be exaggerated. The

* Bouillaud, op. cit. p. 255. † Op. Cit. p. 255. ‡ P. 37, 38. § Med. Gaz. ix. 321.
‖ Op. Cit. pp. 44, 47, 48, 49. ¶ Lancet, June, 1832. ** Gaz. Med. de Paris, Tom. III. p. 206.

size of these follicles thus tumefied varies from that of a small millet-seed to that of a hemp-seed. Their form is rounded and granular. Many of them have a blackish point at their centre. There are some which do not offer this character, and MM. Serres and Nonat, who have published some researches of great interest on the subject under consideration, think, as is known, that these granulations are not follicles, but *intestinal papillæ* in a state of tumefaction. We have studied with some care this point of pathological anatomy; and we are certain that an immense majority of the granulations with which the mucous membrane is covered, are really enlarged follicles, but we will not affirm that those on the summit of which there is no perceptible black point, and which marks the opening of follicles, are actually the same. The colour of follicular granulations is commonly a grayish-white; at their basis a more or less considerable injection is frequently met with." pp. 256, 257.

Mr. Fergus, to whom we have already referred, states, that in those patients who "had died after a few hours' illness, the glands of the pharynx and back of the mouth, those of the intestines, from the cardia to the anus, were much, but simply, enlarged; those of Brunner were elevated above, and stood clear out from the mucous membrane; those of Peyer were raised about half a line or a line, and their surface was uneven. They were always of a pale colour, and of a uniform texture when cut into; they stood in no relation whatever to those parts of the intestine where congestion had taken place; but they seemed to have some connexion with the production of the thick mucus, because the glands were most developed in those subjects, and in those places where this mucus was most abundant. When the contents of the canal were more fluid, these glands were no longer so distinct."*

Incipient ulcerations are also occasionally met with in the intestinal follicles.

The whole intestinal tube is generally more or less distended with a whitish, turbid fluid similar to that discharged by vomiting and stool, and which fluid is in some degree pathognomonic of cholera. That fluid is to the disease, what the effusion into the pleura is to pleurisy, that into the peritoneum to peritonitis, &c. In the stomach, besides the choleric fluid there is found, usually a very considerable quantity of glairy mucus, more or less adherent to the mucous membrane; sometimes in place of this a layer of creamy matter is found, similar to that hereafter to be noticed as met with in the intestines. M. Bouillaud says that he has several times seen in the stomach a yellowish or greenish bile.

In the *small intestines*, two different kinds of liquid are contained, one the choleric fluid, the other a fluid, sometimes of a dark reddish colour, at others rosaceous, more frequently of the colour of chocolate or of lees of claret, the tint depending upon the greater or less proportion of blood which concurs to the formation of this liquid. It has more or less density, and is less abundant than the choleric fluid. It is not unusual to find both these fluids in the small intestines, in which case the whitish commonly occupies the upper convolutions, whilst the lower are filled with the reddish or sanguinolent fluid. When the intestine is emptied of these fluids, there remains upon the surface of the mucous membrane a layer of whitish, or grayish-white or sometimes yellowish,

* Lancet, June, 1832.

creamy matter, which is easily removed by a stream of water. Gas, lumbrici, a greater or less quantity of yellowish or greenish matter resembling bile are also met with.

The *large intestines* contain also the two fluids found in the small ones; these fluids are, however, thicker and more turbid than in the former. M. Bouillaud says that both these fluids are sometimes found in the large intestines of persons in whose small intestines there is only the whitish liquid, but that the reverse does not occur, and that whenever the small intestines contain a reddish fluid, we are almost certain to find the same in the large intestines. The layer of creamy matter is thinner in the large than in the small intestines. In some cases a fluid resembling puriform mucus is met with. Gas and lumbrici are more frequently found in the large than in the small intestines, but bile is scarcely ever seen in the former.

The *liver, spleen, pancreas, mesenteric ganglions, kidneys and bladder*, present no lesion, except where the disease is complicated with some other; these organs are, however, more injected, and rather of a more violet hue than in their normal state. The gall-bladder is filled with a viscid bile differing little from that usually found in it. The liver is generally injected with blackish, tolerably fluid blood; it is not, however, augmented in size. The ramifications of the vena porta are gorged with black, viscid blood.*

The *spleen* is usually small and not congested.

The *kidneys* are most commonly injected with black blood, but unaltered in their tissue; the pelvis and ureters are empty; we remark only on their parietes a creamy, viscid matter, which also flows from their tubuli uriniferi on pressure.†

The *urinary bladder* is almost constantly empty, and firmly contracted under the pubis. Its mucous membrane is covered with the same creamy matter found in the intestines and kidneys.

The *heart, arteries* and *veins*, except in cases of complication, offer no notable lesion of structure. The arteries are nearly empty; in the larger ones, and in places only, a dark, viscid, imperfectly coagulated blood, precisely similar to that found in the veins, is met with. The venous system contains a blackish, viscid, semi-coagulated blood, somewhat resembling blackberry jelly. The nearer the vessels are to the heart the greater is the quantity of this black blood which they contain; it is especially considerable in the superior vena cava, the subclavians, the internal jugular, and the vena azygos. The heart, especially its right cavities, are generally gorged with blood similar to that found in the veins. Its proper veins are exceedingly distended with the same kind of blood.

The *lungs* are often flaccid and collapsed, frequently emphysematous, sometimes engorged in the posterior portion of their tissue; in these last cases M. Gendrin says that the bronchial mucous membrane is of a deep livid red.‡ In one case M. Bouillaud found on its surface a creamy layer analogous to that which covers the intestinal and vesical mucous membrane.

