

**Symptoms and treatment of malignant diarrhoea ; better known by the name of Asiatic or malignant cholera, as treated in the Royal Free Hospital during the years 1832, 1833 and 1834 / by William Marsden.**

### **Contributors**

Marsden, William, 1796-1867.  
Marsden, William, 1796-1867  
Royal Free Hospital (London, England)  
St. Thomas's Hospital. Medical School. Library  
King's College London

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ON  
CHOLERA.

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SYMPTOMS AND TREATMENT  
OF  
MALIGNANT DIARRHŒA,  
OR  
ASIATIC CHOLERA.

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SYMPTOMS AND TREATMENT  
OF  
MALIGNANT DIARRHŒA;  
BETTER KNOWN BY THE NAME OF  
ASIATIC OR MALIGNANT  
CHOLERA,

AS TREATED IN THE ROYAL FREE HOSPITAL

*During the Years 1832, 1833, and 1834.*

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BY

WILLIAM MARSDEN, M.D.

SENIOR SURGEON OF THE HOSPITAL.

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SECOND EDITION.

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LONDON :  
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*Dedication to the First Edition, 1834.*

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TO HIS ROYAL HIGHNESS  
THE DUKE OF GLOUCESTER.

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SIR,

Having for seven years been the senior surgeon of that excellent Institution, the Free Hospital, 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,

DEDICATION.

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.*

SECOND EDITION.

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*To the Rev. EDWARD RICE, D.D. Chairman, and the Committee of Management of the Royal Free Hospital.*

REV. SIR AND GENTLEMEN,

As it is through your exertions and benevolence in maintaining the Royal Free Hospital, where so many wretched fellow beings daily seek relief and succour, so it is by the enormous number of extreme cases of disease that have come under my notice, that I am enabled to arrive at just practical conclusions in the treatment of some of the most malignant affections, more especially that disease called Asiatic Cholera; a malady little understood by the general body of Medical Practitioners.

In presenting to you the following Trea-

## DEDICATION.

tise, I must beg to remark, that it was during the years 1832, 1833, and 1834, that my deductions were drawn, when your Hospital was the *only one* in the Metropolis that freely admitted Cholera Patients,—all of whom were intrusted to my care; and although from 1834 to the present time, October 1848, there has been an annual average of more than two thousand cases of Diarrhœa, not a single instance of Asiatic Cholera has been met with; but, should the disease have now re-visited this country, as it is thought to have done, and should it become generally prevalent, I feel confident that the doors of the Royal Free Hospital will be again opened, as before to the sufferers, and I need scarcely assure you of my zealous co-operation with your other Medical Officers in meeting the danger.

Permit me to avail myself of the present opportunity of acknowledging, with

DEDICATION.

gratitude, my sincere thanks to you, and to all those Philanthropic Noblemen, and Ladies, and Gentlemen, who have so liberally given their support in aid of such a truly Christian Charity.

With the most profound respect, allow me to subscribe myself,

REV. SIR, AND GENTLEMEN,

Your obedient Servant,

WILLIAM MARSDEN.

LINCOLN'S INN FIELDS,

*October, 1848.*



## PRELIMINARY OBSERVATIONS.

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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 epidemy 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 govern-



ment 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.

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\* Nothing can be more unnecessary than quarantine for Cholera.

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.

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\* 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. I have good reason to believe that he never did.

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; and it is only within the last few weeks of the present year, that a Board of Health has been established, but on any thing like just or sound principles.

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 malady, become 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 FREE HOSPITAL, 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 were duly merited by every member of the 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 knowledge 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

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\* Since removed to Gray's Inn Road, and known as the ROYAL FREE HOSPITAL FOR THE DESTITUTE SICK.

is conducted, 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 *two hundred thousand* 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 were admitted into the Hospital: at first, nearly every one died, although every plan of treatment that could be recommended was adopted; and it was only in despair that a mode of treatment, suggested 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 were 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 was ever sent into the Hospital until all hope of recovery was given up by their previous medical attendants; therefore, comparatively speaking, what chance had any plan

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\* During the present year, 1848, upwards of 500 Cases of severe Diarrhœa have been successfully treated in the Hospital by this plan.

of treatment under such circumstances? Little, or none. Notwithstanding this, some of the very worst cases were 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 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 thirty 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

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 epidemy, may again affect the persons who had previously suffered; hence the folly of quarantine.

