



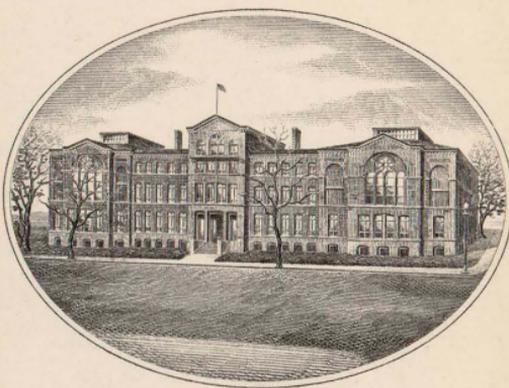
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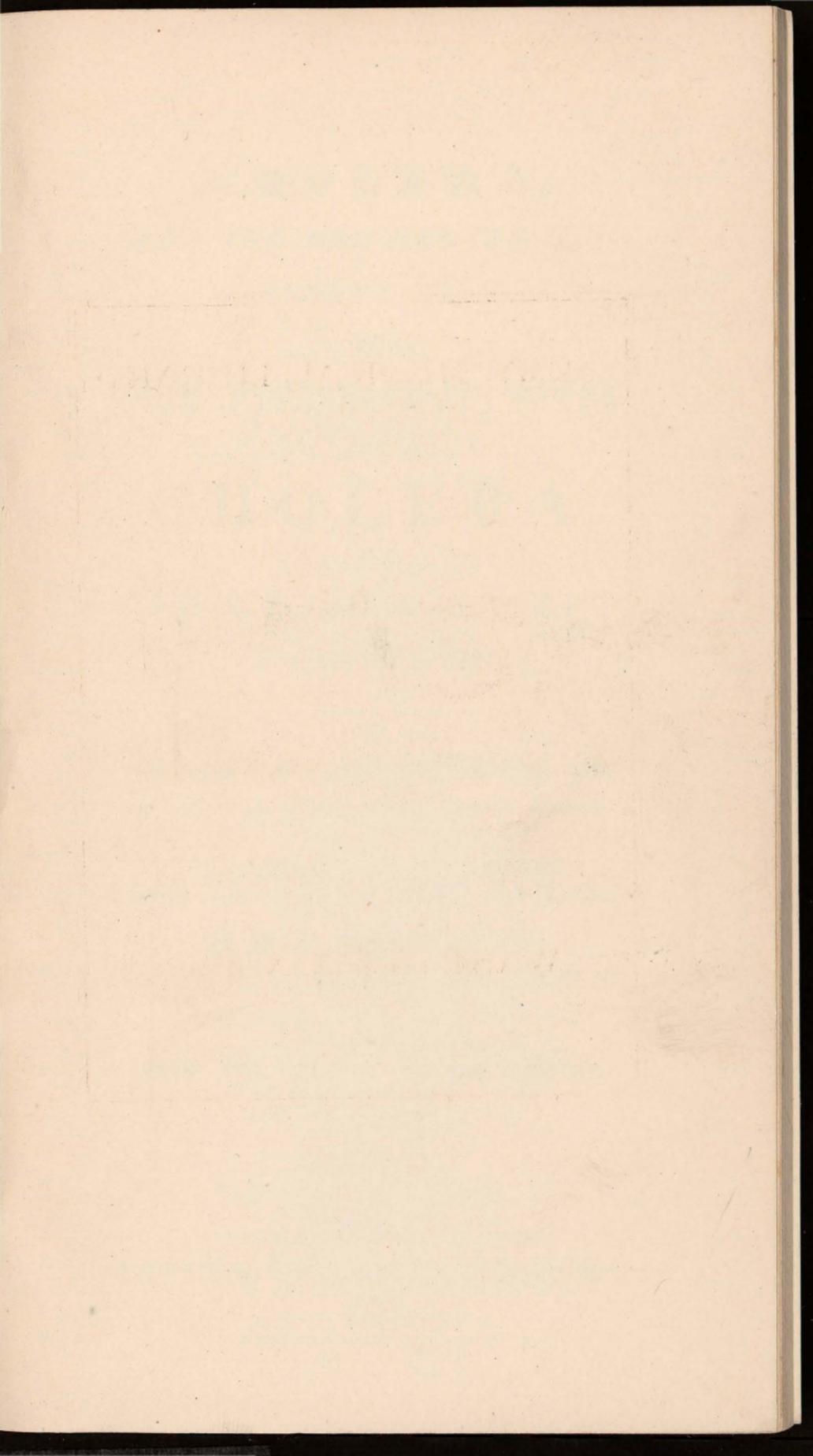
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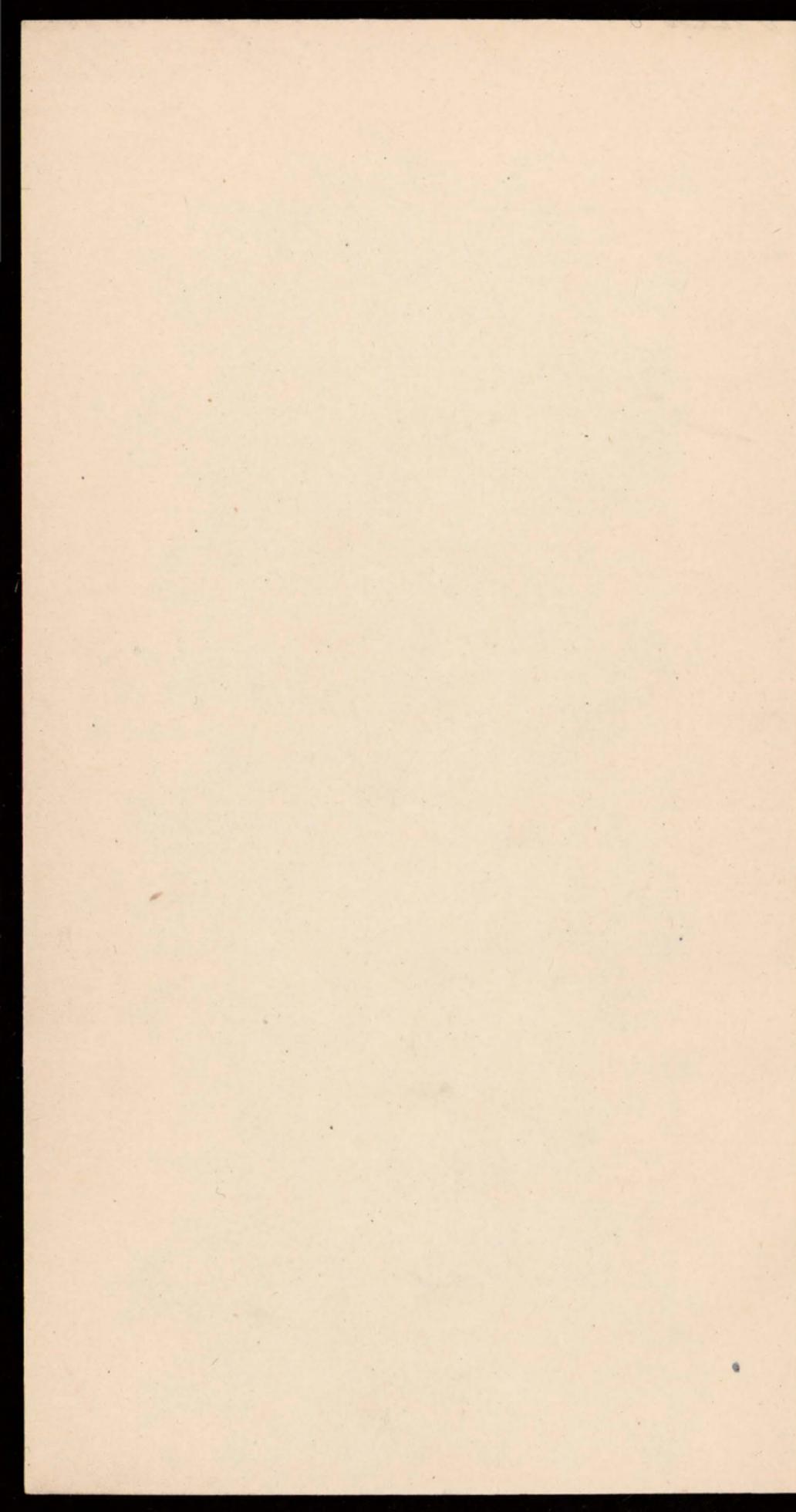
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by Dr. Wm. J. Taylor

CHOLERA,
ITS CURE AND PREVENTION.

THE
TRUE PATHOLOGICAL NATURE
OF
CHOLERA,
AND
AN INFALLIBLE METHOD OF TREATING IT.
IN A SERIES OF LETTERS.

BY
GEORGE STEWART HAWTHORNE, M.D.,
LATE SENIOR PHYSICIAN TO THE BELFAST GENERAL HOSPITAL, &C., &C.

WITH INTRODUCTORY REMARKS
BY D. C. MOREHEAD, M.D.

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FROM THE SECOND LONDON EDITION.  
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INTRODUCTORY REMARKS.

“PLAIN facts, plainly spoken,” is the desire of those inquiring about a disease so alarming in its character as Cholera. And we may say at the outset that the reason such universal alarm exists regarding this disease, is that so little has been *plainly* spoken on the subject—of Theory and Speculation there has been more than sufficient. The following letters by Dr. HAWTHORNE are an exception. The author states boldly that Cholera in certain stages can always be cured by the proper means, and then as plainly proceeds to show what are these means. His reasoning he supports by facts, and these facts are of the most reliable and important character. The letters are in every respect calculated to allay fear on the general subject of Cholera, and to impart that confidence which is so essential for safety when an individual has been attacked, and which is the safest guard from its insidious approach. The writer has very lately had peculiar opportunities of testing the truth of many of the assertions contained in the following pages. He was on the Mississippi river, and in the cities of

Memphis, Vicksburg, New Orleans, &c., during the months of last January and February, when the Cholera was most prevalent. He has seen cases treated in various modes, and all of these modes successful; but there is no question that the *Hawthornian* system, so far as the writer's experience is concerned, was by far the most successful. The question at present is not what theory is correct, but what treatment is the best. "Show us how to *save our lives*, and we will believe your theory without further proof."

That Dr. HAWTHORNE has had great experience in the disease and great success in its treatment, there can be no question. In fact, it has been *unexampled*. The late Sir Francis W. McNaughton, in forwarding to Dr. HAWTHORNE an address in behalf of certain parishes which had been the scene of his labors, says: "I can add from my own knowledge, that no individual who, at the commencement of his disease, had the fortune to fall under your care, was lost to his family; that shortly after your arrival, mortality ceased—that implicit reliance upon you was manifested by all—and that despair was relieved by the most cheering expectations." The letters are so full and explicit in themselves, that it is unnecessary to allude to any peculiar points. The reader will readily perceive that the *pith* of Hawthorne's theory is that Cholera is a NERVOUS disease, and that the *plan* of treatment is to act promptly on the Nervous System. If this be done timely, the disease is overcome and the threatened danger is passed. His idea that the disease is produced by a *disturbance of the Electro-*

producing functions of the body is not new, and is of little import at present, save that it gives authority to the important suggestion regarding the application of Electricity or Galvanism as a *preventive*, and we take pleasure in referring to the advertisement on the cover of this work.