The *cerebro-spinal nervous system*, except in cases of complication, presents little or no appreciable lesion. The membranes of the brain and spinal marrow are healthy; their veins are injected with black, viscid blood. The pia mater at the posterior portion of the cerebral hemispheres, upon their convex surface

* Gendrin, p. 96. † P. 96. ‡ P. 90.

and upon the cerebellum, presents several patches of true ecchymoses and well-marked sanguineous infiltration.*

The substance of the brain and spinal marrow preserves its normal consistence and texture; the medullary portion is slightly dotted with numerous minute drops of black blood. The nerves which go off from the brain, medulla oblongata and spinal marrow, present no alteration at their origin. M. Bouillaud says that he has recently dissected the nerves of the lower extremities, in a patient who had experienced violent cramps, and that he found them in a state of the most perfect integrity.†

The phenomena of cholera appearing to indicate a suspension of function in the *ganglionary nervous system*, many careful investigations have been instituted for the purpose of determining the condition of this system after death. M. Delpech asserts that he found in his examinations, evident traces in the semilunar ganglions, of the physiological alterations they had experienced; that they were often enlarged, red, more or less injected, and sometimes remarkably softened, and that the blood with which they were injected was red, whilst the blood in the capillary system over all the rest of the body was black. The solar plexus, he says further, was always in a more or less abnormal condition, but always recognisable by the size of the nerves which compose them, often by the red injection of their neurilema and sometimes even by the softening of the nerves which form them, so that they break under the slightest effort, or even the least pressure.‡ The researches of Mr. Lizars, of Edinburgh, and M. Halma-Gand, appear to sustain this statement; but the investigations of MM. Gendrin, Bouillaud, Louis, Andral, and indeed of all the Parisian pathologists are entirely opposed to it.

M. Bouillaud says that the important part which the semilunar ganglion and the plexuses which originate from it, are made to perform in cholera, induced him to attentively examine these parts in almost all the cholerics who died in his hospital practice, and he declares that the ganglionic nervous system did not in a single case present any lesions of structure. In some cases, the ganglions and the plexuses had preserved their normal white or grayish-white tint. But most frequently he observes—

"The semilunar and cervical ganglions, like many other organs, were of a rose or violet tint, with or without manifest injection; this slight lesion of colour was more evident on the exterior than in the interior of the ganglions." p. 267.

M. Gendrin found the semilunar ganglions and all the ganglions and nervous plexuses perfectly healthy.

"Their tissue has," he says, "its natural colour and density, if we take care to dissect these so as to prevent the sanguineous imbibition which results from the effusion of blood from the veins which are necessarily divided in the examination. It is however observed, that the nervous ganglions in the bodies of choleric subjects, often present a reddish tint which is often found after many diseases, and constantly in asphyxia." p. 97.

The *exterior habitude* furnishes some phenomena worthy of notice. The body is usually exceedingly rigid, and the muscles often contracted and prominent. A very remarkable phenomenon, noticed by all writers, is the spasmodic con-

* Gendrin, p. 97. † P. 266. ‡ Pp. 197, 198.

traction of the muscles, some time after death, causing movements of the limbs, and contortions of the features. Another equally singular is, that some hours after death, the body, which had previously resisted external heat, often becomes less cold than it was at the last moment of life, and is said sometimes even to have a *general warmth* diffused over it, although removed to an apartment below 50°; in one case Mr. Harwich says, that under these circumstances the temperature of the body two hours after apparent death was 105° Fah.*

Such are the principal anatomical phenomena observed in subjects who have died during the stage of collapse or asphyxia; but when death occurs in the period of reäction, very different lesions are met with on dissection. We no longer find in the digestive canal the white fluid; in its place we meet with a yellowish, semifluid substance, having the odour of fæcal matter. The granular eruption of the mucous membrane of the digestive tube is less prominent, and is found less constantly. We sometimes observe, however, incipient ulceration of the follicles. The mucous membrane is exceedingly red, and presents unequivocal marks of inflammation. The stomach is often contracted, almost empty, containing only a little mucus or bile, presenting numerous rugæ on its internal surface, and the membrane thus wrinkled, presents a diffused, bright, arterial redness, as well as a capilliform injection and red points. The same redness also occurs in various parts of the intestinal mucous membrane.

"When the patient died some time after the cholera had ceased," the intestinal glands were found in a different state, Mr. Fergus remarks, from that observed in persons who died previous to reäction. "The glands were no longer so much raised above the surrounding membrane: they were more flattened down; the separate glands had a small black spot on their apex, and often contained a thin white fluid, something like pus. The aggregate ones were quite dotted with black points, some as large as a pin's head; the mucous membrane was much swollen, and the congested parts were of a darker hue. The glands of the pharynx at this time contained pus when cut into, and they often had a ragged appearance, as if from the commencement of ulceration. The period at which these appearances were seen, varied very much. At a still later period, when the patient died after very strong typhoid symptoms, the mucous membrane of the stomach and bowels was covered over with a tenacious semitransparent mucus, about one line deep. It was often itself so softened as to form but one substance with it, and on attempting to remove the mucus from the membrane with the back of the scalpel, the membrane was so softened as to come away with it and leave the cellular coat bare. At this time it was difficult to find a trace of the glands. In those places where the mucous coat was of a firmer consistence, it was often of a bright red colour, from patches of injected capillaries, which were quite straight, about a line long, and could not be traced into the submucous coat; they looked like injected villi. The whole mucous surface had a green black colour, caused by the deeply injected cellular coat shining through it. This last was seen of the darkest crimson when the mucous coat was removed. This softened state of the mucous, and strong injection of the cellular coats, seemed to stand in a fixed connexion with the typhoid symptoms."†

* London Lancet, March 31st, 1832.

† Lancet, June, 1832.

The bladder, instead of being empty and contracted, is usually distended with urine, and we no longer meet, either in the bladder or kidneys, any of the creamy matter found in them during the stage of asphyxia.

The nervous centres and their membranes now exhibit constant and often serious lesions. Their membranes are gorged with blood and serum. The pia mater is so infiltrated with serum, that it raises up the arachnoid, and gives to the surface of the brain a gelatinous appearance. Thus infiltrated with serum, this membranous net-work is much thicker than in its normal state. The ventricles are distended by a limpid, slightly viscous serum, and the plexus and tela choroidea are gorged with it, and at the same time injected like the pia mater. The cerebral substance is injected; presents more red spots than in the algid period, and in some subjects it is less firm than in its normal state.

