

Symptoms and treatment of malignant diarrhoea; better known by the name of Asiatic or malignant cholera [as treated in the London General Institution (Royal Free Hospital), during ... 1832-1834] / [William Marsden].

Contributors

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PRACTICAL TREATISE
ON
CHOLERA

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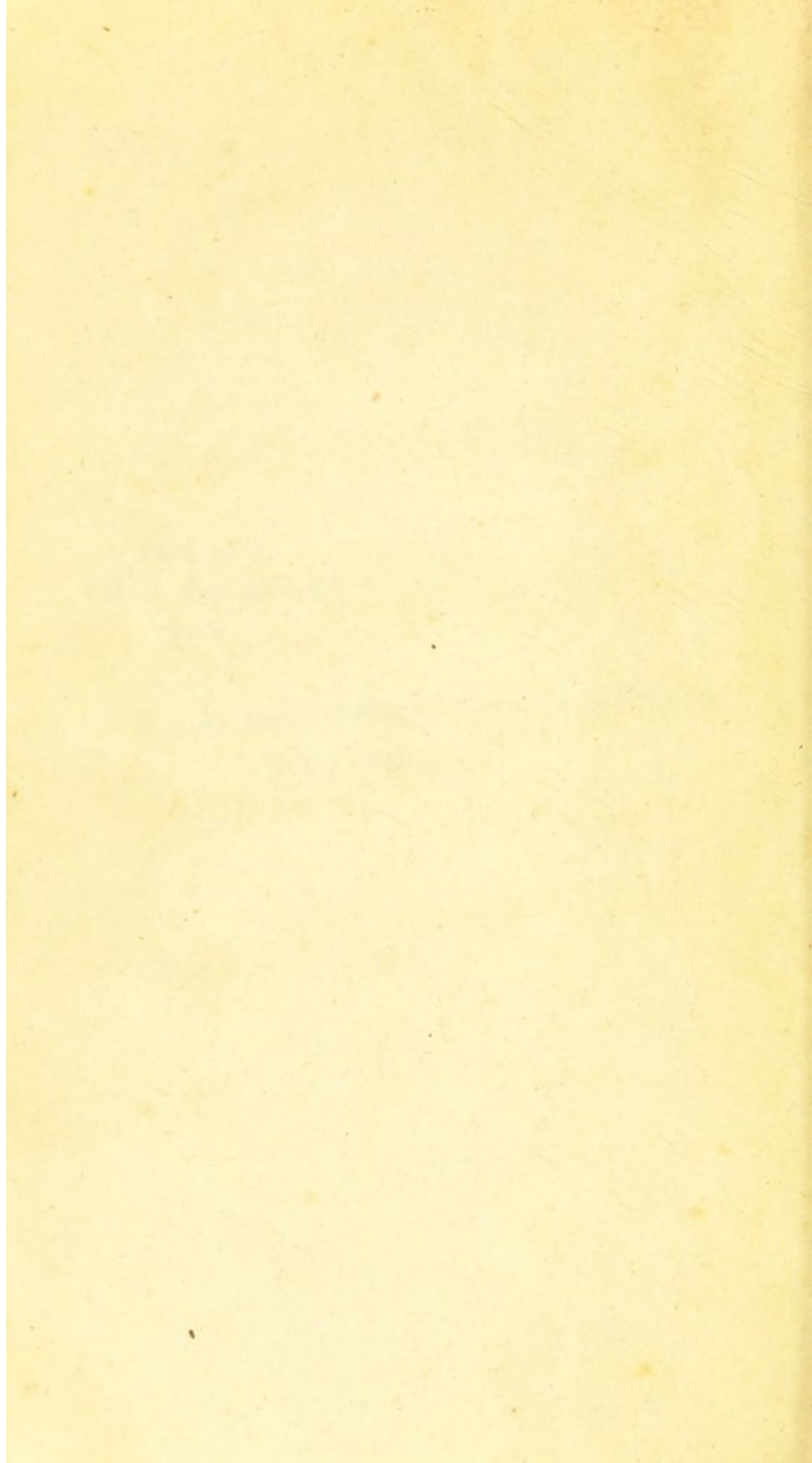
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*Dr Thos Harrison Esq
from the Author.*

SYMPTOMS AND TREATMENT

OF

MALIGNANT DIARRHŒA.

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SYMPTOMS AND TREATMENT
OF
MALIGNANT DIARRHŒA:
BETTER KNOWN BY THE NAME OF
ASIATIC OR MALIGNANT
CHOLERA.

BY
WILLIAM MARSDEN, M.R.I.,

SENIOR SURGEON TO THE LONDON GENERAL INSTITUTION,
OR FREE HOSPITAL, FOR THE CURE OF MALIGNANT DISEASES,
&c. &c.

LONDON:
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F. WARR, PRINTER,
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TO HIS ROYAL HIGHNESS

THE DUKE OF GLOUCESTER.

SIR,

Having for seven years been the senior surgeon of that excellent Institution in Greville Street, over which your Royal Highness presides, I trust that no apology is required for making known the result of my observations on the Nature, or Treatment, of any of those Malignant Diseases, which that Institution was more especially designed to treat; and less so, with reference to that destructive pest, known by the name of Malignant Cholera.

In publishing that knowledge, which has been acquired by a careful, laborious, and long attendance on the sufferers,

I am influenced only by a desire to be instrumental in establishing a mode of treatment by which the destructive career of the disease may be arrested.

In dedicating this small work to your ROYAL HIGHNESS, it is in the hope, from its being the first attempt at a practical arrangement of the symptoms and treatment of a new malady, that the imperfections may be lightly viewed, and the merit, if any, meet with the approbation of your ROYAL HIGHNESS.

I have the honor to be,

Your ROYAL HIGHNESS's

Most obedient Servant,

WILLIAM MARSDEN.

*2, Thavies Inn,
September 1834.*

PRELIMINARY OBSERVATIONS.

IN an infectious epidemic disease, it is of the utmost importance to learn where, and, by what means it originates, the route it takes from one kingdom to another, and by what medium it is communicated from man to man; but, in an epidemic, which is neither infectious nor contagious, such knowledge is of secondary consequence; and instead of employing our time in such difficult researches, it would be far better spent by endeavouring to learn the nature, and mode of arresting the fatal consequences of such maladies, and particularly so with reference to what is called Malignant Cholera.

