

THE
CHOLERA
BEACON,
BEING A TREATISE ON THE
EPIDEMIC CHOLERA:
AS IT APPEARED IN
UPPER CANADA,
IN 1832-4 :

WITH A PLAIN AND PRACTICAL DESCRIPTION OF THE
FIRST GRADE, OR
PREMONITORY SYMPTOMS,
AND THE VARIOUS FORMS OF ATTACK, BY WHICH THE DISEASE
MAY BE DETECTED IN ITS CURABLE STAGE :
TOGETHER WITH DIRECTIONS FOR SUCCESSFUL TREATMENT.
DESIGNED FOR POPULAR INSTRUCTION.

By ELAM STIMSON, M.D.

LICENTIATE IN PHYSIC, SURGERY AND OBSTETRICS.

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1835.

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Dr. Elam Stimson[♦]

By EDWIN SEABORN, M.D., F.A.C.S.

London, Ontario

THE more remote ancestry of the subject of this sketch were English, and can be traced back several centuries. Many families of the name, sprung from a common stock, are to be found in England. His immediate ancestry were all natives of New England. To study and practice medicine seems to have been a family trait, so many Stimsons in tolerably regular succession having been doctors. James Stimson, M.D., an eminent practitioner of Hartford, Connecticut, was great-grandfather to this Elam Stimson. The one of whom we write, the youngest of a family of twelve children, was born in Tolland, Connecticut, October 4, 1792. When he was about ten years of age his parents suffered reverses of fortune, and until they died, thirteen years after, his strong filial affection was shown by his untiring and successful effort (seconding that of his next older brother, Joel) to provide for their maintenance.

* * *

"Dr. Elam Stimson served in the United States army during the War of 1812, first as a substitute for a drafted man, for the term of three months, at New London, Connecticut; then he enlisted for one year, the greater portion of which time was passed on Staten Island, N.Y. He was third sergeant of his company."

* * *

"For his services in that war he received from the United States Government, about thirty years later, a bounty of one hundred and sixty acres of land, which he located in the prairie country of Northern Indiana."

* * *

"At the expiration of his term of enlistment he returned to his home and commenced the study of medicine. To obtain necessary means, he laboured on a farm or taught school. A friend who owned a cranberry marsh gave him permission to make what he could from one year's crop. He hired help to pick the berries, marketed them in Hartford, and netted one hundred dollars by the operation. That hundred dollars, he remarked later in life, seemed to him the greatest financial lift he ever had.

"By dint of persevering effort, he gradually accumulated enough money to meet the expense of a course of lectures. Meantime, while labouring or teaching, he had been reading medicine under the direction of Dr. Thompson, of Tolland.

"His first course of lectures was at Yale College, New Haven,

*This outline of the life of Dr. Elam Stimson consists in part of direct quotations from various authorities, which are acknowledged as they appear. It will serve as an informative introduction to the "Cholera Beacon," which follows it.

Connecticut. The tickets read curiously, as compared with those of today, and give one a good idea of the comparatively narrow scope of medical teaching in the early part of our century, even at one of the then best seats of learning in America. There were but four lecturers—a 'Corporal's guard' as compared with the 'full staff' of lecturers and teachers attached to each of the principal medical schools of today."

* * *

"The lecturers were: On Chemistry and Pharmacy, B. Stillman; Anatomy and Physiology, J. Knight; Theory and Practice of Medicine, Surgery and Midwifery, Nathaniel Smith; Materia Medica and Diseases of Children, Eli Ives.

"The summer following this course of lectures was spent in the office of an eminent medical man of Hartford, Connecticut, Mason F. Cogswell, M.D.

"His next course of lectures was at Dartmouth, Hanover, New Hampshire. 'Chymical' lectures were by J. T. Dana, and lectures on 'Practice of Physick' and on 'Obstetricks,' by R. D. Mussey, M.D. At Dartmouth he graduated Valedictorian of his class, August 18, 1819."

* * *

"While yet an undergraduate, he married, January 10, 1819, the eldest daughter of the Rev. Augustus Bolles, a man prominent in the Baptist Church, of superior ability as a preacher and editor."

* * *

"He returned from Dartmouth to his native place and engaged in the practice of his profession. An influential man in that community afterwards said to him: 'You have served me faithfully and well in three different capacities, as a farm servant, as a teacher, and as my family physician.'"

* * *

"Prospects of financial success not being brilliant in the East, with the pioneering enterprise characteristic of his ancestry he removed, with his family, to the then 'far West,' and settled in St. Catharines, Upper Canada, in the spring of 1823. St. Catharines was then but a hamlet, on the 'Twelve Mile Creek.'

"Learning it was necessary he should be examined by a Government Board of Examiners and receive a license from the Governor before he could legally practice in Canada, he crossed, in a schooner, from the mouth of the Niagara River to York (now Toronto), and presented himself for examination before 'C. Widmer, Grant Powell and R. C. Horne, Esquires,' who expressed themselves as particularly well pleased with his proficiency, especially in anatomy—that of the brain. July 7, 1823, he was licensed to practice by Lieut.-Governor Sir Peregrine Maitland, of the Province of Upper Canada."

* * *

"Some time in 1824 he removed to Galt. His practice there was very extensive, Paris, Princeton, Drumbo, Ayr, Hamburg, Waterloo, Berlin, Guelph, Preston, East and West Flamborough, St. George, all

are within the then sparsely settled country over which he travelled on horseback with capacious saddle-bags, green-baize leggings and heavy dark 'surtout,' ministering to the needs of the sick, poor and rich, oftener very poor than even moderately well-to-do, for those were pioneer days. Sometimes he was away from home for days together, sending word home where those needing him could find him."

* * *

"In the latter part of 1828 he removed still farther west, to London, and continued the practice of his profession. Here his ride was as extensive and his labours as arduous as in Galt.

"Among his documents is the following on heavy, gilt-edge foolscap:

"GOVERNMENT HOUSE, May 30, 1831.

"SIR,—I am directed by the Governor to acquaint you that a commission has been prepared appointing you a Coroner for the London District, and is now ready for delivering to any agent whom you may authorize to receive it.

"I have the honour to be, Sir,

"Your most obedient, humble servant,

"Z. MUDGE, Secretary.

"DR. ELAM STIMSON."

The foregoing information was derived from Canniff's Medical Profession, Upper Canada.

* * *

Dr. Campbell in "Pioneer Days in London" says:

"A better known teacher of this period was Miss Stimson. She was a daughter of one of our early physicians—Dr. Elam Stimson. She was a well-educated lady, and with the aid of her niece, Miss Grannis, conducted a very successful school for the short time she remained in London. The building and equipment was not very elaborate. Her first schoolhouse was a log building of one room, while the furniture consisted of a few benches for the scholars and a desk and chair for the teacher. Later she moved into their own building on the corner of Ridout and Carling Streets. It is said that when some of her boys misbehaved they were sent down cellar; but as the imprisoned lads found it convenient to get at the jam jars she had to adopt some other means of punishment."

* * *

In a paper read before the London and Middlesex Historical Society, January 16, 1917, Dr. Campbell states that Dr. Stimson opened an office on Ridout Street, just north of Dundas Street.

In material found in the Tower Room of the County Court House of London by the writer, in 1936, the proceedings of the Court of Quarter Sessions were brought to light. This material had largely to do with the Cholera Epidemic of 1832. A few extracts only will be made:

"London District Dr.
To Elam Stimson.