As a conclusion to these remarks the following case may be of interest, illustrating as it does the *principles* of the treatment here laid down. A friend of the writer, who was a passenger on board a Steamer from New Orleans to St. Louis last January, arrived in the latter city after a tedious trip, during which several passengers on board had died of Cholera. The afternoon of his arrival he felt as well as usual, but about dusk he felt a strange sensation, accompanied with unusual debility, which seemed to oppress him. He sat down to supper at the Planter's House, but though he had taken little dinner, found he could eat nothing. He rose from the table, walked about the corridors for half an hour, and then retired. Though much fatigued, his attempts to sleep were in vain, and though the night was sultry, he felt quite chilled. Suddenly he became dizzy; his thoughts appeared to wander, and his consciousness was only aroused when he was startled by sudden cramps in his legs. *The idea now flashed upon him that these were the symptoms of Cholera.* He immediately attempted to rise in his bed to procure assistance, but was additionally alarmed on finding that he had scarcely the power to do so. After some exertion, however, he succeeded in getting up and ringing the bell. In a few minutes I was by my

friend's side. His pulse was rapid, and he was greatly alarmed. I endeavored to reassure him, and immediately ordered the servants to make a large and blazing fire in the room, to bring up two additional blankets and a pitcher of strong, hot brandy-toddy. These missions were soon effected. The cheer and warmth of the fire rapidly dissipated the gloom and fear of my friend, the blankets were spread over him, and he swallowed a full pint of the hot brandy-toddy, which he pronounced "very strong and very good." In a few minutes he said, "How much easier I feel!" The chills now left him, and in less than eight minutes he was in a complete perspiration. His pulse was calm, his breathing, which was previously somewhat labored, now became natural, and in about five minutes more he was in a sound sleep. I then left an attendant with him, desiring to be called during the night if anything occurred; but not being called, I visited him early in the morning, when he was still asleep, and did not awake till the ringing of the breakfast-bell. In the two succeeding days he was rather weak, but in every other respect apparently as well as ever. From many similar cases that I have seen, I believe this to have been a case of Cholera in its first stage; and the ease and success in its treatment was owing to the prompt use of the means adopted. In one hour more, the patient might have been in a state of hopeless collapse.

It may be added that the subject of the above case had been slightly troubled with Diarrhœa previous to his

arrival at St. Louis. This, however, is common with all travellers on the Western rivers, and though there is ordinarily no cause for alarm, it is a symptom which is worth heeding, and which should be instantly checked while Cholera prevails. There was no vomiting in this case, and the disease is sometimes rapidly fatal when it is not at all exhibited.

We can add nothing further in commendation of the following letters, save that we believe they contain TRUTH, which is of the most important and valuable character to the public at the present time.

D. C. M.

NOTE.—We commence with the second letter of Dr. HAWTHORNE, the first being merely a brief notice of the Report of the London Sanitary Commissioners on Cholera, and of little interest to the reader.

THE REMEDIES.

LETTER II.

GENTLEMEN :

HAVING, in my last letter, joined issue with the London Sanatory Commissioners on the alleged incurability of Cholera, I think it right here to state, that I fully agree with them in the opinion they have expressed upon the non-contagiousness of the disease—a subject with regard to which, also, it is of great importance the public mind should be properly instructed.

The opinion that Cholera is not contagious has not, I am satisfied, been hastily adopted, but has been founded on extensive and acute observation. From my own observation upon the disease, I had long since arrived at the same conclusion.

Quarantine restrictions never retarded the entrance of Cholera into any country for a single hour. They never did good, but always a great deal of mischief. They embarrassed commerce, and injuriously excited the fears and cramped the industry of the people. It will be a great blessing to the community, in case of another invasion of the disease, if the alarm of the people be not increased, and all the concomitant evils aggravated, by any unnecessary and useless precautions.

How the disease is propagated and by what laws its progress from country to country is governed, are subjects involved in absolute mystery. It is pre-eminently “the pestilence that walketh in darkness.” All the phenomena, however, attending its former and present progress over the earth go to fortify the opinion, that it is not propagated by contagion. We find it starting up in many places simultaneously, leaving intermediate towns, even where the intervening traffic has been extensive, untouched. Its mode of travel has been unprecedented, and by its eccentricity, it has set all speculation as to the laws which regulate its course, at defiance.

In making its present career towards us, a truly remarkable fact

to be observed is, that it follows, as nearly as may be, precisely the same course as formerly; and, more remarkable still, it leaves untouched those places it formerly passed over. Altogether it is the most abnormal scourge that ever swept our earth. Unsubjected to those laws which have been observed to mark or retard the course of other pestilences, it surpasses them all in the width of its range, and outstrips them in the destructive rapidity of its progress.

If, however, we cannot by any precautionary measures avert the approach of the disease, it must be satisfactory to know that, when it does make its attack, it is within the power of the medical art successfully to cope with it. To explain by what way this can best be done is the object I have set before myself in these letters.

I confess myself surprised that, in this enlightened era of medical science, Cholera should have been so extensively fatal as it undoubtedly has been. The more so, because I have never met with a disease which, when scientifically treated, was more manageable or more easy to cure. I found it to become formidable only when neglected, or injudiciously treated. That it has not, generally, been judiciously treated is a fact which cannot be denied. It has been too much the practice among medical men blindly to follow the opinions of others, without examining or thinking for themselves. The inductive method of arriving at the truth cannot be of more use in any department of science than in medicine. Every physician should take care to compare the conclusions arrived at by other practitioners with his own observations of facts. Many of those who have written on Cholera in these countries have been mere theorists, without experience, and, of consequence, the practice in that disease has too often been the sheerest empiricism. There has been no rational system universally pursued; nor has there been any regular plan of treatment generally adopted. Could there be a greater proof of the ignorance that has too much prevailed on the subject, than the observations of a correspondent of a London medical periodical, of deservedly high character, who stated that *what cured the disease in one street would not cure it in another!* A mode of treatment which will not cure the disease alike in all streets, will cure it nowhere.

Nothing could be more absurd, or indicate more forcibly the want of that correct knowledge of the disease, which observation and

reflection should furnish to a medical practitioner, than the various nostrums for its cure which have lately found their way, from different quarters, into the London *Times* newspaper. The observing of these impressed me, additionally, with the importance of losing no time in having the public mind rightly informed upon such an important subject.

Cholera, like all other diseases, should be treated on rational principles. The object of a physician should be, first, to ascertain what diseased action tends, either directly or indirectly, to destroy life; and then, when that is ascertained, and not till then will he do so with propriety, he should address himself to the counteraction or removal of that diseased action.

The first step, then, towards devising a plan for the successful treatment of Cholera is to ascertain, with as much accuracy as possible, what is the morbid action which, in this disease, so potently, and with such sudden violence, invades, and if left to itself, so soon annihilates the springs of life. To this end we must pause, and contemplate the symptoms which present themselves at the commencement, and throughout the course of the disease.

The pathognomonic symptoms are, sudden debility, tremors, numbness, and general uneasiness, pain of stomach less or more severe, occasionally headache, whiteness and clamminess of the tongue, and præcordial oppression, succeeded by purging, vomiting, and cramps.

The disease varies, more or less, in its modes of attack, and in the general symptoms. The following, however, is the order in which the symptoms, generally, manifest themselves. The patient first complains of general weakness and languor, and what he calls a lightness in his head, an unusual feeling over the body, weight and oppression about the heart, with a disposition to sigh, accompanied with a sensation about the stomach and bowels, which he describes as a feeling of emptiness; his countenance is pale and his features shrunk—the fluids appearing to have receded from the surface. These symptoms are followed by a rumbling sensation through the bowels. The sphincter, losing its contractile power, gives way, and the contents of the intestinal canal are discharged. The bowels are affected at intervals of a few minutes, and the discharges become more and more fluid, till they present the appearance of whey, or of rice or barley water—becoming, in many instances, nearly as clear and transparent as rock water. The

relaxation and weakness increase with each discharge. The stomach becomes sick, and the contents are thrown off. The patient now feels a desire for drink, but as soon as he has swallowed it, it is immediately rejected. The sickness and retching complete the relaxation and dilatation of the discharging vessels, and the whole fluid part of the blood escapes. In proportion to the escape of the serous or watery fluid from the bowels, the temperature of the body decreases, till it becomes as cold as if dead. The pulse sinks in the same proportion, till it ceases to be perceptible at the wrist. Cramps then come on with torturing severity, and the voice is hoarse and stridulous. The breathing becomes laborious, with a severe pain in the region of the heart; and the patient tosses himself about, anxiously, and in vain, looking for relief, which change of posture cannot afford. A profound coma calms the closing scene. This is a description of the symptoms as they occur in this form of the disease; and the whole process described is sometimes completed within the space of one hour.

In many cases the symptoms more gradually develop themselves. The discharges from the bowels are at longer intervals—the first consisting of the natural contents, the next of whitish matter, which becomes more gradually fluid and colorless, till it presents the almost transparent appearance already described.

Such modifications, however, differ merely in degree. They are produced, no doubt, by peculiarity of constitution, or habits of life, or by the greater or less intensity of the exciting cause.

Now, a careful study of the symptoms thus described, as developed by the disease, is of the utmost importance towards enabling us to arrive at a just knowledge of what is the nature of the diseased action here indicated, as upon such knowledge alone can a rational mode of treating the disease be based. I shall, therefore, enter into a brief consideration of the pathology of the various symptoms, giving my views of the nature of the morbid action which in its several stages gives rise to them. And to this part of my letter I beg particular attention, as, upon my views on this subject, I found my mode of treatment.

Before, however, proceeding to do so, I may, perhaps, opportunely, pause to say a word upon what may be alleged as to the exciting or generating cause of the disease. Upon this subject much has been written: and the views entertained by the several writers who have treated of it have been widely various. Ingenious

arguments have been adduced by all, in support of their peculiar views; but the evidence by which they seek to substantiate their theories is so conflicting, that to enter into a discussion of the points at issue, would require more space than is consonant with the limits I have at present prescribed to myself.

I shall content myself with observing, that my opinion is, that the disease is produced by some specific agent, of disturbing influence on the animal economy, forced from the bowels of the earth by subterraneous commotion. The sudden devastations of the disease in particular places, at great distances from each other, and at the same time, can be accounted for, in my mind, on no other principle; and the fact that the disease is now retracing its former course, goes far to substantiate such a view. Those fissures in the earth, which gave vent to the deadly agent before, are doing so again. Whatever the character of the agent may be, it seems to me to act in some powerful manner in disturbing the electro-producing functions of the body (if I may so speak). That electricity is largely concerned in the animal economy is a fact now well established; future discoveries will throw much additional light upon this interesting subject; and the bringing of this animal electricity into some abnormal state appears to me to be the remote cause of all the symptoms which manifest themselves in cholera. A very remarkable fact, indicative of such supposed electrical disturbance, is, that the bodies of those who have died of Cholera are, for several hours after death, affected with startings and contractions of the voluntary muscles, producing, in some cases, even temporary distortion of the features, and leading the friends to imagine the individuals still alive, thus presenting a phenomenon not to be observed after death under any other circumstances, and exactly similar in character to the appearances produced by the application to the dead body of the wires of a galvanic battery.

On this subject, however, I am not in a position to enlarge. I merely throw out these hints as interesting subjects for physiological investigation and research. I would merely add, that a further confirmation of such a theory would seem to be afforded by the fact, that the disease is not contagious.