Gentlemen of the first respectability,

and of high professional character, Dr. Barry, and others, were sent by the British government to St. Petersburg, and various parts of the continent, with a view to gain information on this subject;—quarantine was established at every port; but all was useless. The doctors returned little wiser than before they went; and the disease ran over this, and almost all other countries, spreading its destructive influence, alike in high or low regions,—in hot, cold, wet or dry seasons;—baffling all human efforts to arrest its progress. A government Board of Health was established, and was continued for upwards of two years in operation; and, singular to remark, the medical department of that Board, on the close of their labours, in the autumn of 1833, afforded the profession not the slightest knowledge on the subject, either physiological or pathological.

During the existence of the disease in 1832, the directions for treatment, professional and domestic, issued by the Board, were alone founded on empirical principles, yet, notwithstanding those erroneous measures, all might have been rectified, had the Board, at the time, with every facility for so doing, proceeded to a public and impartial investigation of the nature and treatment of the malady.* The disease has now paid us a third visitation; and it is saying but little for the character of our medical institutions, when I assert that up to the present time, nothing has issued to guide the profession in the treatment of such cases, either from the College of Physicians, or from the College of Surgeons.

* I very much question whether Sir Henry Hallford, whose signature was attached to the circular issued by the Government Board, ever personally attended a single case of Cholera.

In a country like England, it is an extraordinary fact, that with all her increased knowledge, and boasted perfection of legislation, she has no permanent watch over the health of the community. This appears, in my opinion, to be a great oversight in Government, as the most urgent reasons could be adduced for the necessity of a permanently established Board of Health; which, if constituted on sound principles, would tend more effectively to alleviate the miseries of all classes of society, than any other single branch of British Legislation.

On the first appearance of this unknown disease in London, medical men of every grade, more particularly those in the higher walks of the profession, on viewing the afflicted patient, became terrified and panic-struck; and the public, in consequence of their professional advisers being ignorant of the nature of this ma-

lady, became paralyzed. In this state of things, and to produce all the consternation possible, the richly endowed hospitals of this Metropolis closed their doors against the wretched sufferers,—the affluent inhabitants fled,—and the great and wealthy members of the faculty dared not, or would not condescend to visit the habitations of the afflicted.

It was a scourge that fell first only upon the poor, the wretched, and the destitute. We know but little of the secrets of nature, or the workings of an Almighty power; this third visitation may be the last warning messenger, and unless we endeavour by all in our power, to alleviate and rescue the poor from the destructiveness of this pestilence, by searching out the means of cure, we know not how soon, or to what extent, it may become the fell enemy of the rich, and well-fed part of the population. By

neglecting to protect and preserve the indigent from pestilence or famine, the higher grades of society lose their best chance of preserving themselves from the like evils.

On the appearance of the so-called "Malignant Cholera," the Governors of the LONDON GENERAL INSTITUTION, for the Cure of Malignant Diseases, in Greville Street, Hatton Garden, in the most prompt and effective manner, made up fifty beds, and threw open their doors to the indiscriminate admission of all sufferers from that disease. In justice to the managers of that Charity, I feel that the warmest thanks of the public are duly merited by every member of their Committee, not only for the care and attention they invariably devoted to the comfort of the patients, but for the ample opportunities they afforded to their medical officers, for acquiring a know-

ledge of treating malignant and contagious diseases in general; and, more particularly, the disease in question. I have no hesitation in saying, that from the principles on which that excellent Charity is founded, the lives of thousands have been saved; and in arresting the influence of contagious disorders, its benefits are incalculable: since its foundation, in 1828, to the present time, upwards of 10,000 persons have been successfully treated, and restored from the most loathsome maladies to health and comfort. Upwards of *three hundred* patients suffering from the second stage of Cholera have been admitted into the Hospital: at first, nearly every one died, although every plan of treatment that could be suggested was adopted; and it was only in despair that a mode of treatment, recommended by Dr. Stevens, was tried. Through the effects of that treatment a

glimmering ray of hope was first discovered, and on which, the practice now pursued, and laid down in the following paper, has been matured; and on this plan alone, do I believe it possible for the life of a single patient to be rescued from the second, or collapsed stage of the complaint. On the other hand, I feel equally assured, that boldness in the use of calomel during the first stage, will remove the disorder in ninety-nine cases out of every hundred; without the slightest future injury being sustained by a single individual from this medicine.

During the months of July and August, 1834, twenty-six patients have been admitted in the second stage, and only ten recovered; from which it would appear, that more were lost than saved. Unfortunately for the sufferers, scarcely one is ever sent into the Hospital until all hope of recovery is given up by their previous

medical attendants; therefore, comparatively speaking, what chance has any plan of treatment under such circumstances? Little, or none. Notwithstanding this, some of the very worst cases have been restored, both by the saline medicine and by the saline injection: and so confidently do I rely on the success of these remedies for combating this extraordinary disease, that we need no longer view with horror and dismay, the approach of this enemy to human existence. Several important facts will be noticed in the cases given to illustrate the merit of the treatment; which, if not satisfactory to some individuals, I trust they will be found sufficiently important to the philanthropic practitioner, to induce and promote unprejudiced investigation.

It is a subject of the utmost importance, both to the profession and the public, to know infectious from non-

infectious diseases; and I have not, during a period of fourteen years, seen a single instance contrary to the principle that I shall lay down with reference to these points. Infectious disorders never attack the human race a second time; and those maladies which are communicated from one person to another, through the medium of the atmosphere, such as small pox, scarlet fever, measles, and hooping cough, constitute nearly the whole class of infectious disorders peculiar to man. Plague, typhus fever, malignant cholera, and a great many other alarming and destructive pests, which are epidemic, but not infectious, may attack the same persons many times. Contagious disorders are altogether of a different class to either of the preceding, and may, by contact only, be communicated an indefinite number of times. Were we to admit a contrary principle with reference

to infectious diseases, the human race would in a very short period be extinct.