			£	s	d
May	7, 1831	Call & med for Indian.....	0	3	9
		7 boxes Blue oint.....	0	1	3
	17,	Vt Indian open Tumor & Empl deach.....	0	5	0
		Vt Ward and Cath.....	0	2	6
		Vt Murray Going v.s. Emet & Cath.....	0	5	0
	18,	Vts Murray & Indian & drugs Allen.....	0	8	9
	19,	Vts Murray, Indian & med.....	0	8	9
	20,	Vts Murray, Indian & med.....	0	8	9
	21,	Vts Murray, Indian & med.....	0	8	9
	23,	Vts Murray, Indian & med.....	0	8	9
	26,	Vts Murray, Ward & med.....	0	8	9
June	1,	Vt Indian Ward & med.....	0	8	9
	4,	Vt Murray Indian & med.....	0	8	9
	5,	Vt Murray Indian & med.....	0	8	9
	6,	Vt Murray & med.....	0	5	9
	7,	Vt Murray & open Tumor.....	0	5	0
	12,	Vt Murray Cath—E E for Indian.....	0	5	0
	14,	Vt Indian & 3 Cath powders.....	0	5	0
	15,	Vt Empl deach pills &c.....	0	5	0
	17,	Vt. Murray & med.....	0	3	9
	23,	Vt E. E. for Indian Emet & Sal E.....	0	5	0
July	5,	Vt Stevenson in jail & v.s.....	0	3	9
	6,	Vt Stevenson & oint for Ward.....	0	5	0
Aug.	4,	Vt Murray & Tonic bitters.....	0	3	9
	11,	Vt Indian & med.....	0	5	0
	14,	Vt Indian & med.....	0	5	0
	16,	Vt. & med for Indian.....	0	3	9
Sept.	9,	Pills—Blue Oint & Sal Epsom for Sealy & Brady....	0	2	6
			£8	7	6

Approved in open Genl. Qr Sssns of the
Peace at London 14 April, 1832.

M. BURWELL
Chairman."

Also the following:

"(1) Account presented to the Court of Quarter Sessions,
April, 1833.

(N.B.—I have only given a few of the items on this account. The total
Amount comes to £20-10-0.—E.S.)

To Elam Stimson (Surgeon)

			£	s	d
May	29, 1832	Inquisition upon the body of Catherine Edwards....	2	10	0
		Dissection	1	5	0
		Constable's fees	0	15	0
June	10,	Gum Opium (Sundry times).....	0	5	0
Oct.	9,	Attendance upon prisoners, up to April, in jail.....	7	10	0
Sessions—1833		Attendance & Chloride of lime to fumigate Court House during Assizes.....	1	5	0

And as follows:

Sept. 5, 1832

BOARD OF HEALTH; London Dr.
To Bemis Pixley.

			£	s	d
Bemis		To two yards of Cotton Bot.....	0	1	3
Pixley		To one Sheet for shroud for Jones.....	0	5	0
		Do. to one Cotton Sheet destroyed in use.....	0	5	0
		Do. paid for Cleaning Room, Cleansing &c.....	0	5	0
		Do. To Boarding Coloured men and nurses.....	0	7	6
		To Washing of Bed Close used with Peter Rogers & Coloured man while sick.....	0	5	0
		Do. To three Bottles of Brandy used in sickness with Jones, Rogers & Pulin.....	0	7	6
		To one sash & Glass Broken by Peter Rogers while sick	0	5	0

To Shirts and Pantaloons used for sick.....	0	5	0
Do. To Trouble of House room & other necessary trouble in time of sickness.....	1	15	0
	<u>£3</u>	<u>11</u>	<u>3</u>

August 30th, 1832.

BEMIS PIXLEY

I certify that the above account is in my opinion
correct and reasonable.

ELAM STIMSON, Srgn.

London, Sept. 5, 1832.

Reed payt from Wm. Robertson the above amount.

BEMIS PIXLEY"

Again from Canniff's Medical Profession, Upper Canada, 1894:

"During the prevalence of an epidemic of Asiatic cholera, his wife fell a victim to that 'scourge of Nations,' July 20, 1832, having been but twelve hours sick. Five days after, their youngest child, of two years, died of the same disease, and a daughter also was so low with it that she was robed in her grave-clothes ready to be coffined. But she regained consciousness and was restored to health. At his wife's death he had five children, the eldest of whom was aged but little more than thirteen years."

* * *

In September, 1832, he was instrumental in organizing the London District Medical Association, meetings of which were held at Joe Loder's Inn at Otter Creek.

Again from Canniff:

"Dr. Stimson visited Hartford, Conn., and married Susan Bolles, his deceased wife's sister. Returned to Canada, he concluded to depart from the scene of so great affliction, so he wound up his affairs in London and settled late in August, 1833, at St. George, a pretty village—the centre of one of the most beautiful and fertile portions of Canada. Here, with the exception of a time spent in practice in St. Catharines, to afford better educational facilities for his children, he continued to reside and practise . . ."

In 1835 he published the "Cholera Beacon." A copy was discovered in the Surgeon General's Library at Washington. This pamphlet follows. His death occurred in 1869. His monument is to be found at St. George, Ontario.

“The Cholera Beacon”

ELAM STIMSON, M.D.

TO THE READER

The Author presents this brief and humble publication to the Public unaccompanied by any apology. To the humane, intelligent, and liberal of the profession, and public generally, the importance and necessity of more particular and general knowledge of the incipient stage of Cholera is too apparent for the Author to anticipate any charge of vanity, or affected superiority.

No general assertion is more true than that—“Cholera is easily cured if taken in time,” and yet thousands of its victims have remained unalarmed while the disease was making its covert and fatal approaches, and with physicians at their very doors. No advantage can be derived from the trite admonition to “Apply in time,” so long as the patient is in ignorance when that time is. Neither can the hasty and desultory precepts tendered during the prevalence of the disease prove of general utility. Highly excited fears pervert the judgment of many, and render them more fit and probable subjects of attack, while erroneous ideas of the first symptoms, and too great reliance on their own judgment, subject others to the greater danger of passing unalarmed that stage of the disease in which proper medical aid can be of any avail.

The object of “The Cholera Beacon” is to remedy these evils—to allay unfounded fears—to eradicate erroneous impressions, and in their place, to substitute that knowledge of the disease and its appropriate treatment, as will enable the reader to avert a fatal attack. In short, our object is to give timely warning of approaching danger.

It was not consistent with the brevity and general design of this essay to enter into a more particular detail of facts alluded to, nor to enlarge upon the arguments arising from them.

We have imbibed our theory from an attentive perusal of the Book of Nature—from a contemplation of the whole phenomenon of the disease; and to the same source of information we would refer the profession, rather than to any ingenuity in the arrangement of facts or arguments in this paper.

We have not undertaken the task of guiding popular practice in Cholera, unmindful of its importance—neither from a confidence of superior qualification, but from the want of some prospect of a similar publication from a more able pen, and from the fullest confidence of

the correctness of the general principles, and superior efficacy of the remedies recommended.

During the laborious and unremitting practice we have not been able to prepare these sheets for the press in a manner satisfactory even to ourselves; but that it will be the means of greatly diminishing the mortality of the disease, and amount of domestic afflictions, which we, in common with so many of our fellow-men, have shared, is the sincere wish of

THE AUTHOR

St. George's Village, Dumfries, May, 1835.