But whatever be the exciting cause of Cholera, of whatever nature or character it may be, a careful study of the symptoms, as I have described them, proves to me conclusively that its primary

operation is exerted on the brain and nerves; and, from this affection of the brain and nerves, all the symptoms, as they develop themselves, flow as necessary consequences. The effect produced on the brain and nervous system is a paralyzation of their tone and energy, producing directly a diminution of the contractile power of all the muscular fibres of the body. This general diminution of muscular power accounts for the weakness and languor which occur at the commencement of the disease. From the diminished elasticity and contractile power of the vascular system, the blood and other fluids of the body, not being propelled with the usual force, tend to gravitate to the lower and internal parts. Hence the paleness of countenance, shrinking of features, and other symptoms, which indicate a receding of the fluids from the external surface. This gravitation and crowding of the fluids to the internal surfaces account also for the præcordial oppression, pain of stomach, &c. Further, the circulating power of the blood-vessels being diminished, they do not carry the blood to the brain, either with the usual force, or in the usual quantity. The brain, therefore, being thus suddenly deprived of its accustomed support, becomes further impaired in its tone and energy, and is, thereby, rendered still less capable of exercising its functions. Hence arises the giddiness and lightness in the head, and the further paralysis and relaxation over the body. Again, the contractile power of the abdominal muscles, and of the muscular coat of the stomach, being diminished, these become relaxed, and produce that feeling of emptiness and want of confidence which is always complained of. The excretory vessels (the extremities of the arteries), opening on the internal surfaces of the stomach and intestines, sharing in the same general relaxation, become dilated, so as to permit a too free passage of the fluid which presses into them, allowing, in this way, the serum of the blood to escape. So complete has been the dilatation of these vessels, in many instances, that they have allowed the escape of even the red particles of the blood, giving to the fluid, passed from the bowels, an appearance as if raw beef had been washed in it. The sudden depletion of the vascular system, caused by the escape of the serous fluids, produces the vomiting. The same effect is observable from the extraction of blood, suddenly, from a large orifice; the patient becomes sick and faintish, and the contents of the stomach are thrown off. The same takes place in uterine and other extensive hemorrhages. The

escape of the serous part of the blood causing an effect on the constitution similar to that produced by blood-letting, increases the relaxation. The relaxation and weakness thus increase with each discharge, till the whole fluid part of the blood passes away, the crude part becomes, as it were, stranded, and the vital powers are exhausted. This ushers in the collapse stage.

In this last or collapse stage, the patient becomes of a livid or blue color; and the reason of this appearance is easily intelligible. The escape of the serous or watery part of the blood deprives it of that dilution or fluidity which is necessary to fit it for circulating through the minute ramifications of the vessels through which it has to pass. Hence the crowding of the red particles in the extreme vessels on the surface, which still become darker the longer they are deprived of that due arterialization which they should undergo in passing through the lungs.

The sense of suffocation felt in the lungs at this time, and the pain and anxiety felt in the region of the heart, are produced by the viscosity of the blood; the great excess of fibrine rendering it too crude to circulate through those organs. This, I may observe, has been satisfactorily demonstrated by dissection after death—the vessels of the lungs being found clogged with fibrine; and polypous masses of the same substance, as has been related by Dr. Joenichen, a Russian physician, being sometimes discovered in the ventricles of the heart, so as in a great measure to obstruct all circulation. It is difficult to prove whether the cramps in the collapse stage are caused by the extensive vascular depletion that has taken place, or by the circulation being retarded by the crudity of the remaining part of the blood.

The coma which in the collapse stage generally supervenes is caused by the congestion of blood, and accumulation of fibrine, that takes place in the great vessels of the brain, and sometimes from effusion of serum into its cavities.

Such are my observations upon the pathological indications of the symptoms in this disease; and it has been necessary for me thus to dwell upon these matters, in order to prepare for the right understanding and ready appreciation of the remedies by which I propose to combat all such symptoms. In my next letter I shall proceed to lay before you a mode of treatment, by which the morbid action may be successfully counteracted in every phasis in which it presents itself, previously to the collapse stage, in which remedies seldom

avail. A mode of treatment, which, from the pathology of the symptoms I have laid down, and from what I shall hereafter say on the mode of operation of the remedies, will, I am persuaded, recommend itself even to the most sceptical, as a method of cure, which, when timely and skilfully administered, has just pretensions to be styled infallible.

I have the honor to be, &c.,

G. S. H.

LETTER III.

GENTLEMEN :

In my last letter I remarked, generally, yet briefly, upon the history, character, and symptomatic features of Cholera. In the present letter I propose to treat of the means of cure. Before entering upon this subject, however, it is necessary, in a medical point of view, that I speak of the prognosis of the disease, and of the various forms in which it presents itself.

As the prognosis in Cholera, I would briefly state it to be—

Favourable Symptoms :—The disease commencing with cramps of the voluntary muscles; heat of skin at or above the natural standard; pulse soft, full, and strong; little thirst; bilious vomiting and purging.

Unfavourable Symptoms :—No pain nor cramps at the beginning; pulse small and feeble; heat of skin below the natural temperature; tongue a pale white, clammy, flowing with saliva, cold, relaxed, and broad, having apparently lost all contractile power; no secretion of urine; serous and watery purging, and vomiting; and no smell emitted from the discharges.

Disposing of the prognosis thus briefly, I proceed to observe that the disease presents itself in four distinct degrees of malignity, which it is necessary for me to describe, as information on this subject is an essential preliminary to a judicious use and properly modified adaptation of general rules of treatment. I shall take these up in the order of their malignity.

1st. In the least dangerous form of the disease the attack commences with spasms of the stomach, bowels, and voluntary muscles; heat of the body at the natural temperature; with a strong, full pulse, and slight retching or vomiting, unaccompanied by purging.

2d. The next in point of danger is, when the disease begins with pain in the stomach, less or more severe; oppression about the præcordium, headache, numbness of the extremities, with a pricking

sensation over the skin, succeeded by purging and vomiting, or vomiting and purging—in some cases, of bilious matter ; in others, of a whitish-colored fluid.

3d. A more dangerous form of the disease than either of the preceding commences with violent pain of the stomach, increased on pressure ; intense pain across the forehead and in the eyeballs ; flushed face ; pulse quick, hard, and bounding ; a painful sensation felt over every part of the body, similar to that experienced at the beginning of fever ; heat of skin increased to a morbid degree ; tongue exceedingly white, deeply coated and furrowed ; intense thirst, with deadly sickness at the stomach ; vomiting and purging—first of the natural contents, after which, the fluid matter discharged from the bowels is of a greyish-white color, granulated, and mixed with particles resembling powdered ochre, and emitting a peculiar and intolerably fœtid odour, exceeding anything of the kind observed in almost any other disease.

Though this is not the most rapidly fatal form of the disease, still it is fraught with great danger, requiring prompt and active treatment ; and the recovery may be more tedious than even where the disease has assumed the most malignant type.

4th. In the last and most malignant form of the disease, the attack comes on with giddiness of the head, ringing of the ears, and purging—first of the natural contents, then of a fluid resembling thin mucilage or barley water ; pulse small and feeble ; heat of skin below the natural temperature, without any vomiting, pain, or cramps. Here there is the greatest danger ; and, if the disease be not instantly checked, the patient may go down into collapse in less than half an hour.

Upon this form of the disease I would observe, that the most rapidly fatal attacks in Cholera commence without any vomiting, pain, or cramps, or previous warning whatever ; and while, under all circumstances, under all more or less severe attacks of the disease, the earliest recourse ought to be had to remedial means, I wish to impress the importance of being specially prompt when the disease begins in this its most malignant and most insidious form, in which a delay of a very short period might be attended with fatal results. I have seen much of the fatal consequences of an error of opinion in this respect, the patient imagining that it could not be Cholera with which he was affected, because he had no vomiting, or pain, or cramps, when, in point of fact, it was the most fatal form

of the disease; and when the vomiting and cramps did come on, they were only the fearful harbingers of collapse and death.

In the most malignant form of the disease, the first discharges always take place from the bowels, and the patient does not vomit till the disease has carried him into hopeless collapse, or till he is, at least, verging on that stage. A knowledge of this fact cannot be too strongly impressed on the minds of the public. As far as my recollection serves me, all the cases of hopeless collapse to which I have ever been called, during my experience, were of persons who assured me that they had applied at the moment when the vomiting commenced, and that, in the absence of that symptom, they had attributed the previous purging to some other cause than Cholera. I would observe, that the danger in every case bears a proportion to the rapidity and amount of the discharges from the bowels.

Having thus disposed of much preliminary matter, I now proceed to specify the proper remedies to be employed in the treatment of Cholera; and to state, from the nature of the disease, a malignant case of it could not be cured by any other means.

It has been already explained that the primary cause of the morbid action in Cholera is a specific injury inflicted on the brain and nerves, which paralyzes their tone and energy, and gives rise to a train of symptoms which result in the escape of the serous or watery part of the blood; and that such serous fluid passes off in the discharges from the stomach and bowels.

The indications of cure are, to restore the tone and energy of the brain, and to prevent a further escape of serum; and not only so, but to restore to the blood whatever amount of its natural fluidity it may have lost by the previous escape of the serous fluid; and lastly, to re-establish in their healthy action all the natural functions which may have been suspended during the attack.

Now, the remedies which I shall place before the reader furnish ample means to accomplish all the objects demanded in all these several indications of cure; and, if promptly and skilfully handled, enable the medical practitioner to set at defiance all the assaults of this hitherto fell destroyer.

These remedies I would briefly state to be—*The horizontal posture of the body—Opium—Cordial stimulants—Perspiration*,—the latter to be produced by the application of external heat, and to be continued by the same means, while mild, warm, diluting drink, is to be freely administered, to furnish an abundant supply of

suitable fluid to the absorbent vessels which have been first excited to vigorous action by the perspiration.

Upon these several remedies, as means of cure, I shall make some general remarks, describing their mode of action, and their fitness for the exigencies of the disease; and showing how they fully and efficiently meet all the requirements of cure. This I shall do before prescribing in detail the manner in which they are to be used in the treatment of the disease.

Such a course will, I conceive, be attended with advantages. When I come to direct the proper mode of treatment, the reader, who shall have brought my observations along with him, will be prepared not only to see the adaptation of the means of cure I shall prescribe, but will almost be able to anticipate me in this matter. I thus hope to carry his understanding and conviction along with me. I shall take up the remedies severally—First :

The Horizontal Posture of the Body.—All who have read attentively the observations in my second letter on the symptoms, and the reason and cause of the symptoms in Cholera, will at once perceive the necessity for immediately placing a patient affected with the disease, or even with its premonitory symptoms, in the horizontal posture. I explained that the primary loss of the tone and energy of the brain in that disease, immediately leads to a loss of power in the circulating vessels;—that this diminution of the circulating power leads to a further loss of the tone and energy of the brain, and consequently to the increased paralyzation of the resisting power of the vessels to which the fluids in the progress of the disease determine, and through which they make their escape.

The advantage of the horizontal posture is, that it aids the weak circulating power, and favors the more forcible influx of the blood into the brain, affording to that organ more efficient bracing and support, and thus contributing to the restoration of its tone and energy. That such is the effect of placing the body in the horizontal posture, when the circulating power is weak, is every day exemplified in the relief afforded by this means to persons fainting from weakness by loss of blood, and other causes. When the individual who has fainted is placed in the horizontal posture, so as to favor the influx of the blood into the head, the brain immediately regains its tone and energy, and resumes its healthy functions.

Further, the horizontal posture aids in arresting the escape of the

serous fluids into the stomach and bowels. By improving the tone of the brain, it increases the resisting power of the vessels through which the serous fluid escapes; and it relieves the discharging vessels from the great superincumbent pressure they would have to sustain in the erect posture.