Infectious diseases, at all events those with which we are well acquainted, and are of the most malignant kind, small-pox for instance, ought, in my opinion, for the safety of the public, to be communicated to every infant under a given age; for if this were done, adults would never have such a malady to apprehend. It is a question, whether the introduction of vaccination will not eventually prove a serious error; and that at some future period, we shall have small-pox, like one of the plagues of old, sweeping away two-thirds of the population: vaccination has, by arresting inoculation, done a negative good; but I strongly suspect it has exposed us to a positive evil.

Infectious diseases may always be retained amongst us by artificial means, at

least so long as human beings are to be found who have not had the disorder; and contagious maladies may exist for an unlimited period, or be repeated an indefinite number of times in the same individual; while, on the contrary, an epidemic disease, such as Cholera, Plague, &c. cannot be retained by artificial means, nor can the disease be continued beyond the existence of its general influence; but on the return of the like epidemic, may again affect the persons who had previously suffered.

Some persons object to the division made in this disorder, but it is of the utmost importance to divide its progress into two stages; inasmuch as the treatment of the one would be quite erroneous, and in direct opposition to that required for the other. After my first paper appeared making this division in 1832, the Government Board of Health immedi-

ately issued a paper making three divisions; but for all practical and useful purposes, two will be found sufficient.

Much time has been given to the investigation of the blood, by Drs. Clanny, O'Shaughnessy, and others; while another party have tried all means to, what they call, unlock the secretions. Others, again, have searched the world over for the most powerful stimulants, under the impression that to restore the pulse by such means was all that was required to preserve the patient.

To investigate the character of the blood was rational, and attended with beneficial results; but in attempting to unlock the secretions, or restore the circulation by stimulants, in the advanced stage of the disease, until the volume of blood had been sufficiently restored, was only to shorten still more the life of the sufferer. Some persons relied greatly

on external applications, such as mustard poultices, blisters, camphor-liniments, &c., while another, considered more knowing than all the rest, proposed, and absolutely practised, a mechanical mode of arresting the discharge, by plugging up the outlet of the intestines: why this learned gentleman did not close the upper aperture as well as the lower, I am at a loss to learn.

I now conclude these preliminary observations, and, with as much perspicuity and conciseness as possible, enter on my views of the nature and treatment of what is understood by the erroneous name "Cholera Morbus."—This name implies a morbid flow of bile: while in this new disease, when fully developed there is neither bile, nor any secretion, whatever from the liver. Cholera Morbus is a disease peculiar to tropical climates, occasionally occurring during the hot

seasons in temperate climates and it consists in a violent action of the liver, secreting morbid bile, accompanied by violent fever, spasm, &c. I will therefore take the liberty of giving this malady the name of Malignant Diarrhœa, for an evil very destructive in its consequences, and not yet remedied, has been occasioned through the introduction of this disorder, under the erroneous title of Asiatic, or Malignant Cholera; every professional man knew what was understood by such a name, and likewise how to treat such a disease; while, on the first appearance of the disease in question, the profession was quite baffled, both as to its nature and treatment, and up to this time continue nearly equally in the dark.

There can be no doubt of this disorder having exercised its ravages in tropical climates, but for want of careful investi-

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gation it has been viewed only as a more malignant form of Cholera Morbus, a disease peculiar to those regions.

MALIGNANT DIARRHŒA ;

BETTER KNOWN BY THE INCORRECT NAMES OF

ASIATIC, SPASMODIC, OR MALIGNANT CHOLERA.

THIS is an epidemic disease, neither contagious nor infectious; that is to say, one which cannot, by artificial means, be communicated from one individual to another, but may affect the same person an unlimited number of times. The progress of the symptoms vary from two causes: one, the extent to which a patient is affected by the poison; the other, from the powers of resistance occasioned by the good or bad constitution of the individual afflicted. Persons of the same family, or living in every respect under similar circumstances, may be, and frequently are, affected simultaneously, or in succession; and, were it not for the various localities, modes of living, habits,

and constitutions of the people, the whole community of any place affected would suffer alike, from this or any other epidemic. I believe the poison occasioning this disorder, is contained in the atmosphere: how generated, is not known,—for we are equally in the dark respecting the origin of all epidemic diseases. By breathing this morbid atmosphere, the blood becomes affected, through the medium of the lungs; and, like all other poisons it produces its specific effect, which in this malady is to determine that important fluid, in an extraordinary degree, to the surface of the intestines, where it deposits its thinner and more fluid parts, called the serum or water of the blood. Every production in nature on which we cannot feed, must be considered, more or less, a poison: arsenic, mercury, rhubarb, jalap, prussic acid, ipecacuanha, &c., have their specific actions on the constitution; and the wild cucumber produces effects approaching the disease in question so nearly, as to

render it difficult to distinguish the one from the other.

The evidence of an approaching attack of Malignant Diarrhœa, consists in a sense of pain or uneasiness in the bowels, with purging, nausea, loss of appetite, thirst and extreme prostration of strength. Now during the existence of this epidemy, all persons experience, more or less, these feelings; and I believe, that all would be equally affected were it not, as before stated, for the variety of constitutional powers of resistance. The half-starved wretch, the emaciated debauchee, also the susceptible and delicate amongst the higher classes of society, are equally liable to the sudden ravages of this disease; while the healthy, and well-fed, possess the faculty of throwing off the poison by the ordinary functions of the excretory organs: and it is only when the action of the liver and kidneys fail in doing this duty, that the second or collapse stage supervenes. It is idle to suppose that an individual cannot be

affected by this disease, unless he has got all the symptoms of collapse; and it is of the utmost importance to know, that by attending to the premonitory signs, we should in ninety-nine out of every hundred cases, prevent that stage.*

On the presumption that in this malady the blood contains the morbid principle, the indications would naturally be to excite the action of both the liver and kidneys—these organs being especially designed in the animal economy for the purpose of removing from that fluid, all useless and adventitious matter. The disease itself, in the first instance, more or less irritates the liver, and sufficiently so, in constitutions previously healthy and robust, to carry off the offending matter; but in delicate habits, assistance in general is required; and it is astonishing to witness the extraordi-

