

MITCHELL (Jos. T.)

CHOLERA:

ITS

PHYSICAL PHENOMENA, CAUSES & TREATMENT.

TOGETHER WITH

THE SANITARY ARRANGEMENTS AND APPLIANCES
FOR PRESERVING HEALTH,

NECESSARY TO BE ADOPTED AT THE TIME OF THE EPIDEMIC.



BY

JOSEPH THOMAS MITCHELL, F.R.C.S.,

Late Medical Officer of Gambeth;

*Who in 1832, 1833 and 1849, attended more than 230 Cases of Cholera and more than
900 Cases of Choleraic Diarrhœa.*

LONDON:

A. M. PICOTT, ALDINE CHAMBERS, PATERNOSTER ROW;

AND 39, KENNINGTON GATE.

1853.

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SINCE these observations have been prepared for publication, I have had opportunities of testing the plan for checking the serous discharges in Choleraic Diarrhœa, by the aid of Mineral Acid, called the Austrian treatment, which has lately been so much applauded, and to which I have alluded ; but it does not answer the desired end, whilst the Aromatic Chalk Mixture, with Catechu and Opium seldom disappoints me.

J. T. M.

*Percy Place, Clapham Road,
October, 1853.*

ERRATUM.

Page 5, line 19, *for* phenomenon *read* " phenomena."

There is a great deal of
work to be done in the
field of the study of the
history of the people of
the world. It is a task
which requires the most
careful and thorough
research. The student
must be able to find the
facts and to put them
together in a way which
will show the truth of
the matter. This is the
work of the historian.

THE HISTORY OF THE
PEOPLE OF THE WORLD

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IN the present day, palpable and destructive error is made to usurp the place of vital and essential truth; and unreasonable novel fancies are employed to set aside the old, universally approved and established principles of an observant, intelligent and practical profession, which the result of long experience has proved to be sound and effective for the relief of diseased humanity. This is the case where those modern do-nothing innovators—by their doctrines and practice, are distinctly shewing, that they entirely disregard the most evident of the laws of the animal economy, viz: “that two equally urgent diseased actions cannot proceed at the same time, in the same subject, without the one soon yielding to the effects produced by the other;” the law which influences the legitimate physician when he employs counter-action, by which he produces the most desirable results.

These misled men are also continually striving to imbue the public mind (always too ready to adopt whatever is new, however mystical or unreasonable) with the belief, that all which has hitherto been received as truth, and by the best professional experience proved to be so, is nothing but error, and to foist upon its acceptance a system based upon mere ideality and perfect fallacy—which, in itself, would be of little consequence, if by its negative, let-alone character, the use of active means was not too often interrupted and valuable lives too often allowed to be sacrificed to disease:—facts, which too often, have occurred and which call on the experienced thinking practical members of the profession, loudly to decry such dangerous fallacies, and to uphold the value of legitimate practice—based upon sound physiological and pathological knowledge.

This is one chief reason, why, after more than thirty years of unremitting professional engagement, I now for the first time publicly set forth the result of observations carefully made in a public practice, where from 3,500 to 4,000 cases have been treated in every year; in which means, adopted upon the principle of producing counter-action, have chiefly been relied upon and variously applied; from which at all times the most satisfactory and best results have been produced, and which has proved to me by the most convincing demonstrations, that HOMŒOPATHY, or a practice professing to be based upon a diametrically opposite principle, but which in reality has no effect whatever on the animal economy, should at once be denounced as most prejudicial to the interests of mankind, especially when suffering under ACUTE DISEASE, and most especially under CHOLERA—a malady in which more sacrifices have been made by inefficient or bad practice than in any other.

But besides the erroneous practice of the Homœopathist in Cholera, by referring to that of other practitioners, as adopted in the visitation of 1849, we can plainly perceive how medical men, thrown into a state of consternation by the influx of so dreadful a malady, are liable to forget the grand first principles of pathology, and the most easily discernible laws of the animal economy, and are led into the greatest

inconsistency in practice ; if it were not so, we could not account for many of the various means adopted by many medical men, all differing in nature and effects, most of them showing that no regard had been paid to those known principles and laws. This is remarkably evident in looking at the little advantage which many took of the common laws of counter-action, more especially of the effective means which we possess, of suddenly and powerfully diverting to the skin, by which over-action or disease of deeply-seated parts, such as that of the mucous membrane of the alimentary canal ; the evident primary seat of deranged action in this disease is arrested, and also when we contemplate the violent and unjustifiable* doses of medicine given, such as, under ordinary and analogous circumstances are not only contra-indicated, but are positively injurious, because powerfully tending to produce the very diseased action which we should be striving to suspend.