CHOLERA literally signifies "bile flux"—when applied to the disease of which we are about to speak, none could be more inapplicable, because the bile in the course of the disease is suppressed. But from its having been so universally known by the term "Cholera" we must consent still to retain it—but only as a name, and on condition that the reader will fully divest his mind of any preconceived opinion, of its being a disease of the abdomen.

We should now be understood that all our remarks, and precautions, are intended to apply to persons occupying situations where the Cholera is, or is expected to become epidemic; or to persons that have been exposed to its epidemic influence.

It is supposed that covering a vast extent of country—perhaps surrounding the world, an impure state of the atmosphere exists, tending to produce Cholera. This may be called general infection. In certain situations local causes operate to increase this contaminated state of the atmosphere; and this may be called local infection. To the union of these we apply the term Epidemic influence. Of the cause of the general infection we pretend to know nothing—but it would seem that the local infection is the product of heat and humidity, holding in solution a quantity of miasm, of exhalations of decaying animal or vegetable matter. Hence we find Cholera has prevailed most in the vicinity of great water courses, and in low and marshy situations.

The inland town of London, U.C., the place of our residence in 1832, stands upon a peninsula formed by the junction of two main branches of the Thames. Here the disease had apparently a spontaneous origin, and prevailed with great virulence and fatality.

The general infection we consider insufficient to render the disease prevalent—but producing sporadic or scattering cases in persons who happen to be in a certain state of ill health, or having a high degree of susceptibility.

The most striking and melancholy example within our knowledge of the generation and effects of the local infection occurred in this vicinity in the summer of 1834.

On the 28th of July, 1834, Galt, a village on the Grand River, U.C., was visited by showmen with a menagerie. It was exhibited under an awning of canvas, nearly enclosed at the sides, and drawn together in a conical form almost to the top. The day was excessively warm, and the crowd suffocating. The exhibition lasted about three hours. It is estimated that about 10,000 persons were present, and that not less than 200 persons died of Cholera within ten days. The population from which the assembly at the exhibition was composed, in the townships in the vicinity of Galt, is supposed to be about seven thousand.

The first case was in one of the showmen, who sickened on that day, which was Monday. No other case occurred until the following Wednesday morning—on that day not less than thirty were attacked, all of whom had been at the show. The greatest number of cases were on the Thursday and Friday following—but new cases occurred for several days. In speaking of an attack, we here allude to the time the patient supposed the attack commenced—the time he was “taken down.” The average length of time the disease lasted after this event was about sixteen hours.

Four days previous to the exhibition of animals at Galt, two children of Mr. J. G., on the Governor's Road, 12 miles southeast of Galt, were attacked with Cholera, one of which died. On the same day (24th July) two cases of what we shall call second-grade Cholera came under our care, being the first that occurred of that form of the disease within our knowledge that season. About this time also, many were affected with first-grade symptoms—but with the exception of the children alluded to we have not been able to learn that any case of fully developed Cholera occurred in this part of the province previous to the exhibition of animals at Galt; and for several days subsequent to that event, and in which more than two hundred were attacked with Cholera, all had been at that exhibition with only two or three exceptions. From the 6th of August the disease became more general and was not confined to such as were at the menagerie. About this time it appeared at Hamilton and Dundas—situations more low and marshy than Galt, and adjacent to Burlington Bay, or the head of Lake Ontario. From these facts it is evident that a deteriorated state of the atmosphere existed previous to the 28th of July, yet the fatal catastrophe following the exhibition at Galt was mainly attributable to the highly vitiated, or imperfectly oxygenated air, produced by the numerous and sweltering crowd under the canvas—the ventilation being altogether inadequate for so numerous and crowded an assemblage. It appears that at Hamilton, Dundas and several other situations the epidemic influence was the product of the more common causes of general infection, united with a local infection, which last is caused by the action of heat upon putrescent vegetable matter. These few remarks are sufficient for the reader to anticipate our answer to the oft-repeated and naturally interesting question—“Do you think Cholera contagious or catching?”

A contagious disease we would define as one that is produced by a

specific virus or morbid matter, that has either by contact or in the form of sweat—vapour from the breath—or some other excretion from the body, emanated from the sick of the disease, and which is capable of producing the same disease in another person. According to this definition, Cholera is not contagious. But it is not denied that the excretions or other filth incident to a sick room, or any other cause rendering the air more unfit for respiration may have the effect to render the epidemic influence more efficient. From the above facts and observations, that danger which is real may readily be distinguished from that which we consider imaginary.

Among other causes tending to impair the purity of the atmosphere are some which ignorance and credulity have brought in general use as preventives of the disease.

The smoke and fumes of burning tar can have no other effect when inhaled than to render the process, and benefit to be derived from respiration less perfect.

Chloride of lime, and some other substances have the reputation (undeservedly in our opinion) of destroying or of rendering the epidemic influence inert. Their operation at least must be very limited, for the air in a room or house, if at all ventilated, is displaced by the slightest current.

Some have imagined that a quantity of infection may become attached to the floor, walls, or furniture of a house, as it sometimes does in contagious diseases like the smallpox. Although we never entertained any fears of Cholera from this cause, yet all houses where this or any other disease has prevailed (and occasionally at other times) should be well cleansed by general ablutions and whitewashing.

OF THE FIRST GRADE OF CHOLERA

During the prevalence of Cholera (and generally for some time previous to its appearance), in any particular town, village, or section of country, unusual morbid sensations are experienced by many persons, inhabiting such situations, which have commonly been called "premonitory symptoms." Many, if not most that are affected with these never have the disease fully developed at all—while others that have but few of these symptoms, and these few so slight and transient as scarcely to be noticed, have serious and even fatal attacks—still these symptoms are produced by the same cause as Cholera in its aggravated form. They ought then to be called first grade of Cholera.

The symptoms of first grade of Cholera are the following: A faint, fluttering or trembling sensation at the heart, headache, dizziness, ringing or buzzing in the ears, cramps, generally of the calves of the legs, which occur most frequently in the night, an aching and numb sensation in the limbs, often shifting to different parts of the body, sharp pains, loss of appetite, indigestion, sickness at the stomach, an uneasy, full sensation of the abdomen, or heavy moving pains and irregularity of the bowels, an oppression of the chest, giving rise to frequent sighing, or to an inclination to make a more full and deep inspiration (a longer

and deeper breath), than a common sigh, a sense of weariness, and exhaustion upon using slight, or but ordinary exercise, and if the exercise be continued often produces a faintness or fluttering of the heart, a tight, oppressed or heavy sensation at the pit of the stomach, a sense of creeping coldness on the surface of the body, and sometimes short and "hot flashes" of fever—the mouth and tongue have sometimes a more soft and slippery appearance than is natural—and also of a more dark and dusky color.

This lengthy catalogue of morbid sensations applies to their appearance in a considerable number of cases collectively. They seldom, we may say never, all occur in the same individual—indeed it is not common for but few of these symptoms to affect the same person.