The effect of posture in increasing or diminishing the pressure on the circulating vessels is familiarly exemplified in the swelling of the lower extremities from long standing, and in the remedial effect of elevating those extremities, either to a level with, or slightly above the level of the body.

Thus much will suffice to illustrate the advantage of confining the patient to the horizontal posture in this disease.

Opium is the next remedial agent which claims our notice; and amongst the few remedies which are really necessary in the treatment of Cholera, this one holds a most important place. Taken internally, opium increases the energy of the brain; contracts in a remarkable degree the diameter of the circulating vessels, which include, let it be observed, the excretory ducts through which the serum in this disease escapes, and diminishes all the secretions and excretions, except the cuticular discharge, which it increases;—in all these several respects being most precisely adapted to the requirements of cure in this disease: in all these respects being severally fitted for restoring the tone and energy of the brain, for resisting the determination of the fluids to the internal surfaces, and for counteracting the effects of the vascular depletion, which is sometimes so excessive; and these are precisely the objects upon the accomplishment of which the cure chiefly depends. And these objects, opium, in conjunction with the other remedies I prescribe, more especially perspiration, will effectually accomplish.

I wish it, however, to be particularly understood, that the success of this remedy depends upon its being administered in sufficient quantity; and the amount of the dose required in each particular case depends entirely upon the malignancy of the symptoms, &c.; that is, upon the extent of the nervous prostration, the rapidity with which the serous fluid seems to escape, and the extent to which the vascular depletion may have gone. To this fact I would again solicit the most pointed attention, as it was from inattention to these truths that the fatal results of the general, and, I may say, universal, practice of that disease arose.

I have elsewhere stated that the effect produced on the brain and

nervous system in Cholera, by the escape of the serous fluid from the body, is precisely similar to that which is caused by the loss of blood. Now, in cases of persons sinking from loss of blood, opium, as is well known to the profession, is one of the most valuable medicines we possess for restoring and supporting the *vis vitæ*. In uterine hæmorrhages, for instance, no person, unless he had actually witnessed it, could have any idea of the quantity of opium a patient not only can bear, but requires, when the loss of blood has been extensive. But not only in vascular depletions, but also in certain affections of the nervous system, are large doses of opium not only safe, but necessary. In tetanus (lock-jaw), for instance, enormous doses of that medicine may be taken with safety and advantage. A case is recorded in which a patient, affected with this disease, took two fluid ounces of the tincture of opium without experiencing any narcotic effects from it, and was cured by the dose. I prescribe, therefore, large doses of opium in Cholera, not merely from the excessive vascular depletion that accompanies the disease, but also from the great nervous depression which is always present.

I would again repeat, that the amount of the dose necessary, will depend entirely upon the malignancy of the symptoms. For illustration (to confine ourselves to the vascular depletion), it must be evident that the specific effect of opium, which, in part, is to contract the diameter of the vessels of the body, and lessen their containing capacity, and thereby to afford a fuller and more forcible supply of blood to the head, and which would be injurious in a plethoric state of the vascular system, would be proportionably salutary in a depleted state of that system. It is equally evident, that the greater the depletion be, the larger will be the dose of the medicine required to produce a given effect. Two grains of opium would produce a greater effect on the nervous system, in the ordinary state of the vessels, than even ten grains where the vascular depletion has been such as to endanger life.

Had the profession borne these facts in mind, and noted the nature of the morbid action, in Cholera, they must have, at once, availed themselves of the agency of large doses of opium, in the treatment of the disease. The overlooking of these facts, however, led to the fatal error of trifling with too small doses of that medicine; and when these inefficient doses failed, or were, perchance, entirely counteracted by being combined with other supposed remedies, as calomel, for instance, it was taken for granted that

the disease was incurable. It has been the general practice, even in the worst forms of the disease, to administer the opium in one or two grain doses, repeated at longer or shorter intervals. The consequence of this has been, that in all such malignant cases, the discharges of the serous fluid from the bowels have continued completely unchecked, and the lives of the patients have been lost. Now, in these cases, there might just as well have been given none of this medicine at all; for, if a dose, sufficient to meet the exigency of the case, be not given at once, it will produce no effect whatever, and no repetition of similar doses will answer the purpose. And I unhesitatingly assert, that two grains of opium never cured a malignant case of Cholera. I have frequently had occasion to give ten grains for a first dose.

In regulating the dose of opium to be given in a malignant case of Cholera, three objects are to be kept in view; first, to apportion as much as will be sufficient to counteract the depleted or emptied state of the vessels, then to add what will be necessary to restore the brain and nerves to their natural state, and, lastly, when the dose has been adjusted to meet these contingencies, the practitioner must still further add a third portion to the dose, such as would stop a case of purging under ordinary circumstances.

It need not excite surprise that the disease has been so universally fatal, when, in all parts of the world, this important practical fact has been entirely overlooked. Any cases of Cholera alleged to have been cured by the ordinary methods recommended in publications on this subject (and I have read all of note that have appeared), have been so mild as scarcely to deserve the name of Cholera.—Cases do sometimes occur where, from peculiarity of constitution, the patient will recover without any medicine whatever, or in spite of the remedies, where such have been used. Almost all the recoveries from collapse I ever witnessed, were of persons who refused to take any medicine whatever, and who recovered through the *vis medicatrix naturæ* (healing power of nature). But these were persons of very peculiar habits of body, of whom I would now be able to predicate such a result.

The next remedial agents in the order of our arrangement are,

Cordial Stimulants.—Upon their mode of operation I shall here observe very briefly. I shall enter more into detail afterwards in prescribing how they are to be used. Amongst the most useful of the stimulants we possess, are camphor, chloric ether, aromatic

spirit of ammonia, and alcohol in the form of whiskey or brandy. Such stimulants assist the opium in restoring and supporting the tone and energy of the nervous system. By their cordial effects, they strengthen the stomach and enable it to absorb the opium; and by their stimulating effect on the brain, they sustain it until the opium becomes absorbed, and exerts its more permanent remedial effect on the system.

I now come to speak of perspiration, produced by the application of external heat, and upon this powerful agent in the cure of Cholera I must dwell more fully.

Perspiration.—All the early symptoms in Cholera indicate an increased determination of the fluids from the external to the internal surfaces. Perspiration reverses this determination, and directs it to the external surface. By so doing, it relieves the stomach, intestines, and other internal organs, from the symptoms caused by the injurious rush of the fluids; contributes, materially, to the stopping of the discharges, and is an efficient remedy for stopping the remedy, in a malignant case of the disease.—Though in such cases the discharges from the bowels may, for a time, be checked by large doses of opium, yet, if the morbid action be not corrected by changing the determination of the fluids from the internal surfaces to the external by a profuse perspiration, they will assuredly return. When the perspiration has been made to flow freely for a few minutes, the vomiting and sickness at the stomach invariably cease. Let the sweating be suddenly checked, however, or stopped too soon, and not only will these symptoms almost instantly recur, but, if the discharge from the surface be not immediately reproduced, even the purging itself will be sure to return. All medical men are aware of the remarkable sympathy that subsists between the external and internal surfaces of the body. Witness the alternations of sweats and diarrhœa that occur in the last stage of pulmonary consumption. When the latter symptom is checked, the perspirations become excessive; when these again are stopped, the colliquative discharges from the bowels return with violence. Much less opium is required to stop the purging in cases where, by the early application of external heat, profuse perspiration is produced, than where it is neglected. Indeed, where the sweating is promptly attended to, a second dose of that medicine is seldom, if ever, necessary.

But further, perspiration does more than merely correct the

morbid action; it gives us the power of repairing the injurious effects produced by it. It has been already stated that in Cholera the escape of the serous or watery fluid from the circulating vessels deprives the blood of its necessary dilution or fluidity, and renders it too crude to circulate, and that death in that disease is in every case caused, either directly or indirectly, by vascular depletion. Perspiration gives us the power of refilling these vessels and of restoring the necessary fluidity of their contents. It may, however, be objected, *in limine*, that the drain of the fluids of the body, caused by an extensive discharge from the external surface in perspiration, will produce a depleting effect on the vascular system similar to that which is caused by a discharge from the internal surfaces—an effect the very opposite to that we propose to accomplish; and I may be asked why I recommend a remedy which produces on the constitution an effect similar to that which is caused by the disease itself? To this I answer, that the class of vessels of whose agency we must avail ourselves in remedying the effects of the disease can best be made to act by this means; and that when the agency of that system of vessels is brought into operation we have at our command the power, not only of correcting the morbid action by changing the determination of the fluids, but of repairing the injury that has been already sustained. The class of vessels to which I allude is the absorbents. Perspiration excites their action. The exhausting effect produced on the vascular system by the discharge from the external surface causes the absorbents, opening on the internal surfaces of the stomach and intestines, to act like as many syphons in taking up the mild drink, and carrying it into the circulating vessels.—Thus we have it in our power not only to supply the drain caused by the perspiration, but to refill the circulating vessels, and to restore the necessary dilution or fluidity of their contents. Perspiration, therefore, has the effect not only of correcting the morbid action, but of repairing the injury produced by it. From what I have experienced, I am persuaded that a malignant case of Cholera could not be cured without exciting such perspiration.

Upon the general restoratives which may be requisite for re-establishing the healthy action of the several functions of the system after the progress of the disease has been checked, I shall not dwell at present. I shall have occasion to speak of them afterwards.

I have thus given an outline of the mode of operation of the general remedies I prescribe. In my next letter I shall describe the specific manner in which they are to be used in the detailed treatment of the disease.

I have the honor to be &c. &c.

G S. H.

LETTER IV.

GENTLEMEN :

In my last letter I enumerated the remedies necessary for the cure of Cholera. I proceed now to describe the specific mode in which they are to be used in the detailed treatment of the disease.

Of the medicinal remedies, the chief, it will have been observed, is opium. This I have explained, should be given in combination with medicines of a cordial, stimulating, and antispasmodic character, of which the most efficient are camphor, capsicum, ether, and aromatic spirit of ammonia. The following formulæ present the combinations of these medicines which I would prescribe :—

Powdered Opium, twelve grains.

Camphor, half a drachm.

Capsicum, nine grains.

Spirits of Wine and Conserve of Roses, of each a sufficient quantity—mix.

To be made into a mass and divided into twelve pills.

Each of these pills, it will be observed, contains one grain of powdered opium.

Chloric Ether.

Aromatic Spirit of Ammonia.

Camphorated Spirits.

Tincture of Opium.

Of each one drachm.

Cinnamon Water, two ounces—mix.

As I shall have occasion frequently to refer to these pills and this mixture, I shall term them, for convenience and accuracy of reference, Antispasmodic Pills and Antispasmodic Mixture.