With the hope of deriving advantage from the discussion of the pathology and cure of any disease, especially of that so vastly important as Cholera, we ought first to satisfy ourselves fully as to the structures which are primarily implicated, and then as to those parts which become consecutively affected in its progress. We should then consider how those structures are liable ordinarily to be influenced by disease, how by remedies directly applied to them, and how by remedies applied to parts remote. On observing the phenomena attendant upon Cholera, we clearly perceive that the first evidence of disease is the disordered function set up, in the whole or in the greater part of the mucous membrane of the alimentary canal ; vomiting or purging, or both, being universally present in an attack of this disease, indicating either inflammation or an analogous condition of that surface, producing a greatly increased action of its vascular and secreting functions, in some instances to such an extent, that in a most inconceivably short period, so great a part of the fluid portions of the whole mass of blood becomes separated from it as to change and to inspissate its natural consistency, and thus from the want of fluidity alone this "essential stream of life can with difficulty be circulated." It can no longer be circulated through the smaller vessels, to undergo in different organs of the body those various vital changes which are essential to maintain continued existence. It can no longer be carried to the fine tissues of the membrane of the air cells of the lungs, there to undergo decarbonization to fit it for its various functions in circulation, and have generated from it the necessary heat suitable for the continuation of vital purposes, one consequence of which being that the body becomes cold, and the temperature falls from 98° , the natural heat of the body, to that of the surrounding atmosphere ; it can no longer be carried to the liver, there to be subjected to another action, to have the bile separated and poured into the alimentary canal, to complete healthy digestion and prepare the chyle for assimilation, &c., &c. ; to the kidneys for the purpose of having the poisonous urea and other impurities discharged from the system ; to the brain, for maintaining the various faculties of the sensorial and nervous system, &c., &c. ; and in fine, without fluidity the blood is incapable of sustaining, except for a short period, the universally essential circle of functions on which life de-

* The oft repeated scruple and half drachm doses of calomel to wit.

pend. All the deranged phenomena designated Cholera, are then, alone attributable to this single circumstance,—that by the greatly increased action of the secreting, that is of the vascular mucous surface of the alimentary canal, the fluid portions of the blood are poured forth from the body; shewing that the first palpable duty of the physician is to attempt to stop this excessive secretion, and the second, to restore the lost fluidity to the blood.

In 1849, from the enormous extent of my labours, as Medical Officer of Lambeth, which produced the most enervating consequences on my health and strength—not having been allowed by the parish authorities assistance, to one-half the extent which my duties required—I was utterly unable to make a *post mortem* examination of any case of Cholera; but I do not remember having seen one fatal case in which there had not been extensive watery discharges from the bowels and stomach, or bowels alone. In 1833 I witnessed the dissection of cases from which it was alleged that discharges in no great quantity had passed during life, but in all of which I observed that the stomach and bowels when opened were full of serous fluid, and the urinary bladders were empty. One most remarkable phenomena connected with this disease is, that now and then in cases where the discharges had been immense and where complete collapse had taken place, but where reaction had *speedily* been established, no bad symptoms of any kind followed, and on the next day the patient was found almost in perfect health; which proves that at least in such cases no permanent lesion could have taken place in the mucous surface, the function of which had been so extensively deranged.

The symptoms of Cholera are generally—first, vomiting of the simple contents of the stomach, and purging of the ordinary contents of the bowels, or perhaps diarrhœa alone, continuing with more or less urgency and for a longer or shorter period, sometimes only for an hour and in others even for a day or two, and then followed as it were suddenly by the passage of an enormous fluid discharge from the bowels, of the appearance of water very slightly clouded with milk, containing flocculi, not unlike small portions of dissolving or broken-down grains of rice, commonly described as “rice-water dejections,” and which in some instances has been as much in quantity as two gallons in the short space of half-an-hour; with this there is generally vomiting of the same watery kind of fluid, often also to the same inconceivably large extent. This state of things proceeds until the blood has become deprived of so much of its ordinary fluidity as that it can no longer be circulated. These symptoms are generally attended with cramp of the arms and legs, abdominal muscles, &c. In all cases the cramp is not equally violent, and in some it is totally absent. The countenance has now become anxious, livid, and shrunk, in some instances so much so that a youth of twenty years of age appears like a spare old man of seventy or more; the eyes are sunken into their sockets; the vessels of the conjunctiva tinged with livid blood; the voice is shrill and puerile, and so peculiar that it has received the appellation of choleric; the hands appear shrivelled and sodden, not unlike those of recently engaged washerwomen, only being livid or of a bluish-grey colour, instead of white and ruddy; the whole surface of the body becomes

cold, shrunken, and more or less livid; the tongue even feels cold to the touch; the secretion of urine has entirely ceased; the pulse becomes almost imperceptible, even at the carotids; the pulsation of the heart can hardly be discerned. By this time the purging and vomiting has ceased, and if a change does not soon occur by re-absorption of fluid and reaction in the circulating system, death must speedily terminate the scene. But should reaction come on, it is generally violent, and consecutive fever of a typhoid type sets in, in which coma and muttering delirium are the most formidable symptoms, and which are generally followed by death. But in a less violent state of reaction, a flushed countenance, hot head, small quick pulse, furred tongue, great thirst, cold extremities, &c., &c., occur, and within from four to ten days the patient recovers.