TREATMENT OF FIRST GRADE OF CHOLERA: It is not always necessary to have recourse to medicine for this grade of Cholera; but if the symptoms are severe, and especially if there is distress, or a heavy oppressive sensation at the pit of the stomach—or if there is a heavy faint or fluttering sensation at the heart, it will be advisable to bleed a pint or more from an adult; and if the bowels are not regular give 15 or 20 grs. of Calomel. After this it is often necessary to give some strengthening medicines, as a grain of quinine two or three times a day—or, what we think preferable, Huxham's Tincture (see Appendix) in teaspoonful doses three or four times a day. If there are wandering, or cholic-like pains in the bowels, give a dose (two or three teaspoonfuls) of Elixr. Pro. once in six or eight hours. It will allay the pains and afterwards operate as physic, producing bilious stools. If, after a time, the symptoms return, recur again to the same treatment.

Caution.—The tight, oppressive, or heavy sensation at the pit of the stomach—often called "a load at the stomach"—the loss of appetite, or some other symptoms, sometimes induce persons to take an emetic. This should be avoided—neither should any nauseating or cathartic medicines be given, except Calomel, Elixr. Pro., Hiera Picra, or some other warming physic.

OF THE SECOND GRADE OF CHOLERA

The grade of disease we are now to describe generally affects children—but sometimes youths, and less frequently adults. It prevailed extensively, and proved fatal to many in the neighborhood of London, U.C., at the time Cholera prevailed in '32. It was much more extensive than Cholera in its worst form, which was almost entirely confined to the town, while the milder form of Cholera covered a considerable extent of country. It was also prevalent during the time of Cholera in this vicinity (Dumfries) in '34—but within our practice it proved fatal but in a single case.

The symptoms are—irregularity of the bowels, and often wandering cholic-like pains. The evacuations from the bowels are mostly mucous, of the color and consistence of thick cream—and the mucous often intimately mixed with black blood in various proportions—some black blood alone is discharged, or mixed with but a small proportion of

mucous. The tongue has a soft, smooth, moist, or greasy appearance, which as well as the lips and inside of the mouth, all of a darker hue than natural—or all of a dark leaden color—sometimes the tongue is covered with a coat of exceeding smooth, short and thick fur, which is of a brownish color, and it is always moist. The patient has commonly much thirst, though sometimes it is quite moderate. The surface of the body is for the most part of the time cool, or colder than natural; but there is commonly some irregular paroxysms of fever that last only two or three hours, often not so long. For some time previous to the setting in of this grade, some of the first grade or premonitory symptoms are present, such as a loss of appetite, indigestion, irregularity of the bowels, and the weak, fluttering sensation at the heart. Both the severity and duration of this second grade (when uninfluenced by medicine) is liable to great variations in different patients—some cases terminate fatally within two or three days after they are thought to be seriously ill—others linger eight or ten days and often recover.

TREATMENT OF THE SECOND GRADE OF CHOLERA: If the disease is but slight, give to a child from 3 to 7 years old (and others in proportion to their age) 2 teaspoonfuls of the Elixr. Pro. and, if necessary, repeat in 5 or 6 hours, for two or three times. It will almost always allay the pains or uneasy sensations in the bowels, and afterwards produce bilious stools. These should be followed by strengthening medicines, such as Huxham's Tincture in teaspoonful doses, 2 or 3 times a day, and if the state of the bowels require, i.e., if they continue out of order, alternate the use of Huxham's Tincture with the Elixr. Pro. for physic.

But if the disease is more severe, and there are discharges of whitish or cream-colored mucous from the bowels, and the patient mostly cold, having only "hot flashes" of fever—or if the lips and tongue have a more dead and dark appearance, or if there is sickness at the stomach, and much purging of any kind, efficient means should be resorted to. One or two small bleedings will be of great service; but whether this be used or not, Calomel should be given in doses of 8 or 10 grains, once an hour, until two or three doses are given. If the skin, as well as the lips and tongue, are cold, or if the last is quite dark or purple, 2 or 3 grains of Capsicum should be given with each dose of the Calomel, and hot ginger tea may be given between these doses. After the last dose of Calomel has been given about 3 hours, if it does not operate, follow it with a teaspoonful of Elixr. Pro., and repeat this dose once an hour until it operates as physic. Dry heat (by warming flannels) should be applied to the surface of the body. In many cases the above must be repeated once in a day or two for some time. Most commonly something like a regular continued fever comes on after the operation of the physic, which in bad cases is a good sign. If there should not be much regular or continued fever, some strengthening medicines should be given for several days, even while it is necessary to give the Calomel and other physic.

Caution.—Give no emetics or other sickening medicines—neither

any other physic than the kinds we have mentioned, or some other of a warming nature—nor opium in any form except there are severe pains in the bowels, when 8 or 10 drops of laudanum may be given and repeated after an hour if the pain continues.

OF THE THIRD GRADE OF CHOLERA

We come now to speak of the third grade or fully developed Cholera. It is the only grade of the disease that has usually been known by the name of Asiatic Cholera, or Cholera Asphyxia.

To guard the uninformed and unwary against its incipient, insidious and fatal attack is the principal design of this essay.

The reader must not rest with but a cursory perusal of these precautionary lines, but the different forms of attack must be attentively studied; otherwise while the mind reflects upon one form in which it apprehends the disease will approach, it assumes another, and thus imperceptibly and disguisedly secures its victim.

The variety of symptoms by which Cholera may be developed may be divided into four:

- (1) Regular Attack: By commotion in the bowels and diarrhoea.
- (2) Irregular Attack: By a diarrhoea of thin, light-colored or greyish stools.
- (3) Constipated Attack: By a costive state of the bowels.
- (4) Bilious Attack: By a bilious diarrhoea.

As these different forms of attack all converge in a watery diarrhoea, a separate description will be given of each up to that stage. The disease then assumes a dreadful uniformity, and a single description only will be necessary.

There is still another variety, which we have termed Primary Cardiac Congestive Cholera. As this does not run into the watery flux, it will be considered in another place.

The first variety or form of attack here described we have called a Regular Attack, because it is not complicated with any effort of nature to carry off the disease by a substituted secretion.

The commencement of a regular attack is by commotion in the bowels and diarrhoea.

The form of attack begins with a sense of rumbling or commotion in the bowels, often emphatically expressed by the patients saying their "insides were all in an uproar," or that it "seemed as if their bowels were all turning upside down." This commotion is usually unattended by pain. After some time, varying from thirty minutes to two or three hours, there is commonly a large discharge from the bowels of feculent matter, and some portions of food not fully digested. Within an hour or two this discharge is followed by another, which appears to empty the bowels, the stools being composed of fecal matter, chyme, and the food

last taken partly digested. This also is attended with some pain—in some cases considerable, in others slight. One or both of these discharges is almost always very large. These have a fetid smell. At the time, or soon after this second evacuation, there is commonly sickness at the stomach, in some cases slight, in others it amounts to vomiting—or there is a sense of faintness, or fluttering at the heart—and often a general tremor of the whole system—sometimes these symptoms attend the first discharge from the bowels, but more frequently and severely the last.

There is now commonly an interval of several hours duration, in which no other symptoms are present but weakness, or a little faintness or fluttering at the heart, and sometimes a little sickness at the stomach. After this interval, which in different cases varies much, there is a sudden call to stool. It is now watery or very thin, and it passes from the body without effort and with a sudden gush. This is attended with very little or no pain. The less pain the more danger. This stool is soon followed by another, and another, which are now or soon after attended by vomiting, spasms, etc.