* At the Greville Street Institution, during the years 1832-33, out of five hundred patients in the first stage, only twelve ran into the second; and eventually, only four died.

nary effects of large doses of calomel: indeed, this medicine cannot be administered too boldly, inasmuch as small doses produce no effect, while a full dose acts almost like magic, and the happiest results ensue. All inconvenience subsides in persons, whose bowels have been incessantly relaxed from twelve to twenty-four hours together, on their taking from fifteen to thirty grains of this preparation; and so completely are the distressing symptoms allayed, that in the short space of fifteen to twenty minutes, no further evacuation will occur, without an active purgative be given, which should be administered four hours afterwards. This purgative must not be of a saline nature, as it would be apt to induce a relapse of the same diarrhœal action of the bowels as before, but one of an active vegetable kind—castor oil and tincture of rhubarb, have been found the most suitable. Tincture of rhubarb produces a powerful muscular contraction of the intestine, while the oil

mechanically lubricates the surface. It is rarely requisite to give a second dose of either medicine, but if otherwise they should be equally potent.

Opium, narcotics, and all stimulants of a spirituous kind, irritate, diminish, and eventually destroy the function of the liver,* consequently are particularly injurious in this disorder; and when given, even with calomel, seldom if ever produce the desired effect. Calomel *alone* must be relied on.

When the calomel has subdued the nausea and diarrhœa, and the purgative draught has been taken, stools of a black gelatinous nature, resembling half-melted pitch, will pass off; and, in the majority of cases, no further medical aid is required.

During the existence of this stage of the disease, we should rigidly enjoin abstinence from all fluids, beyond a sufficiency to moisten the mouth; for if

* Drunkards and persons who had deranged the function of the liver by taking such remedies, were the first victims to this disease.

copious draughts of barley-water, toast and water, or any other fluid, be taken, vomiting, in all probability, will continue, and preclude the chance of either the mercury or the draught having their desired effects.

It is well to order the patient small doses of simple effervescing mixture, or soda-water, about two table-spoonsful to be taken with the calomel, and repeated every hour, so long as the circumstances of the case require. The effervescing saline has a powerful tendency in tranquillizing that irritable state of the stomach, which generally accompanies the progress of this stage of the disorder.

SECOND STAGE, OR COLLAPSE :

The symptoms of which are, violent vomiting and purging, a total suspension of the action of the liver and kidneys, loss of pulse, livid extremities, clean tongue, cold breath, blueness of the lips, and intolerable thirst: these symptoms do not arise from any sedative effect pro-

duced on the brain, or on the secreting organs ; but, from the poison exciting certain nerves,* which determine the circulation to the surface of the bowels, there occasioning a mechanical separation of serum from the blood, and diminish the volume of that necessary fluid so seriously, as to preclude the possibility of the heart propelling its contents in sufficient quantity to reach the extremities; or to preserve the action of the excretory or secretory organs, notwithstanding the contracted state of the vascular system. Besides, the blood is in too viscid a state to pass the capillaries; hence the great vital depression from the want of due action over the surface of the brain and

* I believe the mesenteric nerves are alone excited, and the increased vascular action exists only in their corresponding arteries. The fluid contained in the stomach, is not given solely from its own surface ; but by the spasmodic contraction of the upper intestines, a considerable quantity is mechanically forced through the pylorus. It is more than probable, that the pancreas is considerably engaged in secreting this fluid.

nervous chords: for I believe that the great phenomenon, life, depends as much on the mechanical action of blood upon the nervous system, as electricity does on the friction of one body upon another, or the gliding of the atmosphere over the small globules of water in a cloud producing lightning and thunder; all of which phenomena are increased or diminished by the greater or lesser action of these substances over each other.

The function of the liver and kidneys cease, as before stated, not by any sedative effect of the poison, but entirely through the want of a due quantity of blood being sent to these organs; and unless we succeed in increasing the volume, either by natural or artificial means, we shall most assuredly fail in restoring a single patient.—Several cases will be found in the concluding part of this paper, fully illustrating this principle.

There is a considerable desire to drink, from the commencement of this disorder, but the extraordinary thirst does not come on until the diarrhœa has

continued for some time ; and here nature points out in a forcible manner, as she generally does, the most valuable indication of cure. Drink ! drink ! exclaim the poor wretches : while, at the same instant, the whole alimentary canal, from the termination of the œsophagus to that of the colon, is powerfully distended with a fluid as limpid as water, with the exception of some flocculi—this fluid, is the poisoned serum of the blood, slightly decomposed.

The extent to which a patient has a desire to drink, may be formed by the following facts. In ordinary cases, during collapse, from two quarts to one gallon per hour will be taken ; but ten patients, who were restored in the Greville Street Hospital, in 1832, drank two hundred and twenty-five gallons of water in seventy-eight hours ; and one patient, who died, took forty gallons within ninety-six hours.

Now it appears extraordinary that so intense a thirst should exist under such circumstances ; but this seems to be the

case:—That the exudation from the extremities of the arteries over the immense surface engaged in this peculiar action, far exceeds the power of the lacteals to replace, in time sufficient to preserve the circulation; besides, the very fluid absorbed is of a poisoned character, and will, the moment it reaches the arterial system, continue its specific influence, and be again deposited in the intestines. This action continues until the blood has either freed itself from the morbid principle, or until the patient sinks.

What then can be more clear, either to the scientific or empirical practitioner? Get rid of the offending fluid, and permit as little to be re-absorbed and returned to the circulation as possible; which, in a great many cases, may be done by the most simple means. The moment the patient either vomits or purges, let him instantly swallow as much water as possible; it is of no use attempting to give nutritious fluids of any kind, as digestion is perfectly suspended: let a vigorously repulsive action of the stomach be ex-

cited ; and the best means of so doing is, by strong and repeated doses of saline solution. Several important objects are gained by this mode of exhibiting the saline : first, it instantaneously evacuates the stomach ; and secondly, by some portion of the saline solution descending through the intestines, and mixing with the fluid exuding from their surface, and with the water previously taken, forms together a compound containing less deleterious matter, consequently better suited to unite with the dark carbonaceous blood that remains in the vascular system. The saline also stimulates the lacteals more powerfully than any other preparation is known to do ; it is also powerfully antiseptic, and a necessarily component part of the blood. These are circumstances of the utmost importance ; for if you succeed in exciting the vessels to take up fluid adequate to preserve the circulation, until the blood has parted with all its morbid properties, you will then, and not until then, restore your patient.