In most instances premonitory symptoms to a greater or less extent precede actual Cholera. In some instances a *dyspeptic* state is the only indication; it exists for a day or two, or even for a week or longer period, evinced by frequent eructations from the stomach, nausea, anorexia, flatulence, pyrosis, uneasiness or slight pain about the præcordia, slight *diarrhœa*, sometimes perhaps one or more slight vomitings, and in some occasions even obstinate costiveness. But slight feculent *diarrhœa* is the most frequent precursory symptom, sometimes continuing for a day or two, or even a week, but so slight as not to have been considered by the patient of sufficient consequence to induce him to adopt any remedy. In this premonitory *diarrhœa* nothing peculiar is observable, it is generally without the slightest pain. In some instances the patient has been in his usual good health, indeed in robust health; but he has partaken of food, perhaps at dinner or supper or other meal, which on all previous occasions had perfectly agreed with him, but now it has produced perhaps only trifling uneasiness indicating only slight indigestion, which is speedily followed by all the most formidable symptoms of Cholera. I have often observed that these symptoms have appeared in adults about two o'clock in the morning, about the time when we may expect that the chief meal of the day was undergoing the last process of digestion, when after a comfortable sleep, and without any preliminary notice, a sudden attack of vomiting of ordinary ingesta, followed by slight cramp and bilious *diarrhœa*, ushers in the violent purging, vomiting, and cramps of alarming Cholera. I have known some instances where mackerel, and others where salmon had been taken, which on no former occasion had disagreed, but which now produced indigestion, *diarrhœa*, and Cholera; as well as others where even a few oranges and a salad had done the same thing; and in one instance I knew a lady and her daughter who had incautiously eaten heartily of cherries, who were both attacked with *diarrhœa*, cholera, and dysentery. In the mother the dysentery became chronic, and she died of it in six weeks. The indigestible character of the food of the poor was one great cause of the extensive suffering of that class. Many intemperate drinkers also died of Cholera. Another great cause was the enervating consequences of domestic filth and undrained habitations of the poor. Yet, in spite of all these accumulated evils, had a proper number of medical men been employed by the Guardians of the Poor, the frightfully extensive list of

mortality would not have occurred.* In many instances not one-half of the required number of medical men were employed, which was the case in the district under my own care ; so that from my own enormous exertions my health and strength gave way, and I was driven from my post, after having borne the brunt of the battle during eight weeks of daily and nightly unexampled labour. Other wants of great importance were Houses of Refuge for the Poor, and Cholera Hospitals, which would have insured earlier, more prompt, more effective, and more reasonable treatment, as well as more assiduous attention to the cases, and the means of escaping the contagion, which evidently originated the disease to a frightful extent, in their crowded and filthy habitations. Indeed, I have no doubt, that the Cholera Hospitals, supplied with every ready appliance, which were provided in 1832 and 1833, tended greatly to save life, and to check the extensive spread of the disease at that time ; I am sure it was the case in the district of Lambeth then under my care. In 1849, from the want of such a provision, all cases were compelled to be treated wherever they might be found—in cellars and garrets—crowded with inmates like bees in hives, and in the midst of the greatest possible accumulations of filth, in rooms where dead bodies of the deceased were allowed to be decomposing for twelve, twenty-four, thirty-six hours, and in some instances for longer periods ; there being no place to which they could be removed before interment. Yet of all this host of accumulated evils which ought to have been prevented, I repeat there was none so great as the want of a sufficient number of medical men, who ought to have been employed by the Guardians of the Poor.

What is the *Cause of Cholera* ? Cholera arises from an unknown epidemic cause, evidently becoming contagious under certain circumstances, (which state is greatly increased by endemic influences produced by want of proper sanitary measures.) Of the contagious nature of Cholera I have had the strongest proofs on occasions most numerous, and in circumstances most conclusive. I have alluded to the predisposing state of body induced by the presence in the stomach of indigestible food ; the same predisposing state results from the enervating consequences of over-watching, fatigue, anxiety, and the indulgence in intoxicating drink. Contact under such conditions with an affected individual, or the circumstance of being shut up with him in a filthy apartment, is almost sure to produce the disease. In several instances families consisting of numerous individuals, thickly crowded together in one room of a house, have entirely escaped the disease, whilst in another part of the same house there was at the same time an affected apartment, in which three or four persons had died ; these parties escaping only because they kept themselves entirely isolated from the affected apartment and family. In some instances individuals have come from a distance, and from a neighbourhood where no Cholera has existed, for the purpose of assisting their friends who were suffering from Cholera, that have taken the disease, and on the day after having come in contact with the affected person, have sickened and died. I have known instances where families have gone to reside in rooms in

* In my own case, on one morning no less than 70 cases of Cholera, in different stages, were upon my list, and only two medical students from the hospital were allowed by the Board of Guardians to assist me.

which death from Cholera had just previously and immediately happened, and which had been left uncleansed, unpurified, and unventilated, where the fresh occupants, unconscious of what had so recently happened there, had immediately taken the disease and died.