Cholera, I have stated, presents itself in four distinct degrees of malignity. I shall first take up the most malignant form, as being in itself the most important, and as embodying, most fully, in its

details of treatment, the great principles of cure which are alike applicable to all forms of the disease. All the modifications of the disease require to be treated on the same principles, the only difference being that in the detail, the milder forms require less powerful doses of the medicines. The mode of treating the most malignant form of the disease will serve as the model on which all the others are to be treated. This most malignant form has, by all writers on the subject, hitherto, been pronounced incurable. They say it never was cured in a single instance, and never can be cured by the power of medicine. I shall, however, point out a mode of treating it which will prove itself infallibly successful, where my directions are followed with sufficient promptness, boldness, and skill. I would recapitulate, that the symptoms in this case are great languor and depression of spirits; giddiness of the head; soft, small, and variable pulse; tongue cold, flowing with saliva, relaxed, broad, and tremulous; heat of skin below the natural temperature; no cramps or pains, but an indescribable feeling of anxiety and crushing about the heart: accompanied with watery purging and vomiting, or with watery purging alone. All these symptoms indicate the utmost degree of malignity, and not one moment is to be lost in the vigorous application of the most powerful remedies. The disease in this form runs its course so rapidly, that before the medical attendant arrives, it may have so far progressed that one additional discharge from the bowels may carry the patient into hopeless collapse. The practice, therefore, must be prompt; it must be bold as it is prompt. The discharges from the bowels must be stopped at once; and for this purpose an efficient dose of medicine must at once be administered. Trifle with an inefficient first dose, and the patient is lost; administered with the boldness I shall prescribe, and success is as certain as is the relation between cause and effect.

Place the patient immediately in the horizontal posture, in bed; and give him, on the instant, as this is an extreme case, ten of the antispasmodic pills, and two ounces of the above antispasmodic mixture, and wash the whole down with a glass of undiluted brandy or whiskey, flavored strongly with cloves, essence of ginger, or some such warm aromatic spice. In the mean time have him covered with an additional blanket, and let the usual means of communicating heat, such as jars or bottles of hot water, bags of hot salt or sand, hot bricks, or whatever can be most readily pro-

cured, be applied without delay to the feet, and different parts of the body, so as to restore the temperature, and produce perspiration as quickly as possible. As soon as the perspiration has begun to flow freely, superadded to the medicine and cordials already administered, a glass of brandy punch should be given—the punch to be made strong, and to be swallowed hot as possible. After this no drink should be given till the perspiration has flowed freely for a few minutes. The stomach will then retain it, and the patient should be indulged freely with copious draughts of rennet whey, warm toast water, flavored with some agreeable spice, mint or balm tea, or any such mild beverage. The necessity of attending to this is most important. When the discharges from the bowels cease, and when the pulse becomes full and bounding, and the body is covered with a copious warm perspiration, which will not fail to be the case under such treatment, the danger is over. The perspiration, if the patient can bear it, should be kept up for twelve hours; and may with advantage be continued, moderately, even longer. Its duration, however, must be regulated according to the strength of the patient and the state of the pulse. After the first four or six hours, more heat need not be applied than is perfectly agreeable to the feelings of the patient. It is remarkable how suddenly the præcordial oppression, &c., are relieved on the breaking out of a free perspiration; and, what is of greater importance still, the vomiting, where it exists, immediately ceases. I know of no other means by which vomiting in such cases can be speedily and effectually checked. In the application of external heat, a rational use should be made of the means. I cannot see the necessity for increasing the temperature beyond what is grateful to the feelings of the patient, and beyond what is sufficient to produce and keep up a profuse perspiration. I would remark, that the heat can be much more efficiently communicated by solid substances, such as I have mentioned above, than by the hot-air or vapour apparatus. This apparatus, as a means of communicating heat to a patient affected with Cholera, is an instrument which I consider to be worse than useless.

Now, let it be observed that I have selected an extreme case, and have prescribed a dose of medicine sufficient to meet such a case. As I have already stated, not one case need be lost if the practice be sufficiently prompt and bold. I have supposed a case of the most malignant character, where there has been profuse

watery purging, and where another discharge from the bowels would endanger the patient's life; and, under these circumstances, I have prescribed ten of the pills containing ten grains of powdered opium, as a less dose would not meet the exigencies of the case. To administer this dose, under the circumstances I have stated, is perfectly safe; to administer an inefficient dose is certain death. I have, under the circumstances supposed, tried smaller doses, but found them insufficient to arrest the progress of the symptoms, and was obliged, in a few minutes, to increase them. After such experience I always prescribed ten of the pills for a dose, under the alarming and dangerous circumstances I have supposed, and always with never-failing success; and I have never seen the slightest narcotic effect produced by this large dose of medicine, on any of the patients to whom it was administered under such circumstances. The reason why such a large dose of opium may be safely administered in such a case, and the reason why, under such circumstances, it is absolutely necessary, I have fully explained in the preceding letter.

Should there, however, have been little or no purging, a smaller dose of the pills must be given. The system not having suffered much depletion from the escape of the serous part of the blood, so very large a dose of opium is not necessary. In such cases, eight of the pills will generally be sufficient,—to be accompanied, however, with the same quantity of the antispasmodic mixture, and the same cordial stimulants as already prescribed, and to be followed with equal promptness by exciting the perspiration, that grand agent in the cure of every modification of Cholera, without which a malignant case of the disease could not, by possibility, be cured. In the next most malignant form of the disease, the third described in my last letter, if there has been extensive purging, the patient must take, instantly, eight of the pills, together with the same dose of the antispasmodic mixture, as prescribed in the last case, and the same amount of cordial stimulants; and have these followed up, vigorously and speedily, with all the other steps of treatment already described, the perspiration, above all things, not being delayed, and all the alarming symptoms will be found to flow off with the perspiration. In cases under this form of the disease, when purging has not taken place, six of the pills will be a sufficient dose, all the other doses and appliances being the same.

In the second form of the disease, as described in my last letter,

when purging to any amount has taken place, six pills must be given, with the full amount of the antispasmodic mixture, and cordial stimulants as directed in both the preceding cases; and all the other parts of the treatment already described must be vigorously followed out. When, however, there has been no purging, four pills will be a sufficient dose. The perspiration, and the other medicines and cordials, will complete the cure. All unfavorable symptoms will be found here, also, to flow off with the perspiration.

In the first and mildest form of the disease, the treatment must be upon exactly the same principles, and by similar means, as directed in the other forms of the disease, from the most malignant to this mildest form, the difference consisting only in the amount of the doses of the medicines necessary. Here four of the pills will be a sufficient dose, and one ounce of the antispasmodic mixture, with, however, the full amount of cordial auxiliaries, already directed in the other forms of the disease, followed promptly by the perspiration; this latter being in no case neglected or delayed.

Such is a very brief summary of the mode of coping with the disease in its various forms. It will be observed that the same remedies are applicable to all forms of the disease, the difference in the treatment consisting merely in the amount of the dose of the medicines necessary to meet the various degrees of malignity. I have directed such first doses of the medicines as are likely to meet the necessity of each particular case, as no repetition of doses answers the purpose so well. Cases, however, may occur, where to repeat a dose may be necessary: for instance, when the malignancy of a case has been miscalculated; and in such cases the subsidiary dose should be ample and given promptly. When, however, ten grains have been given at first, there will seldom be necessity for an additional dose. It will also be observed that perspiration is a necessary and most important agent in the cure of any case of the disease, whatever may be the degree of its malignity. In the more malignant forms it is entirely indispensable. It corrects the morbid determination of the fluids to the internal surfaces, and enables us to repair the injury inflicted on the system by the longer or shorter continuance of the symptoms, and by their greater or less malignancy. And further, it counteracts, in an

important degree, the narcotic effects of the large doses of opium which it is necessary to administer.

In the bounds of this letter I have been able to do little more than just state general principles. In the application of those principles to individual cases, and to the varied forms of the disease, much must be left to the judgment of the practitioner. I have, however, expounded, more or less particularly, a mode of treating the disease, which fully and efficiently meets all the requirements of cure; and which, if skilfully, boldly, and promptly acted on, will cure the disease in every instance where the patient is not in hopeless collapse before it is put in practice.

My mode of treating Cholera differs from every other which has yet been placed before the public. It has not, however, been founded on mere hypothesis, but on a practical experience in the treatment of the disease, which was most extensive, and was successful beyond precedent; and it has been matured by careful and strictly logical deductions. I direct much larger doses of opium to be given in the cure of the disease than have ever been prescribed by any other. This fact, of itself, sufficiently distinguishes my mode of treatment from all others. But the grand distinguishing feature, in which it stands alone, is the employment of the powerful agency of perspiration, as a means of cure. This agent has never been recommended, as such, by any other. It is, in fact, by perspiration the disease is cured. Opium is, indeed, a valuable and necessary agent; but it and the other auxiliary medical and cordial stimulants act merely as handmaidens to the sovereign remedy, which is the application of external dry heat by hot solid substances. The opium and cordial stimulants supply the place of an anchor, in holding on the barque of life, and in arresting the fatal course of the disease, till the respiration not only corrects the diseased action, but also repairs the injury which the system may have sustained.

In my next letter I shall, among other matters, make some necessary observations on the consecutive stages of the disease.

I have the honour to be, &c., &c.,

G. S. H.

LETTER V.

GENTLEMEN :

THE great secret in the treatment of Cholera is, to lose no time in stopping the discharges from the bowels, if they exist, and in exciting warm profuse perspiration. This object should still be kept in view by the practitioner, no matter in what state he may find his patient. After giving such a dose of medicine as may stop the purging, his next effort should be, by the application of external heat, to produce a discharge from the surface. If the heat of the body be higher than natural, the perspiration will equalize it; if lower, the application of external heat will restore it; and if the body be covered with cold clammy perspiration, it will change it to a warm one. I have directed that the perspiration should be continued for, at least, twelve hours, if the patient can bear it, keeping up, however, merely as much heat as may be found perfectly agreeable to his feelings; his desire for drink, which is generally very great, being meanwhile gratified *ad libitum*.

As soon as it may be proper to discontinue the perspiration, the patient's body should be rubbed perfectly dry, and he should be furnished with dry linens or flannels, and with dry sheets and blankets. He may then, if he desires it, be indulged with a little arrowroot, or sago, to which may be added a tablespoonful of brandy, or half a glass or a glass of sherry; which, given as often as required, will afford sufficient nourishment till the stomach recovers its healthy tone, and desires and relishes more substantial food. He may then have wine, beef tea, chicken broth, beef steaks, or mutton chops. Where the purging has been quick and violent, if the patient be free from sickness at the stomach, his bowels should be allowed to remain undisturbed if they will, till the third day. They should then be gently opened, by means of an enema of a pint of a weak solution of soap and water. Should the patient be seized with bilious vomiting sooner than the third day, which sometimes happens from the sudden discharge of the dis-

tended gall bladder, and should his bowels be confined, it will be proper to give him the enema earlier, giving at the same time an emetic of ipecacuanha wine, to be worked off with warm camomile infusion. Should these means fail to settle the stomach, and give the peristaltic motion a downward direction, he may get two grains of calomel, and six or eight grains of compound extract of colocynth; and after some time the enema should be repeated till it produces the desired effect of clearing out the bowels, and carrying off the redundant bile; after which, should any irritability of stomach remain, it will be immediately relieved by one or two grains, as the case may be, of solid opium, followed up with bitter tonic effervescing draughts. If the patient have got a large dose of opium at the beginning, it will require two grains to be given now; if he have had a small dose, one grain will suffice.

Should the patient on the second day, as often happens after a malignant attack of the disease, complain of acidity of stomach with confined bowels, he should get two tablespoonfuls of the following mixture every third hour till relieved:—

Sweet Spirit of Nitre, Tincture of Rhubarb, Tincture of Colombo,
—of each half an ounce.

Compound Tincture of Cardamoms, three drachms.

Bicarbonate of Soda, two drachms.

Camphorated Julep, eight ounces—Mix.