In some cases the spinal marrow is slightly softened.

The blue or livid colour of the body has nearly or entirely disappeared.

If we institute the same mode of investigation into the post mortem appearances in cholera, that we have pursued in relation to the symptoms, we shall find that the only lesions invariably met with in those who die in the stage of collapse, are an enlargement of the glands of the digestive tube, with the occurrence of rice-water-like fluid in this canal, and a thickening, viscidity and dark colour of the blood.

The rigorous analysis of the symptoms during life, and of the derangements met with after death, concur thus in pointing out as the lesion of the organism constituting cholera—as the constant disorder, that which is never wanting in this disease—an effusion upon the inner surface of the intestinal tube of a serous fluid, which is afterwards rejected by vomiting or purging; and that this secretion is dependent upon an alteration equally constant, at least in its early stage, which alteration consists in the development of the secretory follicles disseminated over the digestive tube.

The exaggerated secretion of the intestinal follicles must have been necessarily preceded by an active afflux towards these follicles, and it must also be necessarily accompanied by that state of turgescence of the secretory organs accompanying all augmented secretions—an active state to which Bordeu has called the attention of physicians, and of which post mortem examinations have always shown the traces when death has not occurred too late.

This fluxion towards the follicles of the digestive tube is among the earliest effects of the cause, whatever it may be, productive of cholera, and is manifestly the result of the well-known law, *ubi irritatio, ibi affluxus.* Starting from this orgasm of the follicles alluded to, we have little difficulty in showing how the phenomena of cholera follow as natural results.

These follicles gradually increase in size under the influence of this active fluxion to them, their secretions are augmented, and thus is produced the serous diarrhœa which constitutes the initiatory stage of cholera. As soon as the secretion is increased in the whole digestive tube, to a sufficient extent to quickly subtract from the blood a large portion of its elements, the choleric symptoms appear. Previous to this, the loss which the blood suffers is slight, the circulation repairs it continually, and this loss could not suffice to alter this fluid, rapidly and so as to be immediately irreparable. Thus, the intensity of the general symptoms is, *cæteris paribus*, in proportion to the *suddenness* of the se-

rous secretions. A person in whom these secretions occurred slowly, would suffer less at the end of three or four days, although he may have lost a large quantity of serum, than another would be at the termination of an hour, in whom the deperdition would have taken place suddenly, even though he had lost less serum. For the same reason the disease becomes very speedily fatal in those who have scarcely any discharge by vomiting or stool, but whose alimentary tube is suddenly filled by the product of the secretion, and this especially in persons whose vital powers are enfeebled by previous disease, irregular habits, &c.

Debility, coldness of the extremities, feebleness of the pulse, oppressed respiration, and syncope, are the immediate results of all sudden losses of blood; it is quite intelligible then how they occur in a disease in which the blood is suddenly deprived of some of its elements;* they also occur in excessive serous diarrhœas, and in ordinary cholera.

The blood deprived of its water by the profuse secretions into the bowels, becomes thickened; and in proportion as it is rendered thick and viscid, and the propulsive power of the heart is enfeebled by the excessive choleric secretions, will the circulation be diminished. The diminution of the circulation through the lungs causes derangement of respiration—the blood deprived of its saline matters by the secretions in the bowels, the oxygen of the air cannot effect in it those changes which this agent ordinarily produces upon it in the lungs;† the proper changes of the blood in the lungs being thus imperfectly and ultimately not at all effected, the portion of this fluid, which reaches the left side of the heart, is similar to that sent to the lungs by the right side of that organ. The suspension of the general circulation, and the dark colour of the blood produces a blueness or bronze colour in those parts, in which the thinness of the skin permits the colour of the blood to be partially seen—as occurs in asphyxia. The circulation being suspended, animal heat can no longer be generated, and hence the body becomes cold. The lessening of the mass of fluids by the choleric evacuation, causes the shrivelling of the fingers and toes, as is observed in some profuse hæmorrhages; our esteemed friend, Professor Dewees, notices it as occurring in uterine hæmorrhage. Thus are the phenomena of collapse produced.

In some cases the profuse secretions from the bowels are arrested, or diminished, either spontaneously, or from the effect of remedies. So long as the profuse secretions from the bowels continued, it was impossible for the absorbents to repair the loss which the blood sustained—these evacuations being arrested, the blood is then thinned by the water taken up by the absorbents, becomes fitted for circulation in the vessels—and the addition of saline matters derived from the same source restores to that fluid its capacity to undergo the proper vital alterations in the lungs. We have thus produced reaction. The immediate result of this reäction is to repair the disorders occasioned by the intestinal secretions. The excessive secretory action of the gastro-

* Gendrin, p. 136.

† The experiments of M. Rayer and others, show that the presence of salts in the serum is necessary for the blood to be oxygenable, and consequently that the chemical phenomena of respiration may be effected.

intestinal mucous membrane ceasing, the other secretions as those of urine, of bile, &c. are reëstablished.

The difficulty to the establishment of reäction is proportional to the alteration which the blood has undergone, and the evils which follow this reäction result, at least in great measure, from this change in the blood. The brain here suffers more than any other organs, except the digestive, because the venous circulation is carried on in it by a peculiar apparatus, which renders the progression of the blood slower and more difficult, and which thus easily leads to congestions. This congestion persists notwithstanding the reäction, if the viscid and semi-coagulated blood of the sinus presents an obstacle to the rëestablishment of the cerebral circulation. Congestion is reproduced in the reäction, probably because while there is an augmentation of the activity of the arterial impulsion in the brain, the circulation through the sinuses is still retarded.

Such is the anatomical history of the essential lesions in cholera. It now remains for us to explain certain symptoms and lesions, which, although not essential to the disease, are nevertheless of very frequent occurrence.