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 immediately 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 has 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 therefore take the liberty of giving this malady the name of Malignant Diarrhœa; for an evil very de-

structive in its consequences, and not yet remedied, was occasioned through the introduction of this disorder under the erroneous title of Cholera Morbus: every professional man knew what was understood by such a name, and many how to treat such a disease; while, on the first appearance of the malady in question, in 1832, the profession was quite baffled, both as to its nature and treatment, and 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 investigation it has been viewed only as a more severe form of Cholera Morbus.



## MALIGNANT DIARRHŒA;

BETTER KNOWN BY THE INCORRECT NAME OF

ASIATIC, SPASMODIC, OR MALIGNANT CHOLERA.

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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 varied localities, different 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,—but I think it is the atmosphere over charged with water and miasma,—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 dis-

ease in question so nearly, as to render it difficult to distinguish the one from the other.

The evidence of an approaching attack of Malignant Cholera, 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 epidemic, 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 the second 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

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\* At the Free Hospital, 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.

is required; and it is astonishing to witness the extraordinary 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

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

the disease, we should rigidly enjoin abstinence from all fluids, beyond a sufficiency to moisten the mouth ; for if 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 tranquilizing 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 produced on the brain, or nervous system; but, from the poison exciting certain nerves,\* which determine the circulation to the surface of the bowels, there occsioning a mechanical separation of serum from the blood, and diminishing 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

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\* 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 service; 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.

want of due action over the surface of the brain and 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 less 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 limped 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 Free 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 excited; 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 fluids 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 through 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 endeavouring 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 one ounce of compound tincture of bark, to be taken without any dilution, every half hour, until the diarrhœa entirely ceases.

If you succeed in sustaining the pulse for twelve hours, and the diarrhœa ceases, 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 cerebel effusion.

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 EPIDEMIC DIARRHŒA.

It is 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 limped fluid; total suppression of urine; intolerable thirst; cold breath, and general coldness of the body; sunken eyes; a dark blue and corrugated appearance of the skin of the hands and feet, with violent spasms of the extremities and the bowels.

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



In children,—vomiting; purging; great thirst; suppression of urine, and a general restlessness.

### CAUSES.

#### 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 the stomach 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 evacuations; a free pulse.
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Favourable in the se- cond stage.	}	Restoration of the pulse ; warm breath ; the vomit- ing and purging of a bil- ious character ; a secre- tion of urine ; and the colour of the extremities changing from blue to red.
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## TREATMENT.

Indications in the first stage.	}	To invigorate the functions of the liver, and suppress the morbid evacuations.
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## 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	}	Colomel, six grains. Ginger, six grains.—Mix.
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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, ten grains to twenty.  
Ginger, ten 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 morbi-  
the second { fic contents; to increase  
stage. { the volume of blood, and  
restore 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 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 must be passed at least one

inch within 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 saline 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 at a time.

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.

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## CASES RESTORED BY THE SALINE INJECTION.

JOHN SCOTT MAYNE, aged thirteen, of Farringdon Street, seized with vomiting and purging at nine o'clock, A. M. August 24, 1833. 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 enjoyed excellent health afterwards, and is now a strong man.