Sometimes this form of attack varies considerably from the above description—slight cramps of the toes, sickness at the stomach, and even vomiting sometimes precede the first purging. In other cases these symptoms occur after the first evacuations, and before the watery diarrhoea. Again, after one or two watery stools, the diarrhoea may cease without sickness at the stomach or vomiting, and return again after an interval of twelve, twenty-four, or even thirty or forty hours. Sometimes the emptying of the bowels (i.e., by the two first stools) may be performed at one evacuation, and in other cases by three or four and attended with much griping and pain.

Although in this form of attack as above described, little or no pain is experienced, yet there is sometimes an indescribable distress, through the whole body, and particularly at the pit of the stomach, and a sense of fullness or heavy aching of the head—some patients have spoken of this distress as attending the general tremor. The intensity of this distress varies in different cases from the most extreme suffering down to that which accords with the general description.

Of the second form, or Irregular Attack: This is by a diarrhoea of thin, light-colored or greyish stools. Although we have placed this grade second in the description, it is first in frequency of occurrence. As in the regular attack, this is commonly preceded by some of the first grade or premonitory symptoms—and particularly by nausea or sickness at the stomach. Many times there is the commotion in the bowels, but this is less distinct, and not so uniformly present as in the regular attack—but a loss of appetite more uniformly precedes this than the first form. If but little or no pain attends diarrhoea, the danger (as in the first form) is greater, and the nearer it approaches to the watery relax. On the contrary, if there is considerable pain and griping in the bowels, and the stools very fetid, the immediate danger is some-

what less, and may be cured by less efficient means. But such cases often unexpectedly run into a watery stage—the pain, griping and fetor of the stools diminish suddenly—and vomiting, spasms, the watery flux, and other alarming symptoms come on almost at same time. In some few cases the vomiting and spasms have preceded the truly watery stools.

The continuance of the thin, light-colored or greyish stools before the occurrence of the watery flux and other more alarming symptoms are liable to great variations in different persons. Sometimes only two or three of these occur before the watery diarrhoea, and is seen followed by collapse, the whole within three or four hours. But generally it continues “off and on” for a day or two, sometimes four or five days, before the watery flux—and in some other cases it has disappeared without the use of medicine, or was cured by very simple means.

During the continuance of this diarrhoea, that precedes the watery, the patient has usually a sense of weakness, and trembling or fluttering at the heart, and sometimes nausea and vomiting; but frequently would call himself well; the most inconvenience he suffers being from the weakness. As in the first form of attack, there is sometimes the indescribable distress, but from our own observation conclude it does not so often occur until near, or at the time the watery diarrhoea commences, or the setting in of collapse.

Of the third form, or Constipated Attack: We have so denominated this from the costive state of the bowels for some time previous to the diarrhoea. This state ought to be particularly regarded—although the Cholera is not often preceded by costiveness, yet when it does occur, it is much more dangerous, and sooner arrives at the stage of collapse. There are many persons in whom previous to their exposure to the epidemic influence, have too torpid and inefficient action in the function of the liver, and such consequently suffer from habitual costiveness. In others the secretion of bile is performed with much irregularity, and costiveness and diarrhoea alternately succeed each other. Such persons, it is thought, are more liable to Cholera—and on account of their previous habit of body would naturally conclude this constipation or relax only a common occurrence. But when the system has been subjected to the epidemic influence of Cholera, this constipated or relaxed state of the bowels are very liable to run into the watery diarrhoea.

If while thus constipated there are occasional slight faintings, or some degree of sickness at the stomach, or faintness or fluttering at the heart, loss of appetite, in short, any of the first grade symptoms, the danger of an attack is greater, and perhaps is in proportion to the number and severity of these symptoms. But even when these are absent a good degree of vigilance is necessary.

In one case that came under our care the patient was severely attacked with the diarrhoea, followed within an hour by vomiting and cramps until which he had no other symptoms but costiveness, except a slight fainting or fluttering when engaged at his work (haying) for

a day or two previous. This patient, however, recovered under the treatment hereafter recommended.

Nothing definite can be said as to the time this costive state will continue—but if it terminates in Cholera, the time between the constipation and the watery diarrhoea and collapse is usually very short. The first profuse evacuations from the bowels are sometimes preceded by the rumbling and commotion, or there is almost always some sensible movement of the bowels—and they are also commonly attended by nausea. The emptying, or first discharges (as in regular attack) are usually attended with some griping and pain. This, however, is often slight and of short duration, and the time between the first of these profuse evacuations from the bowels, to such as are without pain or griping and the stools without feter, is sometimes not over a few hours. As in other forms of attack, the indescribable distress and general tremor is often experienced as also severe shooting pains in different parts of the body.

Of the fourth form, or Bilious Attack: This is so denominated because the truly Cholera diarrhoea is preceded by a bilious relax. During summer and autumnal heat, a bilious diarrhoea is very common. The stools are generally of a yellow color, or they have a greenish yellow tinge, and sometimes of a dark green—pain and griping usually attend, and sometimes sickness at the stomach—but often when a person is attacked with this bilious diarrhoea that has been exposed to the epidemic influence of Cholera, it is but a fearful prelude to that disease.

It is true the bilious relax frequently subsides of itself, or with the use of very simple means, and the patient subsequently suffers but little except from debility and wandering cholic-like pains—yet in perilous times this bilious state of the bowels may either gradually or suddenly, and to the patient imperceptibly, glide into the watery diarrhoea. We say imperceptibly because as the pain and griping diminish the patient considers his case improving—whereas, if the pain and griping be diminished, and the stools be thin and of a more clear yellow color, imminent danger is betokened—and the truly watery flux will be likely to follow in a short time.

In all the forms of attack, the vomiting does sometimes precede the diarrhoea, or comes on at the same time—and in some few cases, spasms have appeared equally early—such instances, however, are rare, but some sickness at the stomach is most usually present when the diarrhoea begins. Short paroxysms of fever, or what is usually termed “hot flashes,” commonly precede the diarrhoea—though for the most part of the time the surface is colder than natural. The tongue has a soft, moist and smooth appearance, and of a darker hue than natural. This appearance of the tongue we consider a pretty sure indication of a strong predisposition to Cholera.

When children are attacked with Cholera (i.e., third grade), or Cholera developed, the vomiting usually takes place at an earlier period

than in adults—in them it is sometimes the first sign of illness. The first cases in this vicinity (the children already alluded to) commenced with vomiting, and such was the general aspect of the little sufferers that by their parents they were thought to be suffering from some vegetable poison.

It should be noticed that these attacks were shortly after playing (wetting and washing their heads) in a tub of water.

We have now described the different symptoms by which Cholera may be detected before, or at the time the disease has reached the stage to which we have arrived in our description, i.e. the watery diarrhoea.

The reader may rest assured that very few cases of Cholera occur (in this country) but what will fairly class with some of the forms of attack described—and this description should be familiar to the mind of every person who expects to be prepared to detect an incipient attack—yet there may be some times cases occur in which the symptoms of the different forms of attack appear to blend with each other, forming what might be called a complicated form of attack. These, however, may be readily recognized by any observing person, who will give the above description and the existing symptoms a due degree of attention.

We should mention that some cases have fallen under our observation (and more have come to our knowledge) in which persons addicted to the use of ardent spirits have in that state of debility which always follows preternatural excitement, i.e. which “cooling off,” after a debauch (a spree), been suddenly attacked with the Cholera and soon died, without our being able to obtain any evidence of their having had any previous disorder of the bowels.