The very many instances which occurred under my own observation, where four and five individuals residing in one room of a house have all in succession been attacked with Cholera; whilst other families occupying other rooms in the same house, and apparently in the same filthy and unsanitary circumstances, escaped without having had a single case of the disease; proves to demonstration, that Cholera is chiefly communicated by intimate association or contact, and I believe it to be so to an extent equal to that of scarlet fever, and far greater than that of typhus. Indeed the first five cases of Cholera that I saw in 1849, (although the patients resided in different houses and apart from each other), were so distinctly concatenated by circumstances of actual contact, that it seemed impossible to me to doubt the communicable nature of the disease. Although filth, bad ventilation and overcrowding, had much to do in preparing individuals for receiving the disease in families in which Cholera had actually taken place; yet in affected districts, I very often visited apartments and hovels most imperfectly ventilated, that were very damp, and into which the most obnoxious and foul exhalations were extensively poured, and where the inhabitants were most filthy in their own persons, but where not one case of Cholera existed.

It should be remarked, that during the season of the prevalence of Cholera, in almost every illness that occurred, the mucous membrane of the entire alimentary canal was found more or less affected, and no doubt by the same common cause, whatever that cause might have been, which produced irritation, or perhaps, inflammation, or a state very analogous to it, as was evidenced in the numerous cases of dyspepsia, existing in the form of acid eructations, nausea, sometimes of vomitings, anorexia, pyrosis, slight pains or uneasiness about the præcordia; in some cases even attended with constipation, in others with colic, ordinary bilious cholera, and in numerous instances by simple diarrhoea, and in some by dysentery. The following is a table of those cases which I attended between 25th January and 23rd August, 1849:

Cholera Serosa	179	cases, in all of which were rice-water evacuations; cramp more or less, <i>the urinary discharge entirely suppressed</i> and collapse or a state nearly approaching to it. Of which forty-nine died, being nearly one in every 3½.
„ Biliosa	69	„ In which were vomiting, the discharge from the bowels more or less <i>fæculent or tinged with bile, the cramps slight, and the urinary discharges not suppressed.</i> All cured.
Diarrhoea . . .	328	„ of which one old woman only who had long suffered from chronic disease died.
Dyspepsia . . .	83	„ all cured.
Dysentery . . .	6	„ of which one died in a chronic state six weeks afterwards.
Protracted Vomiting	3	„ all cured.

Three cases of Cholera Scrota terminated in dysentery, two of which had been collapsed, and one died.

Convinced that the whole of these cases were only varieties of one common affection, produced by the same common cause, and differing only from the state and circumstances of the subject affected, the same general principles guided me in my treatment of all. The first object I had before me, in every instance, was to divert, if possible, increased vascular action from the mucous surface of the alimentary canal to the skin; believing that by directly irritating that organ more or less extensively, according to the severity of the symptoms, I should be relieving the congested, engorged or inflamed state of the parts affected. On occasions where the affection was comparatively slight, as in dyspepsia, or slight diarrhoea, I enjoined that the skin should be kept warm, sometimes simply by confining the patient to bed, or by only applying extra flannel around the abdomen, &c., &c. On others where the symptoms were more severe, by applying repeated hot fomentations, mustard poultices, or frictions with hot turpentine mixed with olive oil, to the abdomen, or hot baths, especially with children, for whom hot baths could more readily be obtained, and in many cases of severe diarrhoea and Cholera I adopted the cold wet sheet and blanket bath, which was by far the most active and suddenly efficacious of all this class of remedies, and almost invariably where this means was used early enough it was followed by cure; indeed I and my assistants were often wonder-stricken by its effects; for in some cases of collapse which appeared utterly hopeless, occurring in old people, and where the collapse had lasted for a protracted period, and the patient appeared to be in a state of approaching death, reaction was produced. With this remedy, of course others were invariably used, such as are ordinarily indicated in analogous cases; but which without this diverting means, would have been rejected by the stomach, or hurried quickly through the bowels, and therefore would have been inoperative in the way desired. I was led first to adopt this remedy from the following circumstances:—Placed in the responsible position of Medical Officer over so numerous a body of poor people, who were likely to become the chief victims of Cholera, with the knowledge of the comparatively small success that had attended all former kinds of treatment in my own practice, and that of others; on the outbreak in 1849 I became impressed with a hopeless feeling, as to what might again be the result in my prospective experience; at the same time feeling, that if any powerful but as yet undiscovered means could be found to divert the excessive vascular action, set up in the mucous membrane of the alimentary canal, to the whole surface of the body, great good would be produced; and having often heard of the powerful effects produced upon the skin by the cold wet sheet and blanket application, although I had never seen it adopted in any case, I was led experimentally to try it, and in applying it to the first case, which from the extremity of the symptoms I considered almost hopeless, I became perfectly astonished with the result. The subject was a healthy young married woman, about twenty-five years of age, seven months advanced in pregnancy; she had been purged and vomited to the amount of two gallons of fluid: I found her in a perfect state of collapse,