After a few doses of the above mixture have been given, their effect on the bowels may be assisted, if necessary, by the use of the mild enema already mentioned. The mixture will neutralize the acidity in the stomach, and restore the healthy tone of that organ. It will also act gently on the bowels, cleanse the tongue, and cool the system, and will promote the restoration of urine, which is generally suspended in this disease. Should, however, the bowels be too much relaxed, the tincture of rhubarb should be omitted, and two drachms of the compound spirit of ammonia, and a suitable proportion of the tincture of opium added. The stomach of a patient recovering from a malignant attack of Cholera is very weak, and the patient feels a craving desire for bitters and aromatic spices; and from the shock his stomach has sustained, he desires, and can take much stronger doses of these than would be agreeable to him under ordinary circumstances. This craving desire should be gratified, as nature seldom errs in such matters.

Bilious diarrhœa never occurs in the consecutive stages of Cho-

lera, unless calomel, or some preparation of mercury, has been most improperly, and I would add, most unwarrantably used in the primary treatment of the disease. When it does occur, it should be treated with the cretaceous mixture, combined with suitable proportions of the tinctures of catechu and opium, and in addition, if obstinate, by anodyne injections, giving at the same time small and frequently-repeated doses of sulphur, for the purpose of neutralizing the mercury, and for counteracting its action on the liver. The strength is at the same time to be supported by wine, beef tea, &c. Great care should be taken not to allow the patient to get out of bed, or stand in the erect posture, till the strength of the body and the healthy tone of the nervous system have been sufficiently re-established. Fatal consequences have sometimes arisen from not attending to this precaution. In a hospital, a woman, who had a very favorable recovery from an attack of Cholera, lost her life by imprudence in this respect. Contrary to the orders of the superintending physician, and in opposition to the remonstrances of the attendants, she got out of bed, and while in the act of dressing herself in an erect posture, she suddenly fell on the floor in a fainting state. The excretory vessels being unable to sustain the superincumbent weight of the fluids of the body, became dilated—the serum, or watery part of the blood, escaped into the bowels, and she passed several quarts of fluid, as clear as water, before she could be lifted into bed. She was dead within less than two hours afterwards, having manifested all the symptoms of one who had been bled to death.

In directing the treatment of the mildest form of the disease, I omitted to state, that should the practitioner find his patient affected with pain of stomach, headache, and vomiting, along with a hot skin and a full strong pulse, and should he find that the bowels have been previously much confined, he ought, before giving the antispasmodic pills or draught, as ordered, to cause the bowels to be unloaded by means of an enema.

I directed that the opium, whether alone or combined, should be administered in Cholera in the solid form. The reasons why it should be so administered are, that in that form it is more likely to be retained on the stomach, and if it be rejected, the fact can, by an examination of the egesta, be more readily detected; and for the quantity thrown off an equal quantity can be immediately re-administered. On the other hand, if the administration of the medi-

cine in a fluid state be followed by vomiting, the practitioner can have no means of knowing what portion of the dose has been rejected, so as to enable him to supply the deficiency. In this way he loses his reckoning, bewilders himself, and, under such circumstances, in a malignant case, he may lose his patient.

In adjusting the doses of the medicines, I directed ten of the pills containing ten grains of powdered opium to be given for a first dose, in the most malignant and rapidly fatal form of the disease, and under the alarming and dangerous circumstances there supposed. I prescribed ten, as I knew it required some experience and tact to graduate, in such cases, the exact amount of danger. Were the dose to be administered by my own hands, however, or under my own inspection, I would in many such instances, without hesitation, as I have often done, and always with success, give twelve of the pills for a first dose. I have given six of the pills to a little girl of ten years of age, and she experienced no narcotic effects from the dose; but, on the contrary, slept none all night, and had quite recovered and was walking about next day. All the other doses mentioned will be amply sufficient first doses for all the other forms of the disease for which they were prescribed.

I shall pursue the subject in my next.

I have the honour to be, &c. &c.

G. S. H.

LETTER VI.

GENTLEMEN :

I have stated that the mode of treating Cholera, described in the preceding letters, if timely, skilfully, and vigorously employed, will cure the disease in every instance. What I mean by timely employed, is any time before the disease has carried the patient into collapse. When the serous, or watery part of the blood, all, or nearly all, escapes into the stomach and bowels, the remaining crassamentum, or fibrinous part of the blood, becomes too crude to circulate. The pulse then ceases to be felt at the wrist, and the body becomes as cold as ice, communicating to the touch a sense of coldness never felt in the human body under any other circumstances, whether dead or alive. This is called the collapse stage. Now, after the disease has arrived at this stage, little good can be effected by medicine. The recoveries from this stage are to be chiefly attributed to the *vis medicatrix nature*. This is not a mere assertion. It has been proved; I have seen more instances of recovery from collapse in persons who utterly refused to take any medicine whatever during the whole course of the disease, than I have witnessed in those who had been treated by the popular remedies. These were persons of peculiar habits of body,—thin, lean, emaciated habits, with little fibrine or crassamentum in their blood. The great advantage which these persons enjoyed, in this case, from the tenuity of their blood, was, that the heart, arteries, sinuses, and lungs, did not become obstructed by the masses of fibrine which obstruct the circulation in the collapse stage in those of more robust habits, and of more healthy bodies and sounder constitutions. I have been called in, on passing, to see an emaciated old woman, lying on a truss of straw, on a cold, damp, earthen floor, her body and features collapsed, clammy and cold as a mass of ice, with scarcely any covering over her, and with not a vestige of a pulse to be felt at the wrist, or any part of the extremities. She was urged with intense burning thirst; and with her hoarse stridulous voice

she cried incessantly for cold water, which was no sooner swallowed than it was rejected from the stomach. This poor creature I could not persuade to take any medicine; but I directed hot substances to be applied around the body and extremities, and to allow her urgent desire for cold water to be gratified. On passing next day I had the extreme gratification to find her out of danger; her pulse full, soft, and regular; the natural heat of the body restored; the veins full, and the countenance and hands restored to their natural appearance. Such instances as this, in both sexes, have frequently come under my observation; but more frequently in the case of old women than in men of the same age. I think it right here to state that, from the nature of the disease, no person of a robust, corpulent habit of body could recover from collapse. Let no exertions, therefore, be spared to arrest the progress of the disease, before it arrive at this stage.

The cramps in the collapse stage of Cholera are truly frightful, and the pain produced by them is most excruciating. The cause of cramps in this stage is different from that which excites them at the commencement of the disease; I mean before purging has commenced. I have already stated, that cramps, at the commencement of an attack, are indicative of its mildness. They prove that the brain and nerves are not so extensively paralyzed as they are in the more malignant form of the disease. This can be made more intelligible to the reader by illustration. When a certain amount of irritation is applied to a nerve, all the muscles with which that nerve communicates become cramped, and more or less pained. Increase that injury, however, so as to destroy all sensibility in the nerve, and all those symptoms and effects cease. In like manner, when the brain and nerves are, originally, but partially paralyzed and impaired in their energy, this will manifest itself in the milder form and character of the symptoms. The cramps in this case, while they prove that the brain is the original seat of attack, and that its functional powers have been disturbed, also prove, by their existence, that its total energies have not been completely overthrown. In the collapse stage, however, the cramps do not arise simply from the primary exciting cause; but from the shock which the brain has sustained from the sudden vascular depletion which has taken place; as we see exemplified in animals which have been bled to death, which generally die convulsed. The brain, being suddenly deprived of the packing and bracing support given

to it by the blood, loses its power, and, from that loss of power, it fails in its command over the voluntary muscles; and these muscles, in consequence, exert their uncontrolled contracting power in the way we see them do in the fearful cramps which occur in the collapse stage of this disease. That the cramps in the collapse stage are produced by this cause is clearly proved by the result of an accidental experiment, which occurred in a case which shall be described in this letter.

With these preliminary observations I proceed to state that, though remedial means avail little in this stage of Cholera, it is still, even here, the duty of the practitioner to give his patient every chance of recovery which his skill affords. From what has been already stated in this and in the preceding letters, the reader will perceive that the indications of cure, in this stage, are to restore the energy of the brain and nerves, as far as this is now practicable, and to re-fill the depleted circulating vessels. The accomplishment of these objects can be effected only by the means already directed in the primary stages. The same medicines and cordial stimulants may here be given for a first dose, with equal freedom, as were directed to be administered in the primary stages. The only objection to this is, that patients who die in this stage, for reasons formerly stated, generally die comatose; or, in other words, sleep away, as it is called; so that if a large dose of opium were given, and the patient were to die, as it is most likely he would, his friends or relatives might naturally suppose that the large dose of opium had caused him to sleep the sleep of death. In treating this stage of the disease, the circumstances referred to should be explained to the friends of the patient before any medicine be given. For the reason just stated, I always, in such case, try the effects of four of the antispasmodic pills, and the draught, with the cordial stimulants, for a first dose, till I see if this and the other remedies are likely to prove successful, when, if necessary, a little more may be given. In this stage, however, the fluids having been already drained off, there is seldom any, or, at least, much purging, so that four of the pills will be generally sufficient; as they, and the other medicines and cordial stimulants, are ordered here with a view chiefly to restore the tone and energy of the brain and nerves. The second indication of cure in this stage of Cholera, namely, to re-fill the depleted circulating vessels, can, as formerly stated, be accomplished only through the agency of

the absorbent vessels opening on the internal surfaces. The grand agent, and the only one which we have at command here, as in the primary stages, for exciting those absorbents into vigorous action, is perspiration, produced by the application of external heat, as formerly directed; and this agent will here again cause the absorbents to accomplish the object desired in re-filling the depleted circulating vessels, even in the collapse stage of Cholera; but the patient, notwithstanding, will die, unless his recovery be favored by such a habit of body as I have described above. No patient with any other habit of body can recover out of collapse in Cholera. For though, through the means directed, the depleted circulating vessels may, and will, if it be tried, be completely re-filled, still, if the patient be of a robust corpulent habit of body, such fibrinous obstructions and congestions will have occurred as will assuredly prove fatal; and the medical art afford no means for removing these. These facts have been so thoroughly established, that they enabled me to foretell, with certainty, what will be the result of my efforts for the recovery of a patient from the collapse stage of Cholera.

To prove that the depleted circulating vessels can be effectually re-filled by the combined agency of perspiration and drink, I shall now state a case, which might rather be called an experiment, though an accidental one.