We come now to consider that stage of the disease as it commonly appears from the setting in or commencement of the watery flux, to the state called collapse—or an entire failure of pulse at the wrist. The first circumstance, and one that might properly have been noticed before, is the change in the countenance. To the friends of the patient and the inexperienced in Cholera, this change might not be noticed. Upon particular observation the countenance will be found to have a more contracted, sharp, or sunken appearance. The eyes are somewhat sunken and the whole physiognomy somehow changed. In it there is often a sort of wildness or timidity more easily recognized (by a frequent observer) than described. This change we have repeatedly noticed, previous to any purging or vomiting whatever. There is also a coldness of the surface of the body, of which the patient is at this time very sensible—but as the disease progresses the sensation of heat is experienced.

As already observed, the vomiting in children frequently precedes the diarrhoea, and sometimes in adults—but most commonly the vomiting occurs from two to eight hours after the setting in of the watery diarrhoea. The contents of the stomach will be first ejected, after which the matter vomited is much like that discharged from the bowels—

cramps now attack, most usually first the toes and fingers, and calves of the legs. The lips and tongue are of a dark or blue color, the latter appearing smooth, soft and moist. There is no evidence of any secretion of bile, urine or tears—there is great thirst, the breath colder than natural, the skin has a dusky appearance, and unnatural doughy feel—the pulse weak and oppressed, sometimes slow, somewhat like that from oppressed brain, but weaker, or rather smothered. The distress or oppression at the pit of the stomach (a symptom almost always present) is considerably increased. If interrogated as to the seat of distress, generally refers to the lower part of chest, and calls it “sense of tightness,” or “heavy weight,” or “distressed fullness.” He often sighs or draws a long breath, and in many cases they complain of “want of air.” Sometimes in this stage of the disease there is a sense of fullness or “distress in the head.” There is great sensibility of the skin, and, though the surface is covered with a cold, clammy sweat, he suffers a sensation of tormenting heat. There is great anxiety and general restlessness.

If the disease is not arrested, the state of complete collapse will soon ensue. As this stage approaches, all the symptoms become greatly aggravated and still greater uniformity exists in different cases. The pulse grow small, thready and tremulous, and are soon imperceptible. Spasms are more severe, attacking the legs, thighs and body. The fingers and toes are reduced in size, being shrivelled and purple or black. The veins in the arm are only flat and black lines—a cold, clammy sweat covers the whole surface, and to the feel the skin is like a cold, wet hide. The spasms increase and some patients utter the most piercing cries—the thirst is more and more intense, and of a peculiar kind, the patient often supplicates his friends and physician with the most pitiful tones for “cold drink” as the last, greatest and only favor in their power to bestow. The eyes are sunken in their sockets and surrounded by a blue or black circle. The voice fails, is dry, hoarse, or only a whisper, and great restlessness.

After having thus suffered more than horrible martyrdom, the patient has commonly a great alleviation of suffering before death, being less purging, vomiting and spasms, and he often expresses himself better—or he lies in a sort of apoplectic stertor (though not like that from surcharge of blood upon the brain) apparently alike indifferent and unconscious of his fate, and expires with but little additional suffering.

This description of a distressing and closing scene in Cholera applies more particularly to its appearance in the middle-aged and robust. In the aged and infirm a greater degree of firmness and resistance is wanting in the constitution for the disease to exhibit its malignancy. The feeble hold they have upon life is easily shaken off—with the watery flux comes a little retching, and perhaps vomiting, some slight spasms, and distress at the pit of the stomach. The features gradually shrink, and in a few hours dissolution is effected without much violence or pain.

A weak, whispering voice begging "a drink of cold water" is almost the only expression of desire or suffering.

TREATMENT

In all our remarks upon this disease and its treatment, it is supposed that the persons in whom these symptoms appear have been, or are at the time of their appearance, subject to the epidemic influence of Cholera.

Under such circumstances it behoves all who regard the safety of themselves and such as are entrusted to their care to watch with the strictest vigilance for the symptoms described previous to the commencement of the watery flux, and upon their appearance resort without delay to the remedies now to be recommended. It certainly would be preferable to do so under the care of a scientific physician—but circumstances often render it impossible. When the disease is once progressing, the delay of an hour, even of half that time, is often extremely hazardous. We therefore (until we treat of the pathology) speak as though every reader was to be his own physician. If the treatment be commenced very early in the disease, much less medicine will be required to effect a cure—20 or 30 grains of Calomel, with half a pint of hot ginger tea, and rendered more diffusible by adding a small quantity of brandy, rum or whisky, and keeping the body warm, will be all that is necessary. But the course of medicine now to be prescribed is appropriate to that stage of disease approaching the watery diarrhoea, or the very commencement of that flux—this may be considered a medium course. As a general rule, the quantity and frequency in the repetition of the doses should be varied as they are intended to meet the disease, prior or subsequent to that stage.

When we recollect that the disease sometimes makes sudden and unexpected advances, we should be decided and efficient in the application of remedies, and if in their administration we err at all, let it rather be on the side of excess, especially of the pure stimulants. For if a greater quantity of these are given than is strictly necessary to counteract the disease, only some additional fever is excited, and perhaps a slight and temporary inflammation of the stomach, states of disease wholly incompatible with Cholera—and no danger need be apprehended from the last so long as a febrile state exists.

With other symptoms of Cholera is the distress or sense of tightness, or fullness at the pit of the stomach. This is a pretty sure indication of the necessity of bleeding. From an adult draw 3 half pints or more, and give 5 grs. of Calomel, with 5 of Capsicum, and repeat this once in half an hour until you have given 3 doses; and between each dose (of the Calomel and Capsicum) give 25 or 30 drops of some of the essential oils, as of peppermint, cloves or organum. The drink should be hot ginger or allspice tea. During this treatment the patient should keep himself warm in bed—should relax compel him to rise, have on socks, and avoid stepping on cold floor and exposure to the cool air as much as possible. Should these check the relax and vomiting (if the last be

present), a further use of Capsicum and oil of peppermint may not be necessary—but after an interval of three or four hours give 15 grs. of Calomel, with or without Capsicum, as the particular symptoms indicate at the time. If all the Calomel taken is retained (i.e., if not vomited) and the relax checked, and the surface of the body warm, wait patiently twelve or fifteen hours for the operation of the Calomel, giving only weak ginger tea. If this Calomel should not operate, give Elixr. Pro., 2 teaspoonfuls every two hours, until an operation from the bowels be procured.

If this treatment be early adopted it will seldom fail of arresting the disease at once. The thin, light-colored or greyish or watery stools will be followed by bilious, having more odour and color, and the patient will require little else than a short course of tonic and opening medicines. Huxham's Tinct.—Elixr. Pro. or Hiera Picra—varying or alternating their use as the particular condition of the stomach and bowels may require. If there is considerable pain in the bowels, and the Elixr. Pro. fails of allaying it, give 15 or 20 drops of laudanum and repeat, if necessary, to relieve the pain.