blue and pulseless, with a countenance shrunken and shrivelled, the surface of the body universally cold, with the coldness extending even to the tongue; she was also at quick intervals suffering from excruciating cramp in her thighs, legs and arms, which was the only symptom which gave me the least hope for any restoration, because it showed that sensation was still actively alive: I learnt that she had been in this state for an hour before I saw her. I immediately spread over her in successional order, as she lay in bed, six blankets, which were readily procured from her willing and frightened neighbours; over these I spread a thick calico sheet, previously dipped in a pail of cold water, and wrung out tolerably dry; I then, with my two assistants who were with me, left the room, having directed the female friends present to take the patient out of bed, to strip her, and to lay her in that state upon the wet sheet, in which they were to envelope her, and tightly to bind it about her body, with her arms placed close to her sides. On taking her out of bed, we, who were on the outside of the door, heard her loudly exclaim from the severe cramp in her limbs. And when the attendants had enveloped her in the wet sheet, she complained again most loudly, not of the cramp, but of the extreme cold-shock which she thereby received. My young professional friends and myself then returned to the room, and I completed the operation, by enveloping her with each blanket successively, until she was covered with them all. After the first minute she no longer complained of the cold; I then directed that she should have as much cold water given to her as she could drink, and even if she should reject it, as I expected she would, as she had vomited every thing she had taken before, she was still to have as much given her as she might ask for. We then left the house, and I must say we were all in a very sceptical state of mind, as to the expectation of any beneficial result from our experiment. However, in about half-an-hour we all returned, and to our great delight and astonishment, we found the case completely metamorphosed; she had never complained of cramp after she had been put into the sheet; she had neither vomited, nor (as far as could be discovered) purged during our absence. Her countenance had become plump, *hot*, and ruddy, her skin in a profuse sweat,* and on pressing the temporal artery, we found it strongly pulsating; she had drank, during the half-hour, the inconceivably large quantity of a gallon of cold water. We waited for about a quarter of an hour longer, and then I unfolded the blankets, and directed that she should be stripped of the sheet, wiped dry with warm cloths, and put into blankets in bed. I then ordered her chalk; aromatic confection and opium, in small doses, (which she never rejected), with a pill containing calomel gr. ij, and opium gr. $\frac{1}{4}$, first every hour, and afterwards every four hours, for six doses; she never afterwards had a bad symptom. The tendency to relaxed bowels slightly continuing, she for the next day took the chalk and opium at intervals, and recovered without any consecutive fever, her gums having become slightly touched with the calomel. The urine, which had been perfectly suppressed, began to flow on the third day. With the result of this case before

* It may be necessary to remind the reader that the Roman method of sweating was to cover up the body warmly and to drink profusely of cold water.

me, I determined on using this remedy in every case in which I might be permitted to do so, but it was not always followed by restoration ; and in neighbourhoods where any case so treated had not recovered, I had often great difficulty in persuading the friends of patients to allow me to adopt it, which would have been the case with any new and equally active remedy.

In all cases of *relaxed bowels short of Cholera* I administered alkalies and absorbents, sesquicarbonate of soda, levigated chalk, aromatic confection, with astringents, as catechu, and small doses of opium. In some instances I gave to an adult for a first dose, Tæ. Opii. half a drachm, and followed it by doses of from 8 to 10 minims every one, two, or three hours. This plan was universally successful ; to these cases I gave no calomel. I saw many others where there was a continued tendency to relaxed state of bowels, which lasted even for weeks, which was restrained by attention to diet, and by taking a few drops of laudanum, from 5 to 8 minims, in a teaspoonful of brandy and a little water, once or twice or thrice a day, and by keeping the skin warm. In the cases of *dyspepsia* with varied symptoms, when no diarrhœa existed, alkalies, or levigated chalk with Tæ. Hyosciami, from 15 to 20 minims given every four or six hours, were found useful, always paying attention to the *skin* by promoting its warmth, by hot fomentations or less active means, as the cases might indicate. In cases of actual *Cholera*, feeling that these means alone were inefficient, I gave calomel in small and quickly repeated doses, and *always* united with it small doses of opium, (as calomel gr. ij., Opii. gr. $\frac{1}{4}$, every hour or half-hour,) with this I gave often the chalk, catechu and aromatic mixture, with small doses of opium, which, although rejected in many instances by vomiting, yet still I continued to give again and again, believing its tendency to constrict the mouths of the secreting vessels of the mucous membrane, and that if even only a small quantity could be retained, it would do good. In all cases I allowed the patient to drink freely of cold water, in every pint of which was dissolved a drachm of bicarbonate of soda, a drachm of nitre and a drachm of common salt. In most cases this was greedily taken, in others it was refused, on which occasions plain water was given to any extent asked for. But all remedies disappointed me until I was enabled to set up a vigorous action in the *skin*, and the best means which I possessed for that object, I repeat, was the application of the *cold wet sheet and blanket bath*. This remedy, by its sudden efficacy on many occasions, not only astonished me, but also my young friends who assisted me ; as, by the reaction set up, within a short time of its application, the purging of the watery discharges, the vomitings and the cramps, became perfectly suspended, and the cold clammy shrunken cadaverous countenance restored to warmth and plumpness, whilst a state of genial perspiration became universally diffused, and the pulse which had well-nigh ceased to be felt at the wrist, was restored to comparative power ; the patient during the application having taken nothing but an abundance of cold water, or cold water with the salts dissolved, which had been swallowed with the greatest greediness. But this desirable remedy, the sheet bath, must be used with discretion, especially as regards the duration of time when it is to be applied ; because if the excessive perspiration that often follows this application