A man, aged forty-seven, of a thin spare habit of body, was seized with violent symptoms of Cholera, at three o'clock, A.M. I was called to him at eight the same morning. On entering the house I heard him screaming from the violence of the cramps. I found his extremities quite cold and livid; his pulse scarcely perceptible at the wrist, small, fluttering, and very irregular; his countenance ghastly; his face and hands of a livid colour, and the skin of the latter shrivelled and corrugated. He had incessant purging and vomiting of a fluid nearly as clear as water, with an insatiable desire for drink. He was so weak and exhausted as to be unable to get out of bed. I had the body and extremities immediately surrounded with jars and bottles of hot water, bags of hot salt, and hot bricks, and, three minutes afterwards, I gave him a suitable dose of the antispasmodic pills and draught, which I caused him to wash down with a glass of hot punch. The heat was gratifying to him, and whenever a cramp seized him he begged that something hot might be applied. During this process I directed my

attention particularly to the pulse. After the heat had been thoroughly applied, and the pills and the hot punch had been administered, the pulse became gradually more distinct and full, and, at the same time, improved in strength and regularity. On referring to notes taken at the time, I find that at the end of fifteen minutes after the application of the external heat, and about twelve minutes after the administration of the medicines and hot punch, the cramps had entirely ceased. The pulse was then pretty full, and of tolerable strength and regularity; the countenance had become more full and natural, and the hands less shrivelled; the temperature of the body and extremities, which rose with the pulse, had arrived at the natural standard, and a profuse perspiration issued from every part. The patient expressed himself completely relieved. I then gave him a large draught, as much as he desired, of warm whey, of which he had been drinking previously to my arrival. As the symptoms then appeared favourable, and as extensive experience had given me the most positive assurance of the successful result of the mode of treatment, I left the patient, promising to be back in half an hour. I, at the same time, gave the attendants strict orders to keep up the perspiration, and not to let the patient have any more drink in my absence, lest he should throw off the medicines; but I directed them to have a jug of hot toast-water prepared at my return. After taking my leave, I was so much pressed by business that this patient entirely escaped my recollection until, about two hours afterwards, I received a message that he was as ill as ever. On my way to him it occurred to me that if my directions had been strictly followed, he must be cramped again, as the profuse perspiration which issued from his body when I left him, if continued and not supplied by drink, must, before then, have produced a draining effect on the vascular system, equal to that which had been produced on it by the previous discharges from the internal surfaces. Accordingly, on entering the house, I again heard his cries, and was met by his friends who, in despair, told me that he was cramped worse than ever, though they had strictly followed my directions in keeping up the heat, and in refusing to comply with his desire for drink, which was urgent. Though an accidental experiment, it was one very important and curious. I was anxious, therefore, to note down with accuracy every particular. His face and hands, which before were livid, were then of a crimson hue; the prominences on these parts were sharp, and the depressions were hollow;

the skin seemed to be sticking to the bones, without any apparent intervening substance; the course of the veins was marked by hollow lines; the body and extremities had become almost dry, and on touching them, their morbid heat and parched state communicated to the hand a very unpleasant sensation; the respirations were quick, with great anxiety and pain in the region of the heart; and the thirst was most urgent. There had been no discharge from either stomach or bowels after the medicines had been administered. The pulse at the wrist was felt like the ticking of a watch, at intervals of a few seconds, fluttering very quick, and presenting to the finger a degree of smallness similar to that of a very fine needle. Keeping my finger placed on the pulse, I ordered the patient to drink warm toast-water *ad libitum*. The rapidity with which the drink was absorbed, and the sudden effect produced on the pulse by it, were very remarkable, not a minute having elapsed after it was swallowed till I felt a perceptible change. The intervals between the flutterings of the pulse became gradually shorter and less perceptible. As the pulse became fuller, it became more and more distinct, till it bounded full and strong. The veins filled in the same proportion till they became distended like rods. The breathing became natural, and the pain about the heart ceased. The cramps then disappeared, and a profuse perspiration again issued from every part of the body. This all occurred in the course of eleven minutes, and the patient in that time drank above a gallon of fluid. As the vascular system filled up, the complexion improved, till it became nearly natural, but rather florid. The external heat was gradually removed, the temperature of the body was reduced to the natural standard, and the patient felt free from every complaint. He was convalescent the next day, though weak, and he was walking about on the fourth day.

This accidental experiment proves that the cramps, in the collapse stage, are caused by the vascular depletion. It also shows how rapidly the drink is carried into the circulating vessels when the action of the absorbents is excited by perspiration.

When patients in the collapse stage of Cholera urgently crave cold water for drink, their desire in this respect should be gratified. At the same time a little sweet spirits of nitre should be added to the cold water, as it proves very grateful to them, and in some instances produces salutary effects. When the collapse stage is treated in the way I have directed, however, the patient's desire for cold water soon ceases, and he relishes hot drinks best.

Stimulating embrocations, so much lauded as a remedy in the collapse stage of Cholera, never did good, however injurious they may have proved. Neither did frictions, so much recommended in this stage, ever do any good, but always a great deal of mischief. They annoyed the patient, they excited vomiting, even if it did not previously exist, they increased his restlessness, exhausted his remaining strength, and hastened his death.

After the patient has been completely rallied from the cold collapse stage by the means which I have directed, and after the depleted circulating vessels have been thoroughly refilled, should a tendency to coma manifest itself, with symptoms of congestion in the brain, along the course of the spine, or in the lungs, which, if the patient be more or less of a corpulent, robust habit of body, will assuredly be the case in a greater or less degree, in one or other, or, it may be, in all of these respects, the effects of scarifications and cupping may be tried at the nape of the neck, between the shoulders, or along the course of the spine, or as near as may be convenient to wherever the seat of danger is indicated. Where the coma is profound, however, the eyes suffused and fixed in their sockets, with the pupils contracted and insensible to the stimulus of light, there is no use in torturing the patient with remedies: no patient ever did, or ever will, recover under these circumstances.

What is called consecutive fever in this disease never occurs unless the patient has either gone into collapse, or approached very near to it. In no instance does it occur unless there have been considerable watery discharges from the bowels. This fever is caused by the congestions which take place in different parts of the body, and some die of it, after having apparently escaped all the horrors of the disease. These congestions may, in the consecutive stage, give rise to inflammations of the brain, stomach, bowels, or other organs. Should such inflammations occur, they will be best treated by sinapisms, fomentations, and local bleedings with leeches, followed by blistering, if necessary. I have often seen a violent mercurial fever, which had been produced by enormous quantities of calomel which had been improperly administered in the treatment of a mild attack of the disease, mistaken for consecutive fever.

In my next letter I shall notice a few of the most popular remedies which have been employed in the treatment of Cholera, in these countries, in India, and elsewhere.

I have the honour to be, &c., &c., G. S. H.

LETTER VII.

GENTLEMEN :

Amongst the objectionable remedies which have been employed for the Cholera, the first I shall notice is blood-letting.

With regard to this remedy, I would remark that I cannot conceive how any rational practitioner could think of using, for the cure of this disease, a remedy which produces on the constitution an effect the very opposite to that which it should be his object to accomplish—a remedy which would aggravate rather than relieve the symptoms. The effect produced by blood-letting is relaxation. It is with this view that it is generally employed: as, for instance, in inflammations, and in certain cases of rigidity. The depletion of the vascular system by blood-letting, suddenly removing the accustomed pressure or bracing support from the brain, has the effect of diminishing the tone and energy of that organ, and, of course, of the nervous system. Hence the supply of energy to the muscles is lessened, and a corresponding diminution of the contractile power of the muscular fibre is produced. Now from what has been stated in the preceding letters, the reader will at once perceive that a precisely similar state of things takes place in Cholera. I need not say, then, that blood-letting should be at once discarded from the treatment of the disease; for every man possessed of a reasoning mind, who has read my preceding letters, will at once perceive that it deprives the patient of many of his chances of cure; and that, by diminishing the force of the resisting power of the vessels through which the serum of the blood escapes, it tends only to hasten the fatal event. All the symptoms at which any man could grasp, in justifying the use of the lancet in the earliest stages of Cholera, can be at once relieved by a free perspiration. I was once taken to visit a young gentleman, of eighteen years of age, who was seized with premonitory symptoms of Cholera. One of the same family had, a few days before, died of the disease, in a few hours' illness. He complained of great præcordial oppression; violent pain over the region of the stomach,

increased by pressure; great sickness and retching, but nothing ejected from the stomach; a painful feeling over every part of the body, as if he had been beaten with a stick, and severe headache. His face flushed, his eyeballs swollen and painful, with a feeling as if they were about to start from their sockets; his tongue white, his skin hot and dry; pulse one hundred and twenty, exceedingly full, strong, and bounding. His bowels had not been affected. After cautioning the medical gentlemen present not to allow such symptoms, as those of which the patient complained, to betray them into the use of the lancet in similar cases, I ordered the patient a suitable dose of the pills and draught prescribed in my preceding letters, with as much mild drink as would wash them down. I then ordered hot substances to be applied to his feet, and different parts of his body, with a view to produce perspiration; and, after giving the attendants the necessary directions about what drink he was to get, and when he should have it, I took my leave. After the lapse of an hour, I again visited him, and found him perspiring freely; his skin quite cool; his pulse sixty, soft and regular; and he was entirely free from pain of every kind. He declared that he was then as well as ever he had been in his life, and expressed a wish to get out of bed. The crushing about the heart and the pains flowed off with the perspiration. He said that he had not perspired many minutes till he was free from pain, sickness at stomach, and every complaint. He had quite recovered, and was walking about next day. I need not waste your valuable space, or the reader's time, with further comment on so absurd a remedy as bleeding.

The next remedy which I shall notice is calomel—a medicine which, in these and all other countries, has been universally used for the cure of the disease.

Calomel, like blood-letting, tends only to hasten the fatal termination in Cholera. It does more. Those who escape or recover, in spite of the effects of it, do so at the expense of a ruined constitution. The reasons which are given by medical writers for using it in that disease are absurd, and are founded on a total misconception of its nature. Some say that they give calomel, combined with opium, as a stimulant. "Powerful stimuli," say they. Opium, as has been already stated, is a powerful and very valuable stimulant; but the chief stimulating effect produced by calomel, in that disease, is on the mucous membrane of the stomach

and intestines; increasing the discharges from them, which it should be the object to prevent. Mr. Orton, in his work on "Cholera," says that the calomel was found adhering to inflamed patches on the internal surface of the stomach and intestines of many of those who died of Cholera in India. No doubt it had stimulated these parts with a vengeance! The following are that gentleman's words:—"Calomel was frequently found at the bottom of the fluid contents, and adhering in various places to the *mucous* coat." In a note appended to the same he adds,—“I have been informed by a practitioner, in whose observation I have great confidence, that he had frequently found this medicine adhering, chiefly, to those parts of the stomach which were inflamed.”—[See Mr. Orton's Essay on the Epidemic Cholera of India, page 42.] Here, then, is positive evidence of the destructive effects of calomel, even in India—the boasted birthplace of the practice.

Others, again, say that they administer the calomel with a view to restore the biliary secretion, which they allege is suspended in the disease. On this subject I beg leave to observe, that the suspension of the secretions in Cholera is not the *cause*, but the *effect* of the morbid action. When the morbid action is corrected, the secreting organs generally resume their functions without any assistance. And even though they should not, it is only after the disease has been cured that medicine will have any salutary effects on those organs. First, then, cure the disease; and afterwards, if necessary, let attention be directed to the secretions. I would remark, however, that though, for a very obvious reason, the suspension of the secretion of urine is a characteristic symptom of Cholera, yet it does not appear that the secretion of bile is ever, for any length of time, suspended in that disease, even though it does not come off in the discharges. On a *post mortem* examination of the bodies of those who have died of the disease, the gall bladder has always been found distended with bile. It is not, therefore, so much a suspension of the secretion of bile, as a retention of that fluid, which accounts for its non-appearance in the discharges. Did time and space permit, I could satisfactorily explain the cause of its retention in Cholera. I do not conceive it right, however, to allow that explanation to occupy the space which should be allotted to more important matters; particularly as, when the disease was cured, I never knew an instance in which the secretory organs did not resume their functions; and even though calomel

should not counteract the effects of other remedies, which it does, or produce destructive effects on the constitution, I cannot see any use in employing it in a disease where it has no time to act. If the discharges be made profuse and watery, and follow each other in quick succession, as, in a malignant case, they generally do, they may carry the patient beyond the boundaries of human aid in less than an hour. In such cases the calomel has not sufficient time to be absorbed, even though the absorbent vessels were in a fit state to take it up. The absorbents on the internal surfaces, in that disease, however, do not act at all, till the morbid action is corrected. Those cases, therefore, in which calomel produced salivation, did not deserve the name of Cholera.