If from previous neglect the case shall have made a more dangerous progress before the treatment is commenced, the most efficient and energetic measures should be pursued. Let the patient be constantly rubbed with hot flannel cloths; at the same time draw blood—if it is thick and black and flows with difficulty, only trickling slowly from the arm, the necessity of abstracting it is great. Continue to draw blood (if you can) until it flows a full stream and is of a more florid color. Give 10 grs. Calomel, the same quantity of Capsicum, and follow it immediately with about 40 drops of oil of peppermint. When these have been down about ten minutes, if you failed of getting blood first, try again, and be sure to make a large opening in the vein, even make an orifice in each arm, and by rubbing the arms may ultimately succeed. The fact that long-continued exertions have sometimes unexpectedly been crowned with success should encourage the attendants to persevere. If you succeed in bleeding so as to cause it to flow freely and to become more florid, the danger is greatly diminished, and by following up the advantage thus obtained, with Calomel, Capsicum and other pure stimulants (not narcotic) a recovery may confidently be expected. The friction with hot flannels (under the bed clothes as much as possible) should be continued, particularly to the feet and legs, where the spasms are most severe, and *dry heat*, by applying hot flannels, bags of hot bran, or bottles of warm water to the body generally.

Continue to give of Calomel and Capsicum 10 grs. of each. The best time for giving this is *immediately after vomiting*, and repeat every half hour, or oftener, should there be frequent vomiting, until at least 40 grs. of Calomel be retained in the stomach. Should the medicine be repeatedly ejected when given this way, give 20 or 30 grs. of Calomel immediately after vomiting, alone and dry—putting only a teaspoonful or two of ginger tea in the mouth just to enable the patient to swallow the Calomel, and give no drinks for some time after.

Between the doses of Calomel and Capsicum give large doses (40 or 50 drops) of oil of peppermint, and the tincture of Capsicum and Myrrh in teaspoonful doses.

The most pure astringents should also be given in conjunction with the stimulants. Take equal parts of the tincture of Kino, Catechu, and Gum Guaicum, and mix—of this give a tablespoonful in a little ginger tea, and repeat as the case requires, i.e., as the evacuations are more or less profuse. The foregoing treatment will very seldom fail of curing Cholera, whenever it is resorted to while blood can be, and actually is, drawn in a full stream, and until it becomes more florid. But if the patient previous to, or during the course of this treatment, should take emetics or other nauseating medicines, or opium in any form, in sufficient quantities to have any sensible effect, they may counteract the beneficial effects of the remedies here recommended—or at least render a favorable issue more doubtful. But even when blood cannot be drawn, or if emetics or opiates have been injudiciously administered, the foregoing plan perseveringly employed, affords the patient by far the best chance for his life.

There is one other variety of Cholera in which sudden and dangerous congestions occur without being preceded or attended by the common symptoms, as vomiting, spasms, etc. Believing it to be produced by the same cause, we have called it *Primary Cardiac Congestive Cholera*. Of this variety of the disease we have seen but two cases; for which see Appendix Nos. 1 and 2.

PATHOLOGY

For the purpose of popular instruction we might remain silent in regard to any theory—but courtesy to the medical profession alone would be sufficient reason why we should devote a few pages to an explanation of the theory of a disease for the practice in which we have so confidently laid down rules for the non-professional reader, with whom that practice must necessarily be mostly empirical.

In the intended brief investigation of the pathology of Cholera, it is hoped that all bias or preconceived opinion as regards the nature of the disease will be wholly laid aside, and that he judge the case as it shall actually appear from an investigation of all the facts, and not from any preconception, founded upon a partial view of the numerous circumstances connected with the disease.

These preliminary remarks may seem unnecessary, but our only intention is to prepare the mind of the reader to give the varied phenomena of Cholera a full examination—not of a single and isolated case, but to trace its effects upon many individuals from the most slight and evanescent morbid sensations, to the stage called collapse, and from that to recovery or death.

We believe the remote cause of Cholera to be some *atmospheric impurity*, and the *proximate cause an imperfection in the performance of the chemical function of the lungs*. The opinion of the reader may probably coincide with ours in respect to the remote cause. He will

also perceive that the evidence to be adduced in support of our opinion of the proximate cause must, from the nature of the case, be mostly circumstantial.

In these circumstances there are many which, if viewed abstractly, lend but little or no support to our opinion, but when compared with others, striking coincidences, and a sort of concatenation is produced, which upon attentive examination has produced upon our mind a firm conviction of the correctness and validity of the hypothesis here set forth.

In all our intercourse and examinations of persons affected with the first grade symptoms, and from numerous and anxious investigations at the bedside of the sick and dying, we found it impossible to reconcile the varied phenomena, with the idea of their being the product of local irritation. In view of the first grade symptoms, we had such a variety and so discordant sensations as to be wholly irreconcilable with any known laws or usages of sympathy. In the absence of all evidence of local inflammation, or previous or existing arterial excitement, without even the slightest indications of a phlogistic diathesis, through what medium can these morbid impressions, these nervous irritations be produced, but through the medium of the circulating blood.

Before fully entering upon the *modus operandi* of Cholera we should take a summary view of the three principal excretions by which the blood is continually discharging its impurities, that is, the lungs, the liver and kidneys. The lungs performing the double function of decomposing atmospheric air, and robbing it of its vital properties, the oxygen—and at the same time disengaging from the blood a part of its impure and noxious matter—hydrogen and carbon—but the blood not being fully decarbonized in the lungs, has an adjuvent or supplementary organ in the liver, which extracts another portion of this impurity in the form of bile—to be like the manure of the farmer, converted to a useful and important purpose. And last, the kidneys, like a wasteweer to the system, clear the blood of such superfluous matter as is of no further use.

We ought also fully to consider the mutual influence and reciprocated action that exists between the nervous and vascular systems. Not only of the mechanical action of the blood vessels upon the nerves, but the chymical qualities of the blood itself, must be to a certain degree pure, or the proper energy and influence of the nerves can never be maintained. Neither must we forget that a gland cannot act upon imperfect blood, or if it contain heterogeneous or extraneous matter—even though that gland was receiving its usual degree of nervous energy.

The form called Regular Attack is perhaps the least complicated form of the disease. We therefore select that as a sort of pathological text.

In whatever the atmosphere impurity consists, the effect of it when inhaled is to incapacitate the lungs from fully performing their excretory function. A small portion of the hydrogen and carbon, which in the lesser circulation ought to be disengaged, passes to the left portion

of the heart and is again sent the rounds of the general circulation. But the retained impurity is so small in quantity that no immediate mischief results from it. After a few days (more or less in proportion to the change the blood undergoes in the lungs) the impurities increase and their action upon the nerves in various parts of the body in the capillary circulation produces the varied morbid sensations, the first grade of Cholera.

The liver is the organ upon which devolves the task of clearing the blood of this impurity—but in consequence of its action upon the nerves, their influence is diminished and the secretion ceases. At the same time the whole sympathetic system of nerves suffer from the same cause. Their energy is diminished. The blood now accumulates in the vena portea, and forming an obstruction to the venous circulation of the abdominal visera—dissolves, the serum exuding from the inner surface of the intestines, produces the watery diarrhoea.

In consequence of the imperfection in the chymical part of respiration, animal heat is not fully generated. The temperature, not only of the surface of the body, but of the blood itself is diminished.

This, together with its obstructed course through the liver and the gross impurities it contains, are all circumstances highly favorable to its dissolution. And the absence of valves in the veins of the abdomen and the want of bile in the intestines to excite their inner surface are also as favorable to the regurgitation and effusion of the serum.