be allowed to continue too long, it exhausts the patient, and thereby tends to extinguish the little power left. It should, therefore, be well attended, and as soon as reaction has fully set in and has been maintained for a reasonable time, say from half to three-quarters of an hour, the effect being carefully watched, the blankets and sheet should be removed, and the patient rubbed dry with warm cloths and put into a warm bed, and then the heat maintained by bags of hot salt applied to the abdomen, or by mustard poultices, &c., &c.

I have shewn the manner in which the *cold wet sheet bath* is applied, in the case of the young woman described at page 10. Of course the earlier in the case of Cholera after the occurrence of rice-water evacuation that this remedy can be used, the more successful will be its effects. I believe that the great efficacy of this application arises from the cold shock at first given by the contact of the cold water with the skin, as recommended by Dr. Currie fifty years ago, which rouses the remaining powers of the system, as it were in self-defence, to reaction, powerfully determining towards the skin; a means far more efficacious for that purpose than when attempted by the direct application of heat, as by a hot bath or other directly warm appliance to the body.

With regard to calomel as a remedy in the state of actual Cholera, whilst the serous discharges are pouring forth, or whilst the collapse is actually existing—I believe at such times it does no good; but it is a remedy that I should never omit to employ incessantly under the existence of these circumstances, not with an idea of producing any immediate relief to the present symptoms, but with the prospective object, that when it shall be absorbed into the system at the time of reaction, it may then set up an action in the salivary, pancreatic, biliary and general glandular system, for the purpose of counteracting a state which, in too many instances, follows reaction. I allude to the coma, delirium and other low typhus symptoms, which too frequently disappoint our expectations, and terminate in death, even when reaction had been produced and our hopes of recovery most cheerfully raised. But I never knew a fatal termination to occur when the gums had been affected by mercury.

In the treatment of the consecutive fever, the head generally requires to be shaved, and the scalp to have cold applications constantly made to it, by ice confined in a bladder, or by other means having the same end. As much cold water as the patient desires should be given, which is always most grateful to him, and of which he is sure to indulge in large quantities. The extremities should be kept warm by hot bricks wrapped in flannel, by bottles of hot water, or by mustard poultices applied along the legs and soles of the feet. A light nutrient diet should be given with slight stimulants, of which alcohol is the best, as contained in wine or brandy; this should be given in small but frequently repeated quantities. Much has been said about the best means of restoring the urinary secretion, which invariably is suspended, and sometimes even for many days after reaction has come on. Believing that this state was dependant only on the want of fluidity in the blood, which had been drained from it by the excessive alvine and ventricular secretion, I have never adopted any particular means to effect this purpose but the free exhibition of

water in which the ordinary salts* of the blood had been dissolved, and I have always patiently waited for the re-establishment of the secretion, which has invariably returned after the patient has been enabled to gratify his universally present thirst, by which he restores to the blood its wonted fluidity, and from which is speedily secreted a due proportion of urine. I do not believe that it is merely the suspension of the urinary secretion which is the cause of death in consecutive fever, but the coma, and this arising from over cerebral action, and not only dependent on retained urea; and this state of brain is seldom very alarming when the salivary and biliary secretions have been restored by the due and proper exhibition of mercury, during the symptoms of Cholera.