It may be asked, why not give a weak saline drink in place of pure water? the reasons for not doing so are these:—When the patient finds his stomach distended by fluid that is difficult to be ejected, a strong saline solution will instantaneously effect that object; immediately after which, give the patient pure water, it is more grateful than any other drink, and is not so readily rejected, but in a great measure passes into the intestines, diluting the deleterious character of the fluid already there. By repeating the saline dose every fifteen minutes, you are sure to have some portion pass into the bowels, and I believe, sufficient to effect the object desired; while on the other hand, were saline drink only to be administered, however weak, an incessant vomiting would ensue, and little or no water would pass beyond the stomach. I wish particularly to impress on the minds of medical men, who may have such cases under their charge, that their success in

treatment, depends on the stomach and bowels being occupied by a more healthy fluid than that deposited in these organs by the diseased action.

Suppose after the administration of the above plan, no restoration of pulse takes place, and the patient continues rapidly to sink; what is to be done? The answer is evident; that having failed to restore the volume of blood by the action of the lacteal absorbents, a vein must be opened, and a fluid corresponding in character as nearly as possible to the serum of the blood must be injected, in sufficient quantity to fully restore the pulse at the wrist; at the same time endeavour to arrest further exudation from the capillaries of the intestines, by astringents carefully administered; opium and bark are the best, and this is the only period from the beginning of the disease, at which opium or astringents are indicated. Should, however, the diarrhœa continue, the circulation will, in proportion to that action, again decline, which

renders this the most important time for diligently watching your patient, many having been lost by leaving them too long unseen, for the moment the pulse begins to sink you must again resort to the injection, and repeat it at periods, proportionate to the urgency of the case, and character of the patient. In giving astringents at this time, I advise for an adult, ten drops of laudanum, with two ounces of compound tincture of bark, to be taken without any dilution, every half hour, until the diarrhœa in a great measure ceases.

If you succeed in sustaining the pulse for twelve hours, and the diarrhœa declines, you may consider your patient safe; but the utmost caution must be observed with respect to nutriment. Nothing stronger than gruel and broth must be permitted for the first two or three days; afterwards rice, or any other farinaceous puddings, with small draughts of malt liquor, for the space of four to six days; from which time the patient

must be managed according to circumstances. Urine will generally be secreted, and evacuated six hours after the restoration of the pulse; the liver will likewise begin to resume its function, throwing out for the first two days a green fluid, afterwards yellow, and lastly, healthy bile. When a patient is restored by these means, it frequently happens that after the first two days symptoms of cerebral disturbance, of a typhoid character, supervene; which must likewise be treated according to the urgency and circumstances of the case. With ordinary care such cases rarely prove fatal, having only lost two patients that had fully rallied by injection; both lived about twelve days after the injection, and had a powerful pulse nearly the whole time: I believe they died from effusion of the brain.

In giving this disease a place in medical nomenclature, it would correctly stand in the order "Spasmi," in the Nosology of Cullen, following simple diarrhœa; and the most correct name

would be Malignant or Spasmodic Epidemic Diarrhœa. I therefore name it accordingly.

MALIGNANT DIARRHŒA:

An epidemic disease, not contagious nor infectious, having in the progress of its symptoms two stages.*

CHARACTER OF THE FIRST STAGE.

A feeling of general weakness over the whole body; languid pulse; sickness and pain about the stomach; purging and twitchings of the bowels; clammy feeling in the mouth; and a desire to drink more than usual.

CHARACTER OF THE SECOND STAGE.

Extreme prostration of strength; incessant vomiting and purging of limpid fluid; total suppression of urine; intolerable thirst; cold breath, and general coldness of the body; sunken eyes; a

* Infectious, as well as non-infectious diseases, may be epidemic.

dark blue and corrugated appearance of the skin of the hands and feet, with violent spasms of the extremities and the bowels. In children,—vomiting; purging; great thirst; suppression of urine, and a general restlessness.

C A U S E S.

REMOTE.

Not known, but presumed to arise from a peculiar constitution of atmosphere.

PREDISPOSING.

Exposure to sudden changes of atmosphere; severe mental affliction; excessive fatigue; drunkenness; dyspepsia; in fact every circumstance that tends to derange the system or diminish vital energy.

EXCITING.

Any thing that irritates or relaxes the bowels.

PROXIMATE.

Violent purging and vomiting.

PROGNOSIS.

Favourable
in the
first stage { A diminution of purging and
sickness; free secretion of
urine; and coloured evacu-
ations; a free pulse.

Favourable
in the se-
cond stage. { Restoration of pulse; warm
breath; the vomiting and
purging of a bilious cha-
racter; a secretion of
urine; and the colour of
the extremities changing
from blue to red.

TREATMENT.

Indications { To invigorate the functions
in the { of the liver, and suppress
first stage { the morbid evacuations.

REMEDIES.

For children up to four years old:

Calomel, five grains.

Ginger, five grains.—Mix.

This powder to be given immediately, mixed in

a little treacle, and two hours after the powder give the purgative draught:

Powdered Rhubarb, ten grains.
Castor Oil, half an ounce.—Mix.

From the age of four years to fourteen :

The powder { Calomel, nine grains.
Ginger, nine grains.—Mix.

The draught { Castor Oil, three quarters of an oz.
Tincture of Rhubarb, two drachms.
Powdered Rhubarb, eight gr.—Mix.

From the age of fourteen and upwards :

The powder { Calomel, fifteen grains to twenty.
Ginger, fifteen grains to twenty.—Mix

The draught { Castor Oil, and
Tincture of Rhubarb,
of each one oz.—Mix.

During the progress of this stage, small doses of simple saline mixture or soda water, should be taken every half hour.

Indications { To free the stomach and
in { bowels from their morbid
the second { contents ; to increase the
stage. { volume of blood, and res-
tore the circulation.

REMEDIES.