The principal seat of the disease, as has been conclusively shown, is the gastro-intestinal mucous membrane. In this membrane four functions are performed; viz. 1st, secretion on its free surface, (by the glands of Peyer and Brunner, and probably by its villi;) 2d, nutrition, (interstitial deposition and removal;) 3d, innervation; and 4th, absorption from its free surface. The essential lesion in cholera we have found to be that of the secretory function, productive of an increase in secretion and an alteration in the fluid secreted. It is rare however for any function of this membrane to be seriously impaired, without the others being involved to a greater or less extent in the derangement. We have therefore, usually in cholera, derangement of the nutritive function, producing the phenomena of inflammation with its results—failure of the digestive powers; redness and injection of the blood-vessels; effusion of serum, coagulable lymph or blood; thickening, softening, &c.

The function of innervation is also frequently deranged. This is shown by the intense heat in the epigastrium, urgent thirst, &c. When the irritation is sufficiently intense to be transmitted to the cerebro-spinal system, we have spasms of various muscles. That these spasms are the effect of an irritation of the expansions of the ganglionic nerves upon the digestive mucous membrane, transmitted to the nervous centre of relation, no doubt can exist. Muscular contraction requires nervous stimulation for its accomplishment; and examples of spasms produced by irritation of the alimentary mucous membranes, are furnished in convulsions so frequently caused by the presence of worms or indigestible matters, or of irritating poisons in the intestines. The absence of appreciable lesions in the spinal marrow affords no refutation of this. Functional lesions of the most serious character often exist without any *manifest* changes of structure being discoverable after death. Spasms are as strong evidence of the existence of an irritation transmitted to the cerebro-spinal system, as are the most marked alterations in structure. The first is the physiological proof, and is obtained during life; the last is the pathological evidence, and can only be procured after death.

We have no indication of any derangement in cholera of the function of absorption. This function is probably performed throughout the disease. So long as the watery secretions into the bowels are slight, it repairs the losses sustained by the blood; when the evacuations are profuse, it is no longer com-

petent to this, and the secondary effects resulting from the change in the state of the blood ensue. When the secretions abate, or are arrested, which frequently occurs, often even in perfect collapse, the absorbents slowly supply to the blood the materials it has lost—the watery fluid it supplies, renders the blood more fluid, and fit for circulation—the saline matters it supplies, restores to the blood its capacity for undergoing oxygenation. The mode in which reäction is effected, has not hitherto been explained. We have ventured to attribute it to the supply of water and saline matters to the blood, furnished by the absorbents, and we do not hesitate to believe it to be the true one. We can produce the same effect by injecting saline solutions into the veins. The functions, it is known, do not all cease together, the organs die in succession. The function of absorption is among the last to die; it often continues hours after the external phenomena of life have ceased. In one specimen of blood taken from a cholera subject some time *after* death, M. Lassaigne found nearly the same quantity of serum that is contained in healthy blood.* Mr. Prater says that sometimes in cholera, the circulation begins after the respiration has ceased, the person being apparently dead. A remarkable case of this kind, he adds, occurred at New Castle.† The increase of temperature after death is owing to the same cause; it is an attempt at reaction. We may here remark that the muscular contractions after death are to be explained on the same principle. Vitality remains in the nervous system, producing muscular contraction after the respiratory and circulatory organs have ceased to perform their functions.

We have considered the choleric fluid to be the product of an exaggerated secretory action, and not a simple leakage from the vessels, and the correctness of this view is fully sustained by the character of the choleric fluid. If this fluid were the result of a mere leakage from the vessels, it would consist of the fluid portion of the blood unaltered; now this is not the case. All the analyses show that it contains an excess of saline materials; and the analyses of Dr. Christie and Dr. O'Shaughnessy show that it contains *fibrine;* and it has been equally found that the blood is deficient in these matters. The choleric fluid is then an elaborated one, and must be the product of a secretory action; whilst the presence of fibrine equally proves that that action is an active or inflammatory one—the effusion of fibrine being the strongest possible evidence of such an action.

Further evidence of the correctness of these views is furnished by the effects of agents, whose mode of action is acknowledged to be that of irritants when applied to the mucous membrane. Thus an over-dose of most of the drastic purgatives, and several of the acrid poisons produce effects strikingly analogous to the phenomena of cholera. Mr. Christie states that one of his servants took an over-dose of croton tiglium, which occasioned hypercatharsis, with mucous and serous evacuations; his pulse became scarcely perceptible at the wrist; his extremities cold; his features contracted—and all the symptoms so strikingly resembled cholera, that Dr. Christie supposed him to be labouring under that disease, until the case was explained.‡ Dr. Christie produced all the symptoms of cholera in dogs by introducing tartar emetic into their stomachs; and we have seen similar effects in the human species from an over-dose of the same article. Elaterium, scammony, hellebore, and other articles of the same class in excessive doses, often occasion a similar train of symptoms.

* Bouillaud. Traite Pratique, &c. p. 224, note.

† Experimental Inquiries in Chemical Physiology, p. 249.

‡ Op. Cit. p. 14.

It is well known that the symptoms of poisioning by arsenic and other *acrid* poisons, so closely resemble those of cholera, that it is often extremely difficult, and sometimes even impossible to distinguish them. This close resemblance is pointed out in all the works on medical jurisprudence, and has been particularly noticed by Christison, one of the most authoritative writers on the subject.*

In fact, we have from the action of this class of poisons, vomiting and purging, of a fluid similar to that discharged in cholera; spasms; darkness and coldness of the skin; feeble pulse; suppression of urine; and other secretions, &c.†

Finally, a confirmation of the correctness of our views is furnished by the class of persons most obnoxious to cholera. Thus we find it is individuals whose gastro-intestinal mucous membrane is in a state of excitement, or irritation, from the excessive use of spirituous drinks, from the ingestion of indigestible food, &c. who are the most frequent subjects of cholera. In such persons also the course of the disease is rapid, the primary stages are scarcely observed. The reason of all this is evident. The first effect of the choleric poison is to irritate the digestive mucous membrane, and to establish a fluxion to it. Spirituous liquors, indigestible food, produce the same effect—their action is in the same line then with the agent producing cholera. Drunkards, those who employ indigestible aliment, then, have their gastro-intestinal mucous membrane in a state of irritation—they are in fact in a condition nearly identical with the first stage of cholera—such persons are known indeed to have habitual diarrhœa. Irritation of the digestive mucous membrane, with its consequences, an afflux of blood to the part being established, in such persons, on the addition of the influence of the poison of cholera, increased secretion is at once induced, and the phenomena of the second and third stages of the disease promptly appear. That the disease should be generally fatal in the class of persons under notice, is not surprising; they usually fall victims to any disease with which they may be attacked.