Since the Epidemic passed off, I have frequently regretted that I had not had a *hot air bath* properly constructed, which I might have used where the prejudices and fears of patients and their friends prevented my applying the cold sheet bath, &c.; and I believe an air bath or steam bath may be contrived so as to be of great use; but, certainly, warmth thus produced, however beneficial, is very inferior to that derived from reaction following the cold sheet bath. Where the *vomiting* was severe I often gave hydrocyanic acid (Scheele) from 2 to 4 minims in a little water, with the best effect. *Violent cramp* I often relieved by causing *chloroform* to be inhaled. In all cases I gave as much drink as the patient would take, chiefly water in which soda, nitre, and common salt were dissolved. In the state of *collapse* I have given small quantities of brandy, as much as two tea-spoonfuls, in a little water every half-hour, sometimes with apparent advantage; in others, from 10 to 15 drops of chloroform diffused in mucilage of gum acacia, which sometimes affected the pulse and seemed to rouse the dormant action. But, indeed, no cure can be hoped for without a suspension of the intestinal secretion, and without the absorption of fluid through the lacteals to restore fluidity to the blood.

In order to show the more favourable result of my practice in Cholera in 1849 over that of 1832 and 1833, I here give an abstract of cases treated in three different years,—

In 1832 I attended 32 cases of Cholera, of which 19 died, being 1 in every 1 $\frac{2}{3}$
1833 21 9 1 2 $\frac{1}{3}$
1849 179 49 1 3 $\frac{3}{4}$

I attribute the more favourable result of 1849 entirely to my having added the cold wet sheet and blanket bath to my other plans of cure, and I believe that proportion of mortality would have been still further reduced had I been provided with a greater number of assistants, to give more prompt or early attendance to each case as it occurred, and to

* In referring to a paper of Dr. Robert Dundas Thomson, "On the Nature and Cause of Cholera," published in the 33rd volume of the "Medico-Chirurgical Transactions," it will be observed, that to administer these salts of the blood under such circumstances is not good practice, because the blood in Cholera had, on an average of cases in which he analysed it, a far greater proportion of these salts than blood in its natural state.

Healthy Blood (female) 5.81 per 1000 parts.

Ditto (male) 6.38 " 1000 "

Mean proportion from } 8.56 " 1000 "

7 cases of Cholera .

attend more unremittingly to each case under treatment until its result should be known.

During the prevalence of Cholera I saw the treatment of many of my medical friends, who adopted various plans with varied success. In the practice of one I saw several cases which were treated with acetate of lead and opium, and with mustard poultice to the abdomen, all of which died. In that of another tincture of matico failed. Others used the saline plan, without opium, or any absorbent or astringent, with no good result. I saw one case where 3 grains of opium were given, after smaller doses had been tried, when narcotism was produced, and the patient slept to death. Some of my acquaintances used calomel alone, in large doses, which failed. Some in small and frequently repeated doses, with the same consequences. Others depended on chloroform; giving from 10 to 20 minims every half-hour, in the collapsed state, with no benefit. Some used the stimulating plan, of giving alcohol, essential oils, &c., in large doses, without opium, with little advantage. I saw two or three fatal cases treated by antimonial emetics, followed by smaller doses of antimony, and small doses of sulphate of magnesia. In one instance I was called in to a case under this treatment, which I immediately suspended. The patient, a young woman, twenty-four years of age, was purging and vomiting violently, suffering severe cramps, and beginning to sink. I put her immediately into a cold sheet bath, which was a great shock to her. On being enveloped in the sheet she shrieked out loudly and violently; but almost immediately afterwards she became cheerful and warm, and soon a copious perspiration broke forth all over her body. After the sheet was applied she retained chalk and opium and aromatic medicine, and never had the least return of cramp; the vomiting and violent purging of watery stools ceased. Her pulse rose, and she speedily recovered. I gave her also calomel gr. ij opium gr. $\frac{1}{4}$ every hour, with abundance of water, in which was dissolved soda, nitre and common salt. Fever and cerebral symptoms began to appear, but the gums became affected, and she did well. The sheet was applied for an hour, when it was removed, and the patient wiped dry, and a mustard poultice applied to the abdomen. One friend told me he had used successfully, in the worst cases, as well as in simple diarrhoea, nothing but a solution of soda and common salt, given without limit. This treatment I never saw adopted; nor would I depend on such a remedy.

A medical friend has told me that he has used diluted sulphuric acid with apparent good result, in frequently repeated doses of 20 minims in about a wine-glassful of water. He believes it acts by constringing and shutting up the mouths of the secretory vessels of the mucous membrane of the bowels, and thereby stopping the discharge. It appears to me likely to be thus useful.

At a time when Cholera is existing it is most desirable that even the slightest derangement of the *primæ viæ* should immediately be attended to, especially the slightest relaxation of the bowels. For although it has been known during the existence of this fearful epidemic that diarrhoea in some cases has existed in a controlled or checked state for many days, and ultimately been cured—and in others it has gone on without remedy for a day or two without being followed by Cholera—

yet in the greater number of such cases, where even diarrhoea had only been present for an hour, Cholera has set in, in all its most formidable violence. It therefore behoves the ruling powers, on the first outbreak of this frightful malady, to take care that the public be fully informed upon the necessity of procuring prompt medical aid to stop the slightest relaxed state of the bowels, and also to see that there be a *sufficient number of medical men* appointed to attend to the poor; in default of which, in the Cholera of 1849, very many lives were lost, which might and could have been otherwise saved; and many more zealous medical men were worked to death, or became so enervated by their excessive labours as to require many months to restore them to strength and usefulness.