For children up to the age of four years:

Common Salt, one scruple.
Carbonate of Soda, six grains.
Oxymuriate of Potash, two gr.—Mix.
for one dose.

From four to fourteen years of age :

Common Salt, one drachm.
Carbonate of Soda, ten grains.
Oxymuriate of Potash, three gr.—Mix.

For persons above the age of fourteen years :

Common Salt, two drachms.
Carbonate of Soda, one scruple.
Oxymuriate of Potash, seven gr.—Mix.

The above powders, dissolved in a small quantity of cold water, to be given every quarter of an hour until the excess of purging subsides, and the pulse is clearly perceptible : from which time extend the period between each dose, first to half an hour, then to one hour, and so on till both pulse and breathing are vigorous. During the progress of this treatment, as much cold water may be taken as the patient desires ; the more the better.

The cramps are greatly relieved by a hot salt-water bath ; from seven to fourteen pounds of common salt dissolved in a sufficient quantity of

water to cover the whole body, and the patient to remain in from ten to twenty minutes, at a degree of heat from 110° to 120° ; if the cramps continue, the bath must be repeated every two hours. The patient must be kept in bed between blankets, with bottles of hot water to the feet and legs; a free current of fresh air should be allowed to pass through the apartment, and, if possible, directly over the face of the patient, the body being kept as warm as possible. To render the atmosphere of the room as healthy as possible, curtains, carpets, and all moveable furniture should be taken away.

Solution for injection:—

Common Salt, three drachms.

Carbonate of Soda, half a drachm.

Oxymuriate of Potash, fifteen grains.

Water, forty-eight ounces.—Mix.

To be slowly injected into the veins, at a temperature of 100° ; from sixteen to thirty-two ounces will be generally found sufficient to restore the circulation, in patients under fourteen years of age; beyond this age, from forty-eight to eighty ounces may be injected, and repeated on the circulation again declining.

DIRECTIONS FOR USING THE SALINE INJECTION.

Take especial care to have a good syringe which must be free from oil, and kept particularly

clean ; otherwise the saline matter will corrode the metal and render it unfit for the purpose. The syringe I have hitherto used, is a common enema syringe, having a fine silver canula about two inches long, slightly curved, and adapted to the elastic tube ; it is better to have the canula of this length as it can be more readily commanded, the aperture should be sloped on the side of the extremity, leaving the point rounded, otherwise some difficulty would be experienced in its introduction into the vein ; the canula may be passed at least one inch up the vein. Any of the superficial veins may be selected ; I have generally chosen the media on the upper extremity, or in the saphena in the lower extremity. It is better to make an incision about an inch and a half long through the integuments, at the distance of half an inch from the vein, but parallel with it ; draw the skin aside and cut through the cellular tissue, so as fully to expose the vein, under which pass a probe ; raise the vein above the surface, and with the point of a lancet make a small longitudinal incision, into which the canula adapted to the elastic tube, being filled with the solution, must be introduced ; it is better to let the probe remain until the desired quantity of solution be thrown in, for by taking it away the vein would bleed and become troublesome ; when done, return the vein to its place, the integument will cover and protect it from injury ; draw the skin together by adhesive plaster and bandage up the arm after

the usual manner. If required to repeat the operation the same vein and aperture will do, even for three or four times ; I have never seen inflammation extend up the vein, nor any evil whatever arise from the operation. The solution should be made in a white wash-hand basin, so that the sediment, if any, may be seen and avoided. When about thirty ounces of the fluid has been injected, the patient will experience a general uneasiness and tightness about the chest ; you have only to suspend the operation for a few minutes, that the circulation may equalize itself, afterwards progress slowly till the pulse is fully restored ; in general a severe rigor will supervene, and last from fifteen to twenty minutes, which will be succeeded, in favourable cases, by a corresponding reaction ;—the patient must not be left by the surgeon for more than two hours.

When the vomiting, purging, and cramps have subsided, and the pulse and warmth of the body restored, the patient may be allowed to take broth, beef tea, gruel and coffee, for the first forty-eight hours ; afterwards, rice and batter puddings, with a gradual improvement in diet, till perfectly restored ; spirits or wine should be strictly avoided, but good malt liquor in small draughts may be taken with advantage.

Brandy, opium, and all such stimulants are most injurious ; nearly every person that died in the Free Hospital had taken one or all of these remedies previously to their admission.

CASES RESTORED BY THE SALINE INJECTION.

JOHN SCOTT MAYNE, aged 13, of Farringdon-street, seized with vomiting and purging at nine o'clock, A. M. August 24. At nine P. M. found him in the extreme of collapse ; requested that he might be immediately conveyed to the hospital ; ordered a saline powder to be given every fifteen minutes, cold water *ad libitum*, and a hot saline bath. At half-past ten o'clock. the boy quite insensible, and at the point of dissolution ; about thirty-two ounces of saline fluid was injected : before the operation was over, the clock in the hospital struck eleven ; when, to the astonishment of all around, the boy asked, What o'clock is it ? Ten, replied one of the nurses. No, said the boy hastily, it is eleven, for I counted it. The pulse returned ; respiration free ; the countenance resumed a healthy aspect, and animation pervaded the whole frame. The boy continued gradually to gain strength, and after eight days left the hospital, quite restored.—This boy is now enjoying excellent health.

J. MONUMENT, aged 39, residing at 194, Upper Thames-street, a bricklayer. This man's habits were peculiarly temperate, having lived chiefly on vegetable diet, being a member of a

society who object to eat animal food; he had long suffered from indigestion, and was of weakly constitution. First saw him at twelve o'clock at night, August 24th. He had suffered from the usual symptoms for two days; had been treated with opium and carminatives, from the first attack. Found him, as in the above case, advanced far in collapse; ordered a saline powder every fifteen minutes; a hot saline bath, and water *ad libitum*. Nine o'clock on the following morning, vitality only just perceptible; injected to the extent of forty-eight ounces; the pulse restored, and animation once more manifest throughout the frame. In this case, the diarrhœa continued, and after four hours the patient sunk almost to the point of death; he was again injected to the like extent, when again vitality dawned: the diarrhœa still continued, and he sunk a third time. A third injection was given to the extent of sixty-four ounces, and astringents of bark and opium were administered, when a third and lasting reanimation took place.—From this time, the patient gradually improved; and on being induced to live on animal food, and altogether on a more generous diet, he has been in better health than for several years previous to the attack.