The analysis of the symptoms and of the post mortem appearances—the effects of agents on the alimentary mucous membrane, whose action is known to be irritating—and various facts in the history of the disease, all tend to prove that cholera is an irritation of the gastro-intestinal mucous membrane, always directed to the secretory apparatus of this tissue and often involving the functions of nutrition and innervation of the same tissue.

The varieties which are observed in this disease, arise from the degree in which these several functions are deranged, and to the portions of the alimentary mucous membrane, in which the irritation predominates. The degree in which the functions of nutrition and innervation are involved, appears in a considerable degree to be dependent on temperament. Thus it is observed that in persons of sanguineous temperament, the manifestations of inflammation, whilst in those of nervous temperament, those of lesion of innervation, as spasms, predominate.

The peculiar fatality of this form of gastro-intestinal irritation depends upon the extent of that irritation, usually from the pharynx to the anus; and to nearly all the functions of the tissue being involved—secretion, nutrition and innervation.

Such is the outline of what appears to us to be the true pathology of cholera. It will be found, if we do not deceive ourselves, to be in entire accordance with all the facts that have been observed, to leave none of the phenomena of the disease unaccounted for—and to lead moreover to the only mode of treatment that can boast of any success.

* A Treatise on Poisons, &c. 2d ed. p. 406. † See Christison, Op. Cit. pp. 273, 274, 275.

Report Embracing a View of the Principal facts connected with the prevalence of Malignant Cholera in Philadelphia in 1832, *made to the Consulting Medical Board.* By S. Jackson, M. D. Secretary to the Consulting Medical Board.

The regular westward progress of the great epidemic, known under the designation of the cholera, left but little doubt that its visitation would be extended to this continent. It became a subject of mingled curiosity and anxiety to watch the period of its arrival, and the point of its invasion.

In this state of uncertainty, intelligence arrived that the disease had appeared at Quebec on the 8th, and at Montreal on the 10th June, in both which cities it immediately assumed the character of a most destructive pestilence.

From the numbers of emigrants, who, about this period, had landed at Quebec, and arrived at Montreal from England and Ireland, a first impression was created, that they had been the means of transmitting the epidemic across the Atlantic. A more close investigation into the facts connected with the commencement of the disease in those cities, served to destroy this supposition. It could not be traced to importation. The emigrants and lower classes of the Canadians were attacked simultaneously in both cities. Numbers of the emigrants were in circumstances eminently predisposing them to suffer attacks of disease, and they and the lower Canadians were precisely the description of persons most obnoxious to the ravages of epidemic cholera, and such as have been universally observed to be its first victims.

The lines of communication between the cities of Quebec and Montreal, and the cities of the United States, are by the Richelieu river, Lake Champlain, and the northern canal leading to Troy and Albany; or by the St. Lawrence to Lake Ontario, to Buffalo, and by the Erie canal leading to Rochester and Albany. It was confidently expected that the disease would penetrate into the United States from Canada by these routes. Along the first, many cases of the disease did certainly occur in the persons of emigrants, but they terminated without its communication to others. On the contrary, the epidemic manifested a decided predilection for the shores of the St. Lawrence, successively attacking the towns and villages along its banks, then following the borders of Lake Ontario, until it entered Lake Erie.

While attention was directed to the northern and western boundary, supposed to be threatened by the invasion of the disease, it suddenly and most unexpectedly appeared in the city of New York.

The first case occurred, it is said, on the 24th June, when a man, a native citizen, residing at the corner of Gold and Frankfort streets, was attacked by the disease. Four cases soon succeeded, the location of which was in Cherry street. The subjects were Irish emigrants, who had arrived at Quebec in the autumn of 1831, and had resided in Albany until the month of May, when they removed to New York.

On the 27th June, the disease manifested itself in Bellevue Alms-house, distant about three miles from the city. The patient was an aged woman who had not left the house for three years, who had held no communication with the

city, and no admission into the ward she occupied, had taken place for a month. Several cases immediately ensued in this and the other wards of the house. The epidemic reached its maximum in this establishment on the 11th July, and terminated on the 4th August.

In the city of New York, the climax of the epidemic arrived on the 21st of July, from which period it continued very steadily to decline.

The time that elapsed from the out-breaking of the epidemic at Quebec, and its appearance at New York, is a period of sixteen days, or nineteen at Bellevue Alms-house. The distance between the two cities in a direct line, is four-hundred and fifty miles.

It is to be remarked, that all the intermediate cities on the sea-board of the province of New Brunswick and Nova Scotia; of the states of Maine, Massachusetts, and Rhode Island, remained entirely exempt from the epidemic; and even to the present period, except in Providence, Newport, and Boston, no cases have as yet appeared.

In this city, the epidemic was much more tardy in its progress than it had been in the Canadas, or in New York. The first decided case of cholera occurred on Thursday, July 5th. A man of the name of Musgrove, residing in the cellar of a house in Filbert street, near Schuylkill Fifth street, was attacked with symptoms of malignant cholera on that day. This man had but lately been discharged from the New Jersey prison; he had been affected with a diarrhœa for two or three weeks previous to the cholera symptoms. The disease proved fatal on Sunday the 8th. The next case was a black man residing in St. John's street, Northern Liberties, above Callowhill. He had been employed working on board a ship from England, lying at Pratt's wharf. He was seized with symptoms of malignant cholera the night of Tuesday, July 9th, and died on Friday. This man was perfectly sober in habits; no premonitory symptoms existed.