The advocates for the use of calomel in Cholera, say that all their patients who have been salivated by that medicine have recovered; and this alleged fact, they presume, is an argument in favour of its employment for the cure of that disease. Now, to those who do not understand the subject, this would appear to be a very plausible argument. A little examination, however, will show the fallacy of it. First, I would remark, that many have been subjected to treatment for Cholera who never had the disease at all. Secondly, during the prevalence of the disease, individual cases do sometimes, nay often, occur, in which the *vis medicatrix naturæ* would succeed in throwing off the disease without the aid of remedies, or in spite of the counteracting effects of the calomel. And, lastly, opium, which is generally administered in conjunction with the calomel, and an accidental perspiration, may succeed in curing a very mild case of the disease, as has been already stated, notwithstanding the prejudicial effects of the latter medicine. Now, whatever calomel may remain in the stomach and intestines of these patients, after the disease has been cured, will, no doubt, be absorbed, and will salivate them in good earnest, and will thus, after the cure of the disease by other remedies, produce a new disease, in some cases worse than Cholera itself. Hundreds have, in this way, been so disabled as to be rendered incapable of earning a loaf of bread for themselves, and have been left to drag out a miserable existence, with shattered and ruined constitutions, from the effects of calomel administered to them for the cure of Cholera. But none of these facts prove that the calomel, or the salivation produced by it, had any efficacy in the cure of the disease. The fact is, calomel will not act on the system in any way to produce

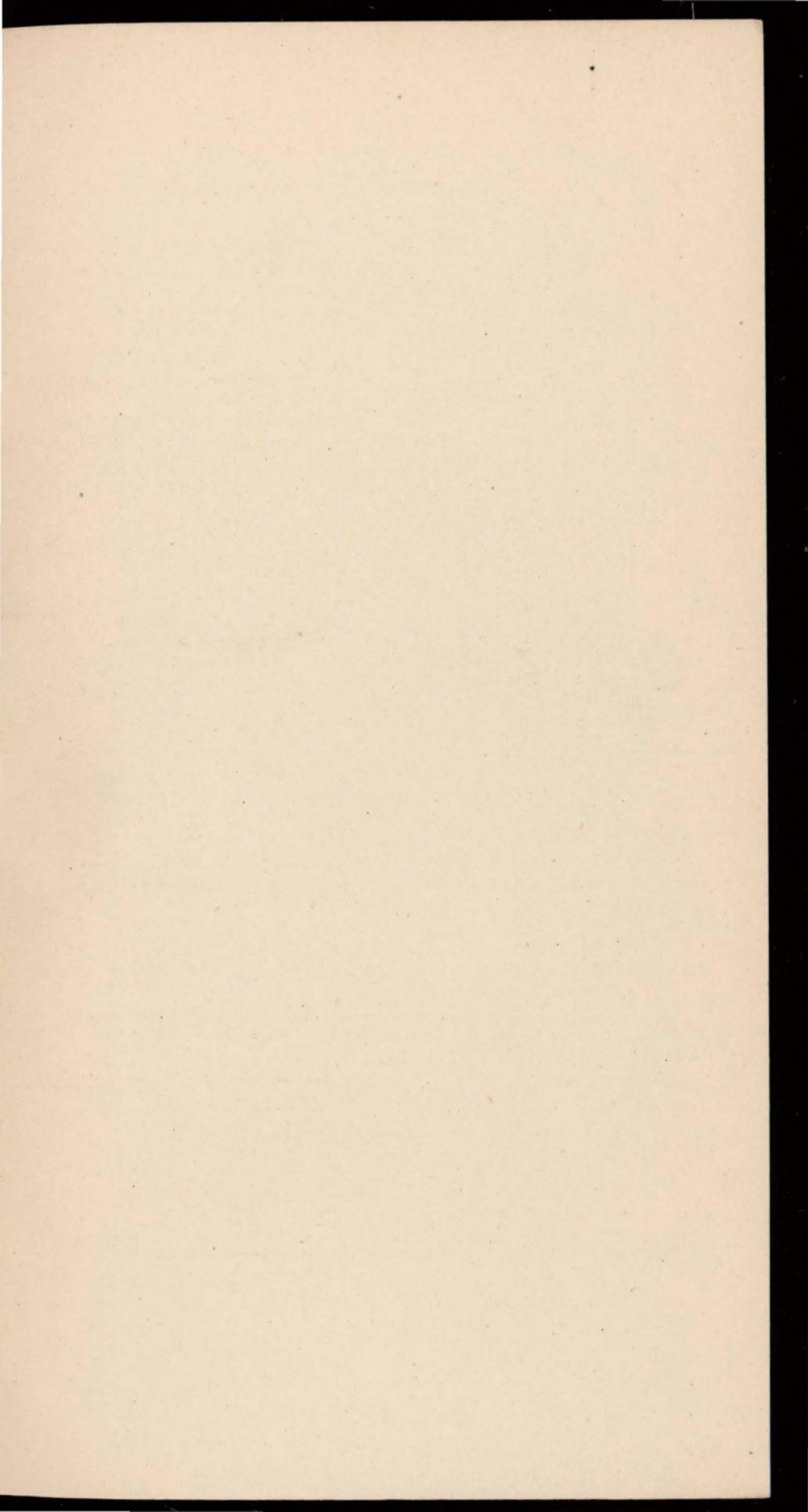
salivation, until the morbid action constituting the disease has been counteracted and reversed either by the agency of other remedies, or by the reactive power of nature herself.

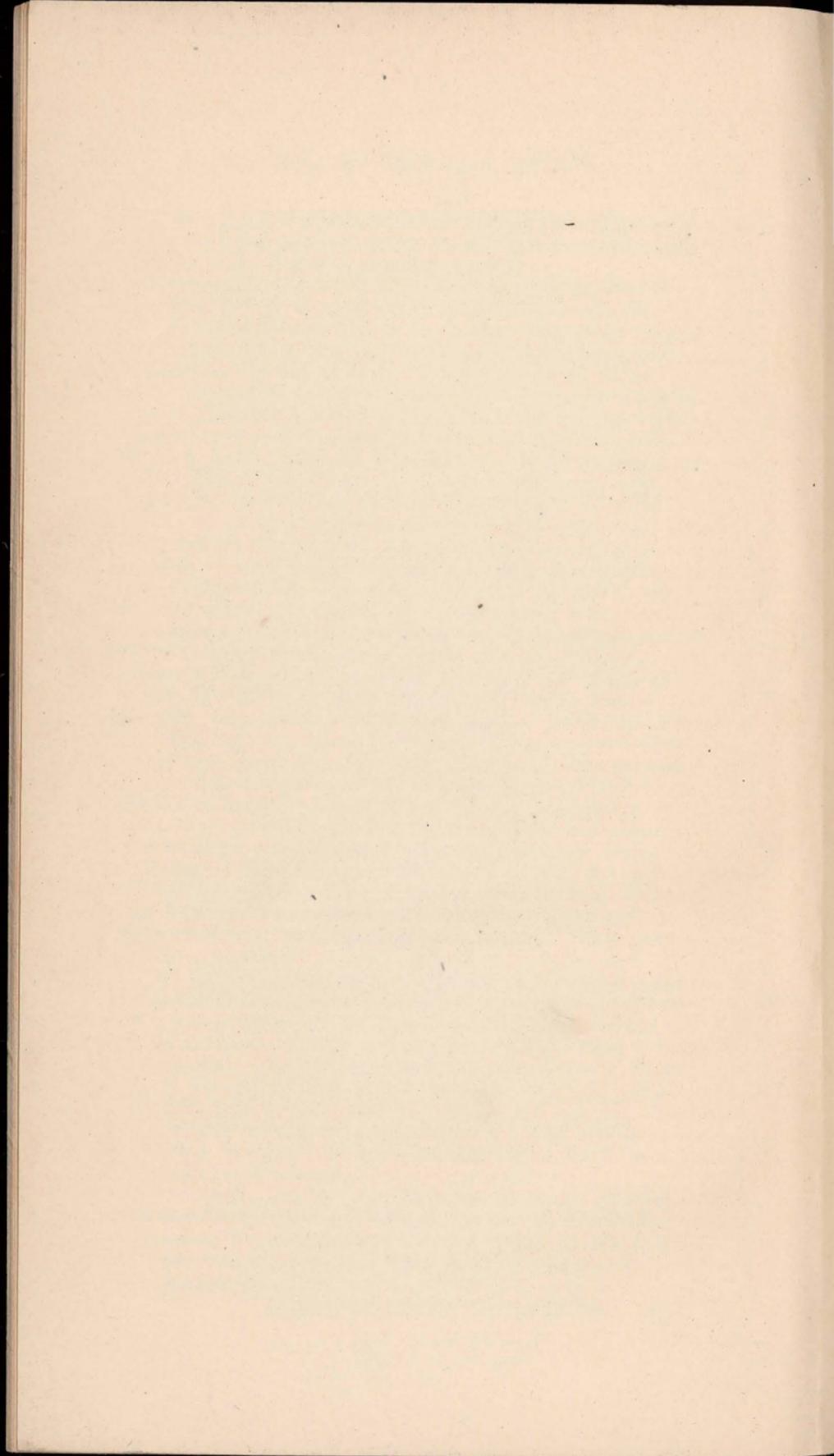
The enormous quantities of calomel which were given to patients in Cholera, during the prevalence of the disease in these countries, were of themselves sufficient to destroy life, even though the individuals to whom they were administered had been, at the time, free from any specific disease. Twenty grains of calomel and two grains of opium, to be repeated every two hours till the symptoms should abate, were directed to be given in the books and pamphlets published on the subject at that period. A physician, who is now a vicar of some parish in England, in a letter published in the *London Times* newspaper, about two months ago, says that the best remedy he ever saw employed (and it was in New York he had seen it) was twenty grains of opium for one dose. A physician told myself that his dose was forty grains of calomel and two grains of opium. I shall content myself with only one specimen of the extent to which the calomelizing practice has been carried. A man was admitted into the Belfast hospital, whose mouth was nearly hermetically sealed up from the effects of calomel, which had been administered to him for the cure of an alleged attack of Cholera, so that no food could be conveyed into his stomach but beef tea, thin gruel, or milk, and these he had to suck in through apertures between his remaining teeth. Such an extensive excoriation and ulceration of the gums, jaws, lips, and cheeks had taken place, from the salivating effects of the calomel, that extensive adhesions had formed between these surfaces throughout their whole extent. His lips and cheeks adhered firmly to the gums and jaws, so that Mr. Moore, the talented and skilful surgeon to the hospital, was obliged to dissect these parts asunder, to cut out masses of flesh between the inner angles of the jaws, and to stuff the inner sides of the cheeks and lips with lint, soaked in oil, to prevent their re-adhesion to the subjacent parts, and to gag the jaws asunder with cork, till these parts healed. Why unnecessarily inflict such misery?

I have not only already amply proved that calomel is unnecessary for the cure of Cholera, but I have now shown that it is destructive. I have cured from two to three thousand cases without a single grain of calomel. I have a right, therefore, to form a judgment on the subject. I trust I have now set the bleeding and calomelizing mode of treating Cholera at rest; and as I have directed a mode of treating that disease, which, if timely and skilfully employed, will infallibly cure it in every instance, I shall not delay further by noticing any more of the nostrums which have been recommended for its treatment.

In conclusion, lest any one, from the foregoing remarks, should be deterred from the use of calomel in other diseases where it may be requisite, I would observe, that we do not possess a more safe or a more valuable medicine when skilfully administered, in cases where its use is proper.

I have the honour to be, &c., &c., G. S. H.





JUL 18 '47

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