MARGARET HARRIS, aged 31 years, had a family of five children, was admitted August 12th, 1833, from Johnson's-court, Fleet-street. The saline powders, and water *ad libitum*, were taken until one o'clock, A. M. of the 13th, when twenty-four ounces of saline solution were injected, and an astringent mixture, consisting of tincture of opium and bark, was taken in small doses. From this time she gradually improved, and was discharged quite well, on the 22nd instant.—Up to the present period her health continues good.

BRIAN SULLAVAN, aged 30 years, from No. 7, Richbell-place, admitted August 21st, 1833. He took the saline powders, and was twice injected to the extent of forty ounces each time. An astringent mixture, as in the above case, was taken after the second injection: he was discharged quite well on the 29th instant.—This patient had been left for dead after the first injection, and was absolutely measured for his coffin. He has enjoyed excellent health ever since.

Four other cases, the names and addresses of which are not correctly known, were restored by injection, in the year 1832.

Fifteen patients were restored from the collapsed stage of the disorder by injection, who

all afterwards died from the effects of the consecutive fever, at periods varying from four to twenty-one days. Much is yet to be learnt in the treatment and management of injected patients.

During the months of June and July, 1832, many patients were treated by large doses of common salt only; and the two following cases are given, to shew that this plan of treatment (published in the *Lancet*, on the 9th of August 1834, by Mr. Beaman), was by no means new: it certainly arrested the progress of the malady, but all the patients so treated, died; yet the plan approaches nearer to the principle advanced by me, than any other; indeed, it is only a modification of the same remedy.

PHILIP CLARK, aged 27 years, by trade a chemist and druggist, from Lincoln, was admitted July 4th 1832, at ten o'clock, A. M. One ounce of salt, dissolved in half a pint of water, was given every hour, till four o'clock, P. M. on the following day, when he expired.

GEORGE HILL, aged 53 years, from No. 14, Fleur-de-lis-court, Fleet-street, admitted at eleven o'clock, A. M. July 6th, 1832. Treated after the like manner—died at seven o'clock, P. M. the same day. All the patients treated after this mode, had the hot saline bath.

The following is a list of patients who were admitted into the Greville Street Hospital, during the years 1832-33, whose names, ages, and residences are known; many others were restored, but not knowing their places of abode are omitted. These patients were all in the second or collapsed stage, and many of them had been treated, and abandoned as lost, by their medical attendants previously to their admission. They were all put under the saline remedies, as laid down in the preceding part of this paper.

Date of admission.	Name.	Age.	Residence.	Date of discharge.
1832.				
May 25	Elizabeth Shay....	37	12, Blue-court, Saffron-hill ...	June 14
	Julia Brushney ...	9	Ditto	10
	Ellen Brushney ...	30	Ditto	10
June 1	Mary Samford	55	Ditto	8
2	Catherine Ross....	28	11, Blue-court, Saffron-hill ..	12
3	Mary Higgins....	19	Onslow-street, Saffron-hill	8
10	Flora McCormack..	51	Nurse at the Hospital	18
July 7	John Day	49	5, Lilley-street, Saffron-hill ...	July 10
10	William Taylor....	26	9, Field-lane	10
11	Frances Feathers..	35	37, Dillon-street	16
12	Margaret Lane ...	23	Caroline court, Saffron-hill.	13
14	Lawrence Denning	35	1, George-alley, Field-lane	28
15	Margaret Newman	7	6, Field-lane	18
	Margaret Farrell..	11	5, Field-lane	20
	Michael Niven....	1	Ditto	30
16	George Mackie....	29	38, Fleet-lane	20
	William Bonan....	35	8, George-alley, Field-lane	25
	William Moor....	1	6, George-alley	21
17	Richard Gregory ..	35	West-street	Aug. 6
	Jane Davis	30	21, Fleet-lane	June 25
18	William Roberts ..	60	Clark's-buildings, St. Bride's ..	Aug. 1
	Ann Clayton	35	Black-bear-alley	June 22
19	James Dillon	37	24, Red-lion-court, Saffron-hill.	23
20	Mary Field	52	8, Red-lion-court	Aug. 9
21	Margaret Mahoney	32	New-court, Saffron-hill	July 23
	Elizabeth Tower ..	32	3, New-court	24
22	Catherine Hughes ..	30	St. Sepulchre's Workhouse ...	25
	Hannah Reading..	6	2, Greyhound-court	25
23	William Spencer ..	57	Bull's-head-court, Smithfield..	24