J. MONUMENT, aged thirty-nine, 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 other 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 re-animation 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 thirty-one 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 was 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 thirty 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 twenty-seven 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 fifty-three 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 Free Hospital, during the years 1832 and 1833, 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, Ditto . . . . .	12
3	Mary Higgins . . . .	19	Onslow-street, Saffron-hill.	8
10	Flora Mc Cormack.	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 . . . .	2	3, 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 Bonam . . . .	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-bdgs., 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 . . . . .	21
22	Catherine Hughes . . . .	30	St. Sepulchre's Workhouse	25
	Hannah Reading . . . .	6	2, Greyhound-court . . . . .	25
23	William Spencer . . . .	57	Bull's-head-et., Smithfield.	21
23	William Clifford . . . .	4	Saffron-hill . . . . .	25
24	Mary Wayte . . . . .	43	4, Portpool-lane . . . . .	27
26	John Rolland . . . .	12	Duke of York's School . . . .	31

## MALIGNANT DIARRHŒA.

Date of admission.	Name.	Age.	Residence.	Date of discharge.
July 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.....	Sept. 1
22	Sarah Mercroft....	55	Church-court .....	Aug. 30
23	Mary Scott .....	52	20, Fetter-lane.....	Sept. 3
25	Caroline Connor..	20	8, Caroline-court.....	Aug. 30
	James Parry.....	33	St. Mary-le-Strand.....	30
26	James Merchant..	35	6, Plough-court'.....	30
28	Marian Bougard..	24	St. Sepulchre's Workhouse	31
31	Ann Haycroft ....	6	Gray's-inn Workhouse....	Sept. 4
Sept. 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..	Sept. 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 .....	Aug. 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 .....	28
	Brian Sullivan ...	30	7, Richbell-place.....	29
Sept. 15	William Wilson ..	50	6, Black-bear-alley.....	Sept. 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.*

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## MALIGNANT CHOLERA

AT THE HOSPITAL IN GREVILLE STREET, HOLBORN.

*(Communicated by the Central Board.)*

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Guildhall, December 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.

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2, Thavies Inn, December 15th, 1832.

DEAR SIR,—In conformity with your request of the 6th instant, 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.

One hundred and eighty-four patients afflicted with Malignant Cholera, in the second 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, previously 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 one hundred and ten 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, three hundred and fifteen 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. J. F. DE GRAVE.*

	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 pro- posed by Dr. Stevens....	25	22	3	88.	12.
Combination of Salts used at the Free 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 quantity 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 grains.—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.

*The following Testimonials were presented to  
the Author, in the Year 1833.*

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AT a Meeting of the Board of Health for the City of London, held at the Guildhall, of the said City, on Friday, the 15th day of February, 1833.

RESOLVED UNANIMOUSLY—

That the thanks of this Board be given to the Medical Officers of the Local Boards of Health within this City, for their very prompt, able, and efficient co-operation during the late prevalence of the Spasmodic Cholera; and for their zealous and benevolent attendance on the poor and destitute, who were attacked with that pestilential disease in their respective districts.

The Board feel highly gratified at the devotion and liberality with which these Gentlemen accepted the troublesome and responsible appointment, without the consideration of fee or reward: and has now the additional satisfaction to acknowledge the honourable zeal, and perseverance, with which their arduous and anxious duties were performed.

(Signed)

By order of the Board,

CHARLES PEARSON, *Chairman.*

I. F. DE GRAVE, *Hon. Med. Sec.*

To WILLIAM MARSDEN, *Esq., Surgeon.*

At the fifth Annual General Meeting of the Governor's of the Free Hospital, Greville Street, Hatton Garden, for the Cure of Malignant Diseases, held February 28th, 1833, at the Board Room of the Institution.

ALDERMAN HARMER, in the Chair.

IT WAS UNANIMOUSLY RESOLVED,

That the grateful thanks of the Meeting be given to MR. WILLIAM MARSDEN, Surgeon of this Institution, for his zealous, indefatigable, and successful exertions in the discharge of his professional duties, during the prevalence of the late Epidemic Disease, called, Spasmodic Cholera; and also for his unremitting and humane attention to, and successful treatment of, the diseased and destitute persons who have applied to this Hospital for medical relief, whereby many thousand individuals who would otherwise have been pining in wretchedness and misery, a burthen to themselves and a pest to society, have been restored to health and comfort.

That the above Resolution be fairly transcribed and presented to MR. MARSDEN, and that it also be inserted in the six following Papers, viz :—*The Times, Morning Herald, Morning Chronicle, Morning Post, Courier, and Dispatch.*

C. N. HUNT, *Hon. Sec.*















