

m Dr. Warren

12

REMARKS

With the Respects
ON THE

PATHOLOGY AND TREATMENT

Of the Author.
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.

EXTRACTED FROM THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,
FOR AUGUST, 1832.

PHILADELPHIA:

PRINTED BY JOSEPH R. A. SKERRETT,

1832.

1857

RECEIVED

Mrs. A. B. C.

PAID TO THE ORDER OF

Mrs. A. B. C.

THE BANK OF AMERICA

NEW YORK

FOR DEPOSIT

IN FULL PAYMENT OF

THE ACCOUNT OF

THE BANK OF AMERICA

NEW YORK

FOR DEPOSIT

REMARKS
ON THE
PATHOLOGY AND TREATMENT
OF THE DISEASE TERMED
MALIGNANT CHOLERA.

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 reaction, 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 abundantly 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 behoves 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 reaction 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 reaction 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 re action, or to speak more correctly, in allowing re action 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, ℥j.; laudanum, ℥j.—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 re action; 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

reaction. In the first, during the employment of the cupping, the calomel, &c. if the patient do not very soon show some amendment, it is advisable 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

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

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 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; reaction 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 reaction: 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 minutiae 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 reaction, 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 jaundition, 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.

R. Sup. carb. sodæ, ℥ss.

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.