No other cases presented themselves until Sunday, July 14th, when two females occupying a room in a dwelling in Coates' street, a few doors above 3d, were the victims of the pestilence in its most aggravated shape. Both these females were exemplary in their habits of life, but appeared to be infirm in health. The husband of one of these unfortunates had arrived on Saturday, July 7th, from New York, exceedingly alarmed respecting the cholera. He was taken sick the next day, and died on the succeeding Friday. On Saturday the widow felt unwell, and without advice took grains xvi. of calomel in the evening. She was soon after seized with vomiting and purging, and in the course of the night she sunk into collapse. She died Sunday night. The mother of the deceased husband, on Sunday morning complained of feeling unwell, but without definite symptoms. Having been up with her daughter-in-law during the night, her uncomfortable feeling was attributed to fatigue. She was then going about the house, and had been out on an errand. She was requested to lie down as a matter of precaution, and a small dose of opium administered to her. This was at 8 o'clock in the morning. Dr. Schott who was in attendance, an hour afterwards, went up to her chamber to inquire into her state. He found her lying on the floor; copious dejections of rice-water looking fluid had occurred, and she was in complete collapse: death ensued in the evening. These were the only cases to which the slightest suspicion of communication

by contagion could attach; but on the same day a French woman, temperate in habits, about fifty years of age, living in Kensington, beyond the close built part of the town, at the head of West street, was also a victim of the disease. This woman had not been from her dwelling for three weeks, the house is isolated, being surrounded by kitchen-gardens for the supply of the markets. She had been affected with diarrhœa since Friday, for which she had dieted, but had taken no medicine: the case proved fatal next day.

From this time, not more than three or four cases occurred, all scattered in different quarters, particularly Kensington, Northern Liberties, and Southwark, until the 27th and 28th July, when the epidemic fairly set in, and cases continued daily to be developed. The disease attained its height in this city on 5th, 6th, and 7th of August, since which time it has gradually declined, and appears now to be extinct.

Taking the 27th or 28th of July as the proper commencement of the epidemic in Philadelphia, there will be a period of twenty-four or twenty-five days intervening between its first appearance in New York, and in this city. The distance in a direct line is about ninety miles.

A comparative view of the population, number of cases and deaths in the cities, which have been brought under observation, presents the epidemic in an interesting point, and exhibits in a clear manner the character it assumed in this city.

Date of report and place.	Population.	Cases.	Deaths.	Ratio of cases to population.	Ratio of deaths to cases.	Ratio of deaths to population.
Sept. 30, Quebec -	32,000*	5783	3292‖	1 in 5 1-7	1 in 2½	1 in 10½
1, Montreal	28,000†	4385	1853	1 in 6½	1 in 2½	1 in 15 1-9
Aug. 22, New York	140,000‡	5547	2782§	1 in 25⅓	1 in 2	1 in 15½
Sept. 13, Philadelphia	160,000¶	2314	935	1 in 70	1 in 2½	1 in 173 29-183

The results of this table show conclusively, that the causes productive of cholera were less numerous in the city of Philadelphia than in Quebec, Montreal, or New York, or were so modified as to possess a much less degree of activity. The causes of this result so favourable to Philadelphia, important in the hygienic history of cholera, and consoling to humanity, as placing this formidable affection, to so great an extent under controul, it is interesting to investigate.

The following are the circumstances which, existing more particularly in Philadelphia, may be regarded as influential in ameliorating the violence of the epidemic cause, circumscribing its activity, and diminishing its fatality.

1. The plan on which the city is built, arranged in hollow squares, separated by wide and paved streets, prevents excessive crowding of inhabitants, procures free ventilation, and gives facility to the means of cleanliness. It is to be

* Permanent population, 27,000; Transient population, 5,000.—Total, 32,000.

† Permanent population, 25,000; Transient population, 3,000.—Total, 28,000.

‡ Estimated as remaining by Mr. D. Leslie.—*Journal of Commerce, August 8th.*

‖ Protestant grounds, 1244; Catholic Cathedral, and cholera grounds, to 25th September, 1574; At St. Roch, 470.—Total, 3292.

§ Report of the Inspector.

¶ Population within the bill of mortality.

regretted that any deviation has been permitted in the original design of Penn, whose sagacity, and foresight, have been so amply demonstrated in the circumstances of the late epidemic.

2. The abundant supply of wholesome water placed at the command of the whole community, affords a healthful beverage, and gives the means of the most complete cleanliness, by washing the dirty gutters of the streets, close alleys and lanes.

3. The well arranged measures of sanitary police, devised and actively carried into effect by the councils of the city and the boards of commissioners of the district, and the sanitary committees appointed by them, and by the Board of Health. These measures consisted in a thorough investigation into all existing nuisances, and in their immediate abatement; in a complete system of cleanliness of the city steadily pursued; in the early establishment of numerous local hospitals, provided with ample medical attendance, nurses, and every means applicable to the treatment of the disease; and in spreading before the public early information, derived from the consulting medical committees, of the methods, hygienic, dietetic, and medicinal, best adapted for guarding against the attack of the disease, or to arrest the symptoms on its onset.

4. A very considerable influence may be attributed to the annunciation made by the mission sent to Canada, immediately on its return, and before the epidemic had commenced its career in this city, of the different periods of the disease, and especially of the existence, in almost every instance, of premonitory signs, and a preliminary stage, with a description of the symptoms indicating its existence. This information was communicated to the public by the sanitary committee through the daily journals of the city, by handbills liberally distributed, and by placards on the corners of the streets. The Board of Health adopted the same measures, and pursued the same course. In this manner the whole community, before the beginning of the epidemic, were instructed in the most important points in the general knowledge and management of this affection—its commencing period, the premonitory symptoms, its general curability in that state, the necessity of immediate attention and medical advice, and the methods of relief. These facts had been overlooked, and this attention to the instruction of the public, were entirely neglected in Quebec, and Montreal, and in New York, from being taken unprepared by the epidemic, earlier than was anticipated, they were not communicated to the public until the measure had been adopted in this city, and when the epidemic there had already attained its maximum of intensity.