The system adopted by the Board of Health of causing affected neighbourhoods to be constantly visited by young medical men for the purpose of detecting cases of premonitory diarrhoea and cholera, as soon after the appearance of first symptoms as possible, and thereby insuring the early application of remedies, is most essentially desirable in time of cholera. But the establishment of Cholera Hospitals is equally important, where every appliance should be kept ready for use at a moment's notice, and to which every case as it might occur should immediately be sent, and where one medical attendant could superintend the treatment of twenty cases as easily as he could direct the treatment of one in the crowded and unsanitary hovels of the poor.

DUTIES OF BOARDS OF HEALTH, BOARDS OF GUARDIANS, AND OTHER AUTHORITIES, IN TIME OF THE PREVALENCE OF THE EPIDEMIC.*

To provide Houses of Refuge for the overcrowded population of affected Districts.

To provide Cholera Hospitals within reasonable distances of affected neighbourhoods, with comfortable beds, abundance of sheets, blankets, &c., and every appliance required in treatment, hot air baths, &c., with qualified medical attendants, nurses, &c. Also a bed on a covered stretcher, and two porters ready at a minute's notice to fetch every affected case into the Hospital.

To provide a sufficient number of Medical Visitors, to visit from house to house, whose duties should be to carry with them remedies, and immediately to administer them to cases of premonitory diarrhoea, to send off cases of Cholera to the hospital, or to send for the Medical Officer of the district, or other neighbouring regular practitioner, to attend to the case as it might be.

To appoint Dispensaries in convenient positions for ready treatment of cases of diarrhoea, accessible by night or by day.

To make arrangements for the payment of every medical man who

*Since the above was written, and it has been passing through the press, I have seen the excellent regulations of the General Board of Health, directed to Boards of Guardians, &c., &c., published in the *Gazette*, which I highly approve—except that in them there is no positive remuneration fixed for medical men to receive, who may be engaged in the arduous duties of attending Cholera cases, which ought immediately to be done; else many a meritorious, zealous, overworked medical man, will go entirely unrewarded by Boards of Guardians, as was the case in the dreadful visitation of 1849.

may undertake to treat cases of Cholera, occurring among the poor, at the rate of one guinea at least for each case attended ; and in order to prevent imposition, (although that is not likely often to occur), to arrange that each case should be reported to the Board, &c., every night, so that it should be authenticated as a case of Cholera by a Medical Inspector, or other Medical Visitor, on the following day.

To arrange that every Parochial Medical Officer should have the power of sending promptly to some or any neighbouring medical man, able and willing to undertake the treatment of any Cholera case, which he himself might be unable *personally* to attend, and that the Medical Officer should also be paid one guinea for every case of Cholera which he should personally attend, distinctly and in addition to his ordinary salary ; each case being also authenticated as before noticed.

Whether house to house visitation be adopted or not, to placard affected districts with notices ; setting forth the necessity of applying immediately for medical aid in every case of diarrhoea, however slight it may appear to be, whether occurring by night or by day ; stating the residence of the Medical Officer to whom application should be made, who should be paid at the rate of seven shillings for every case of diarrhoea to which he might be called, between the hours of eleven at night and six in the morning.

To arrange that all accumulated filth, decaying vegetable matter, &c., be speedily removed from the neighbourhood of all habitations ; that all drains be flushed as much as possible with abundance of water, especially all superficial and open drains ; and that the habitations of the poor be cleansed often, and limewashed when required, and especially wherever Cholera may have existed.

To prevent as much as possible the stirring up of cesspools by emptying them at this particular period.

RECOMMENDATIONS TO THE PUBLIC, TO BE OBSERVED AT THE TIME OF THE EPIDEMIC.

To avoid all indigestible food, such as uncooked vegetables, cucumbers, salads, &c., as well as shell-fish or other fish that at any former time might have disagreed with the stomach, or animal food or game tainted even in the least degree. Over repletion at meals, or the taking large meals at supper or very late in the day, or the use in excess of all fermented liquors, as beer, cider, wine, spirits, &c. The unnecessary exposure to cold or damp, especially that of the night air, or overcrowded assemblies, and to take care never to go heated from such assemblies into the cold air.

To observe the occurrence of every state of indigestion, and especially the slightest state of diarrhoea, and immediately, should it occur either at night or day, to apply to a medical man for a remedy, taking care that he is a legitimate practitioner, legally qualified, and no homœopath, and never to depend on any domestic or other remedy not advised by a medical friend.

To be particular in observing cleanliness of person, habitation, &c.

To second and assist in all arrangements made by public authorities for cleansing the neighbourhood.