Date of admission.	Name.	Age.	Residence.	Date of discharge.
July 23	William Clifford...	4	Saffron-hill	July 25
24	Mary Wayte	43	4, Portpool-lane	27
26	John Rolland	12	Duke of York's School	31
29	William Jackson ..	36	Workhouse, St. Mary-le-Strand	Aug. 3
	John Harrison	40	3, Caroline-place, Saffron-hill..	11
30	Mary Cook	21	Gray's-inn Workhouse	22
Aug. 1	Mary Bough	35	Ditto	22
2	Peter Pedley	48	Ditto	9
5	Martha Mastey ..	10	16, Little Ormond-yard	14
7	George Mills	24	3, Fox-court, Saffron-hill	11
9	Stephen Dyer	14	2, Saffron-hill	13
11	John Smith	23	St. Sepulchre's Workhouse ..	27
14	Ellen Power	37	2, Union-court	23
18	Marian Isle	20	St. Paul's, Covent-garden	30
	Jane Dallastone ..	21	110, Great Saffron-hill	27
	Rebecca Villiers ..	48	8, Plough-court	27
	Elizabeth Wilson ..	64	30, Rutland-court	27
20	Peter Adams	64	14, Glass-house-yard	27
	Robert Carter	43	St. Sepulchre's Workhouse	27
	Thomas Smith	64	St. Mary-le-Strand	Sep. 1
22	Sarah Mercroft	55	Church-court	Aug. 30
23	Mary Scott	52	20, Fetter-lane	Sep. 3
25	Caroline Connor ..	20	8, Caroline-court	Aug. 30
	James Parry	33	St. Mary-le-Strand	30
26	James Merchant ..	35	6, Plough-place	30
28	Marian Bougard ..	24	St. Sepulchre's Workhouse ..	31
31	Ann Haycroft	6	Gray's-inn Workhouse	Sep. 4
Sep. 5	Henry Stamford ..	69	28, Brook-street	7
	Elizabeth Smith ..	38	14, Portpool-lane	10
7	James Ward	25	Drury-court, Drury-lane	27
12	Mrs. Smedley	56	54, Saffron-hill	21
	Jane Briant	41	49, Saffron-hill	18
	James Sopaci	41	6, Nevil's-court, Fetter-lane ..	18
13	Sarah Richards	21	7, Saffron-hill	21
	James Davis	16	Glass-house-yard	25
	Mary Davis	48	Ditto	Oct. 1
21	Henry Allen	77	Dean's-court, Old-bailey	Sep. 23
	John Eleneugh	27	9, Eyre-street-hill	Oct. 1
30	Patrick Flinn	14	Saffron-hill	17
Oct. 11	Sarah Jones	13	Baldwin's-gardens	22
12	Ann Smith	62	Bear-lane	19
1833				
Aug. 10	George Nicholls ..	40	32, Portpool-lane	21
12	Margaret Harris ..	31	Johnson's-court	22
18	Charles Watt	27	28, Greenhill's-rents	26
19	Robert Lucas	23	Leadenhall-street	22
21	Sarah Walker	46	85, Theobald's-road	Aug. 28
	Brian Sullivan	30	7, Richbell-place	29
Sep. 15	William Wilson ..	50	6, Black-bear-alley	21

The following statement is from the Lancet of February 2nd, 1833.—The prescriptions being the same, as inserted in the directions for Treatment, are omitted.

MALIGNANT CHOLERA

AT THE HOSPITAL IN GREVILLE STREET, HOLBORN.

(Communicated by the Central Board.)

Guildhall, Dec. 18th, 1832.

SIR,—I have this morning received a communication from Mr. Marsden, and transmit the same for the information of the Central Board of Health.

I have the honour to be, SIR,

Your most obedient servant,

J. F. DE GRAVE,

To W. Maclean, Esq.

Hon. Med. Sec.

2, Thavies Inn, Dec. 15, 1832.

Dear Sir,—In conformity with your request of the 6th inst., and for the information of the “Central Board,” I beg to lay before you the following statement of the number of patients admitted into the Free Hospital, Greville Street, up to the 12th of October last, with the modes of treatment and the results.

184 patients afflicted with malignant cholera, in the 2nd stage—that is, having no pulsation at the wrist, livid extremities, &c. &c.

Of this number seventeen died, either on their

way to the hospital, or immediately after their admission, no medicine having been administered.

Eighteen were treated by various plans, previous to the introduction of saline remedies, of whom thirteen died, and five recovered.

Thirteen who were treated by the above plans, were, after all hope of recovery was lost, injected with the saline solution, at the temperature of 110 degrees. Eleven died and two recovered.

Twenty-three were treated in the first instance by calomel and opium, brandy, ammonia, external stimulants, &c., without success; afterwards by the saline medicine. Eighteen died and five recovered.

Of twenty-eight who had taken freely of opium and brandy previously to their admission, but afterwards put on the saline treatment, twenty-one died, and seven recovered. Of four, who were aged and previously diseased, treated by saline remedies only, all died. Of eighty-one who were treated by the saline remedies alone, seven died and seventy-four recovered.

In addition to the above number, 315 patients (who were not reported) labouring under the first stage of the complaint, were treated by calomel and vegetable purgatives; twelve cases ran into the second stage, and were treated by the saline remedies; eventually four died; all the rest recovered.

I am, dear SIR,

Your obedient servant,

W. MARSDEN.

MALIGNANT CHOLERA IN LONDON.

Comparative View of the various Modes of Treatment adopted in Cholera, within the jurisdiction of the City of London Board of Health, transmitted by Mr. F. DeGRAVE.

	Cases.	Deaths	Reco- veries.	Deaths per cent.	Reco- veries. per cent.
Calomel and opium - - - -	196	112	84	57.14	42.86
Opium - - - - -	81	47	34	58.	42.
Calomel - - - - -	75	35	40	46.66	53.34
Stimulants - - - - -	63	42	21	66.66	33.33
Combination of salts proposed by Dr. Stevens - - - - -	25	22	3	88.	12.
Combination of salts used at Gre- ville Street Hospital - - -	26	8	18	30.77	69.32
Venous injection, in ditto - -	20	18	2	0.	10.
Miscellaneous - - - - -	17	8	9	47.06	52.94

PRECAUTIONARY MEASURES.

In order to preserve the healthy from an attack of this disease, the following plan of diet and medicine should be pursued. Animal and vegetable food, well cooked, may be taken once or twice a day; fish, if quite fresh, is not objectionable; and to persons who do not take wine daily, malt liquor in moderate quantity is in general the best beverage: wine drinkers should not exceed from four to six glasses of the best Port, and that ought not to be taken sooner than one hour and a half after dinner; tea or coffee taken early after dinner, is at all times bad; and spirit and water, or any other fluid in large quantities is also injurious. Small doses of calomel

and rhubarb, about three grains of the former to ten of the latter, should be taken about once a month; and persons troubled with indigestion would be benefited by taking twice a day between meals, the following stomachic powder, mixed in about three or four table spoonsfull of cold water.

Carbonate of Soda, one scruple.

Powdered ginger, ten grains.

——— Columbo.

——— Rhubarb, each five gr.—Mix.

a dose for an adult.

Ripe fruits may be taken in moderation without the slightest mischief. I believe all kinds of shell fish during the autumnal season to be decidedly objectionable; but less so if cooked.

Sudden changes of temperature, and all circumstances that weaken the constitutional powers, either in diet, or in habits, must be carefully avoided; as they have a great tendency to predispose all persons to the immediate influence of the specific disease.

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