5. The moral resolution, calmness and perfect freedom from alarm and panic, generally manifested by our citizens, and inspired by a thorough confidence in the efficacy of the preventive means enforced, in the advantages for salubrity of the city, and in its medical resources, contributed in no small degree to diminish the number of cases, and the intensity of the attacks. No stores were closed on account of the epidemic, and not more citizens left the city than usually abandon it every summer. A stranger entering our streets, from the busy throng and cheerful aspect of all he met, would never have suspected the existence of an unusual and a desolating scourge.

6. The treatment of the disease generally pursued in the city, in the preliminary stage, had most probably no small share in preventing the development

of the disease in innumerable instances. In the lighter forms, it was limited chiefly to diet, rest, tranquillizing doses of anodynes, or mild diffusibles, with occasionally the mildest laxatives or gentle cathartics, conjoined with sinapisms or other rubefacients. The drastic and purturbating cathartics, were seldom, if at all prescribed, and the stimulant practice but rarely resorted to.

The foregoing circumstances appear to us as those principally instrumental in producing the favourable results attending the epidemic in this city. As such, they acquire a high degree of interest, and afford most instructive lessons as regards the measures of municipal and civil regulation connected with sanitary police.

In its general features and character the disease differed in no respect from the many descriptions that have been made since it first attracted attention in Asia, and subsequently in its progress through Europe. It will be unnecessary to make the repetition here; it is, however, important that the fact should be signalized, that during the prevalence of the epidemic, very few persons in the city were entirely exempt from some derangement or disorder of the digestive functions. It is not probably exaggeration to assert, that two-thirds of the population were affected in this manner, which is to be attributed entirely to the epidemic influence. It should also be stated, that in the majority of cases which assumed the decided character of malignant cholera, preliminary symptoms had existed, varying in duration from a few hours to several days. In those rarer instances which were not preceded by any premonitory signs, the subjects were the aged, the intemperate, individuals who had committed some great imprudence in diet, or whose constitutions had been enfeebled, and such cases were, generally, if not universally, fatal.

The disease was not confined to any one portion of the city, but extended to every district. Neither did it progress gradually from one quarter of the town where it first appeared to others, but broke out almost simultaneously in the most opposite and distant points.

The following table exhibits the number of cases that were reported from the different districts, with the ratio to the population.

	Population.	Cases.	Ratio of cases to population.
City - - -	80,458	407	1 in 197 7-8
Kensington -	13,320	111	1 in 120
Northern Liberties	28,932	144	1 in 200 11-12
Penn Township -	11,141	55	1 in 202 3-7
Southwark -	20,740	251	1 in 82 4-28
Moyamensing -	6,822	198	1 in 39 5-11

From the above table it appears that the epidemic prevailed with greatest severity in Moyamensing and Southwark. This is to be attributed to the character of the population, rather than to local causes. In both those districts reside the worst portion of our population, and in Moyamensing, especially, there is a dense population, some of whom are of the lowest order and most abandoned habits.

In the city, though the cases as occurring in different parts, were not kept distinct in the reports, yet it is well known that the larger proportion of them took place in the external limits, especially the western borders, towards the

Schuylkill, and the southern extremity, while a very small number only were developed in the central portion.

The chief mortality of the disease existed in the public institutions. It was much lighter in private practice. The following table exhibits the cases and deaths as reported in private practice and the public institutions. The reports, however, do not exhibit the results of private practice in as favourable a light as they really were. A considerable number of physicians in the more respectable practice, reported only the cases that proved fatal or exceedingly severe. They did not return to the Board of Health the lighter cases, which yielded to the operation of remedial measures. The mortality of private practice in the reports, appears, in consequence, to have been far greater than it really was.

Table of Cases and Deaths with the Ratio as occurring in Private Practice, and the Public Institutions.

	Cases.	Deaths.	Ratio of deaths to cases.
Private practice - -	1175	270	1 to 4 3-16
Hospitals - - -	874	342	1 to 2 5-9
Alms-House - -	174	92	1 to 1 41-46
Arch Street Prison -	86	46	1 to 1 20-23

Had the returns of cases in private practice been complete, the proportion of cases would have been much greater. It would have ranged probably as 1 to 70 or 80, or even more.

In the hospital practice, the first cases introduced were nearly all fatal. This circumstance is to be accounted for from the universal observation wherever cholera has prevailed epidemically, that the worst constitutions were the first to suffer attacks. In the commencement of the epidemic, persons first attacked, unaware of their danger and the nature of the affection, neglect application for aid, and resist the offer of hospital assistance until reduced to a hopeless condition. Besides, misled by the authority of the English and Scotch writers, extensive means had been prepared for warming the patients by heated air, steam, and other means. Experience in a short time proved the pernicious effects of this system. The patients succumbed most rapidly under the exhaustion induced by the profuse watery exhalation from the skin caused by this treatment.

The disease first appeared in the Alms-house, July 29th; it reached its period of greatest activity the 8th and 9th of August, gradually declined, and terminated on the 25th of August.

In the Arch street prison are confined vagrants, disorderly persons, criminals guilty of petty larceny, most of them the victims of low and brutal debauchery, and a limited number of debtors.

The disease manifested itself on the 31st of July. Cases continued to occur daily, but on the 5th of August the number of cases and deaths suddenly augmented, producing a scene of almost unexampled desolation. In the same room were mingled the dead, the dying, the sick, and the well. The prisoners became frantic with despair, and threatened the lives of the officers and attendants. A number of medical gentlemen, the inspectors and others repaired to the prison to alleviate the sufferings of these unhappy beings. The vagrants were discharged, the sick were conveyed to the hospitals, and all the prisoners

whom it was possible to release, were dismissed. The confusion was so great, that a return of the cases and deaths was not made to the Board of Health on that day. By reference to the meteorological table, it will be seen that on the 5th August, the day the disease in the prison acquired its sudden intensity, the barometer had fallen lower than it had been for a month previous, the maximum of the thermometer was at the highest point for the month, and the dew point at a very high elevation. The atmosphere in consequence was light, moist, and oppressive to the feelings. Was this meteorological state of the atmosphere, and the sudden augmentation of the disease mere coïncidences, or were they connected?

The mortality of the disease in relation to sexes, is shown in the following table. The relation as to cases cannot be ascertained.

Number of deaths from commencement of cholera to Sept. 1st, per weekly reports of interments was—

Deaths 909.	Males 539.	Females 370.
Under 20 years,	do. 70.	do. 48.

Table of Deaths from Cholera, arranged as to Periods of Life—showing also the Ratio of deaths from Cholera to the Periods of Life.

Ages.		Deaths.	Ratio.
Under 1 year		4	1 in 604
Between 1 and 2 years		4	1 503
2	5	30	1 912
5	10	39	1 919
10	15	19	1 188
15	20	22	1 96
20	30	179	1 81
30	40	228	1 60
40	50	159	1 46
50	60	100	1 28
60	70	71	1 102
70	80	47	1 212
80	90	5	1 36
90	100	1	
100	110	1	
		909	

From this table it results that the earlier periods of life give the greatest exemption from the attacks of the disease, especially the ages from 2 years to 10 years; and that the period of life most prone to be affected, is from 40 years to 60 years, and more particularly from 50 to 60 years.

The ravages of the disease were more extensive in the coloured than in the white portion of the population, in proportion to numbers. The fact is shown in the following:—

White Population.

Nineteen hundred and seventy-seven cases.

Ratio of cases to white population—1 to 74.

Coloured Population.

Three hundred and thirty-eight cases.

Ratio of cases to black population—1 to 41.

Ratio of blacks to white population—1 to 11 4.7.

Ratio of cases of blacks to whole number of cases—1 to 6.

It has been a common observation by writers on epidemic diseases, that during the prevalence of an epidemic, it appeared to subdue and suppress all other diseases, monopolizing to itself, for a time, all the energies of destruction. This observation has been repeated since the days of Sydenham, by whom it was announced, though it has not been supported by statistical evidence. In the present epidemic, although its influence was so extensively felt in the city, the observation has not been sustained. The following table shows very clearly, that during the prevalence of the late epidemic, other diseases continued, not only unabated, but actually augmented, causing an increase of mortality independent of that produced by cholera. During the months of June, July, and August of this year, the deaths from the diseases generally prevalent, exceeded those of the corresponding months of last year, 425. It is to be remarked, however, that the diseases in which the augmentation of the mortality was the greatest, are those congenerous with cholera, viz. gastric, enteritic, febrile diseases, and inflammations. All those diseases appear to have derived an increase from its presence. It is also to be observed that scarlet fever instead of yielding to the sway of cholera, was actually augmented.

Table showing the Prevailing Diseases Independent of Cholera; what Influence it Exerted over them; and the Rate of their Mortality.*

DISEASES.	1831.				1832.			
	June.	July.	Aug.	Totals.	June.	July.	Aug.	Totals.
Consumption - - -	35	41	33	109	44	52	73	169
Convulsions - - -	18	26	29	73	28	29	33	90
Cholera infantum -	45	132	82	259	25	134	157	316
Diarrhœa and dysentery	18	28	49	95	15	47	83	145
Fevers - - - - -	17	24	35	76	31	35	65	131
Scarlet fever - - -	5	9	10	24	23	17	14	54
Inflammations in general	32	19	26	77	28	43	29	100
Inflam's in the chest -	16	10	8	34	16	15	7	38
Inflam's in the abdomen	16	9	18	43	12	28	22	62
Dropsy in the head -	22	22	29	73	5	33	23	61
do. in the chest -	2	4	6	12	2	4	3	9
do. in general -	6	12	11	29	3	10	9	22
Debility and decay -	28	33	29	90	16	45	28	89
Apoplexy - - - -	9	8	4	21	4	8	7	19
All diseases, (still-born deducted) - - -	294	467	490	1251	369	785	1431	2585
All diseases, (malignant cholera deducted)	294	467	490	1251	369	689	618	1676
Excess in mortality of 1832 - - - - -					75	318	941	1334
Excess after deducting mortality from cholera - - - - -					75	222	128	425

* For this table I am indebted to Dr. Emerson.

From the whole of the premises, and the result of observation, and experience in this city, the following conclusions may be adopted:—

1st. From the manner of its commencement and mode of progression, no evidence exists that the disease was of foreign origin; or introduced and propagated by immediate or mediate propagation.

2d. Its commencement and progress were in the character of a wide-spread epidemic, suddenly invading an extensive district, indicating the existence of an active epidemic influence or agency operating at once on the mass of the population.

3d. In far the greater number of instances, the disease was preceded by premonitory signs and a preliminary stage, during which it is perfectly manageable.

4th. That when those precursory symptoms were absent, the patient was usually in an enfeebled state of health, having a broken down constitution, or had committed some great imprudence to excite it.

5th. That in almost every case, the disease was called into existence by some exciting cause. The cause was most commonly error in diet, over fatigue, exposure, and other sources deranging the healthy order of some organ or function.

6th. That all portions of the population, though equally exposed, were not equally affected. The difference in this respect arising from the different degree of exposure to the exciting causes. The better mode of living as it regards diet, clothing, dwellings, &c. of those in easy circumstances, procured for them an exemption to a great extent from the disease in its worst aspect.

7th. That a well-regulated sanitary police, and public measures of hygienic character, having in view the preservation of cleanliness, the prevention of a crowded population, and the procurement of free ventilation, are the most efficient means for guarding the community against a very extensive and destructive prevalence of the disease.

THE END.