When this paralyzed state of the sympathetic nerves occurs, and the liver ceases in its function, the process of digestion also ceases—the contents of the stomach and intestines are only an extraneous substance, which irritating their inner surface (mechanically) increase their peristaltic motion; the discharges previous to the watery diarrhoea are the consequence.

Another most important organ that suffers from the want of nervous influence is the heart. The force of its contractions are diminished, whereby congestions take place not only in the great veins connected with the heart, but in the venous portion of that organ itself; and these congestions further diminish and oppress its action.

The imperfect or smothered excitement which often precedes the disease appears like an effort of the heart to overcome these incipient congestions, and the “hot flashes” a sensation produced by the action of the impure blood upon the nerves in the cutaneous capillaries.

That form of attack which is by a diarrhoea of thin, light-colored or greyish stools, appears to be an effort of nature to supply the diminished or suppressed biliary secretion from the gastro-enteric mucous membrane. In these cases the nervous energy is gradually impaired, and when further diminished this morbid secretion ceases also—and is succeeded by the watery effusion and diarrhoea. This substituted morbid secretion cannot be much unlike that which takes place in Cholera Morbus—though authors speak of this as a vitiated biliary secretion—and though we sometimes meet with a few discharges of vitiated bile

by vomiting and purging at the commencement of Cholera Morbus, yet when the disease is fairly established no evidence can be obtained that any portion of the evacuations are the product of hepatic secretion.

This idea might seem to support an opinion entertained by some, that Cholera is but an aggravated form of Cholera Morbus—yet in the two diseases there are marked discrepancies. The pain and tormina of the bowels and fetor of stools indicate not only a different state of the sympathetic nerves, but in the nature of the matter discharged from that which exists in the watery diarrhoea when the evacuations are without pain in the bowels and the stools without the fetid smell. Besides, the watery flux is not the product of a secretion, but is simply an effusion of serum. Of serum as it existed in the veins and on which no subsequent secretory process has been performed—or, in other words, it is haemorrhage.

Previous to 1832 Cholera Morbus, however severe, even when it proved fatal (so far as we know) never merged in the watery diarrhoea. It is conclusive then that Cholera Morbus (as it occurred in this country previous to '32) is essentially different from Cholera, inasmuch as the former is not attended with that paralyzed state of the great sympathetics, nor the dissolved blood nor watery diarrhoea, that so uniformly attend the latter.

In the constipated state of the bowels, which sometimes precedes the Cholera, it would seem that the secretory function of the liver only is diminished, and the blood continues its circulation through the gland. But little or no bile, however, is poured into the duodenum, a sluggish peristaltic motion of the intestines ensues—probably in these cases the blood becomes more highly carbonated, which together with the retained and hardened feces increase the watery flux when it does occur, and is a sufficient reason why such cases are unusually severe.

The bilious diarrhoea that sometimes precedes the watery diarrhoea is a regular effort of nature to free the blood of the impure matter by an increased biliary secretion.

The vomiting and spasms usually occur about the time the secretions become suppressed, or if present previously become greatly aggravated. Whenever the blood becomes unfit to furnish fluids by the secretory glands, it transmits the capillaries with difficulty, and in them is brought in more immediate contact with the extremities of the spinocerebral nerves, which thus irritating produces painful muscular contractions—the cramps. Hence they generally first attack the parts most remote from, and least under the immediate influence of the heart—and thus by rubbing the limb affected, the stagnating blood is forced through the capillaries, and temporary relief obtained. The capillaries are endowed with a great degree of sensibility and *contractility*—otherwise the blood would cease to be transmitted through tubes so innumerable and minute.

The difficulty with which the blood pervades these vessels in this stage of the disease, and as we have mentioned, acting upon the nervous extremities produces the tormenting sensation of heat, while the part is actually colder than natural—owing to the same cause the sensibility of the skin is greatly increased—and this, too, together with the suppressed secretion of saliva sufficiently accounts for the intensity and peculiarity of the thirst, at the same time exuding serum covers the skin, mouth and faces, keeping them moist or wet. This intense thirst and the sensation of heat and burning that is sometimes experienced internally has been adduced as evidence of gastric or internal inflammation.

Now it is known that there is no cutaneous inflammation—yet the sensibility and sensation of heat in the skin is even greater than is experienced internally. These symptoms then, when properly viewed (i.e. in connection) render it plain that inflammation does not exist internally.

The universal suppression of the secreting function of the whole glandular system has excited the general notice and wonder of the faculty.

Whenever the imperfection in arterialization has existed so long—or the impurity in the blood amounts in degree to a state which the nerves can no longer endure, they fail (often suddenly) to impart their wonted influence to the glandular system (for reasons to be hereafter mentioned), the first failure is in the hepatic secretion. This succour to the decarbonizing process being cut off, the necessary change in the lungs is now less perfect, not only on account of their diminished nervous energy, but because the blood has now become so surcharged with hydrogen and carbon that it may be said to be incapacitated to the action of atmospheric air, consequently the accumulation of the matter that the lungs and liver should excrete, will now be very rapid, and in a short time (perhaps in a few moments) every other secretion is suspended. From blood so highly contaminated, no gland can secrete even an imperfect or vitiated fluid. When we recollect that combined with this (of itself insuperable disadvantage) is the greatly diminished nervous energy—this phenomena ceases to excite our surprise, for no other effect could be expected, a priori. Physiologists have compared the glands to manufacturing establishments to which blood is brought for the purpose of having certain mechanical and chemical changes performed upon it. This simple simile may be continued in illustrating the suspension of the secretions in Cholera. In health they (the glands) are well paid (i.e., receive a due degree of nervous excitement) and are supplied with materials properly fitted and prepared.

The work goes smoothly on and is properly performed—but when their pay is much reduced and at the same time more labor is required on account of the imperfect state of the materials, there is a general

“turn out” (revolt), the whole business is suspended, and unless the pay is rendered adequate to the labor the whole concern must inevitably fail.

Now recall to mind the first morbid sensations; view several cases collectively. It is not most evident that the disease even in this incipient state is co-extensive with the whole vascular and nervous system? The disease progresses and affects the secretions and all secretory glands are implicated.

In coincidence with these circumstances, consider the effect produced by respiring the contaminated air at the Galt show, and the appearances of the blood—drawn early in the disease, before any diarrhoea takes place it is more thick and black than in health—later still more so—and thus increases until it becomes so thick and highly carbonated that it will not flow at all.

In the absence of all evidence that any other cause could produce these effects—such corroborating circumstances must go far, very far, to bring the whole difficulty home to the blood—to its imperfect arterilization, not as a secondary effect, but primarily.

Few observing practitioners are unwilling to admit that the fluids in the course of many diseases undergo changes by which their essential qualities are altered and depraved. But *in Cholera impurities exist first in the blood itself*, and that too without its being the result of any change of action in its vessels.

Early in the disease the vascular system becomes implicated from the action of this retained impurity upon the nerves which it affects most forcibly in the capillaries. A diminished action of the heart and congestions follow, which plainly denote the directly sedative quality of the existing state of the blood.

Before answering any objection that may be brought to this theory we ought to direct our attention to the two different systems of nerves. The spino-cerebral destined not only to supply the various parts under the control of the will, but to form an intimate connection, particularly in the stomach with another system—the great sympathetics which “supply motion and life to the inward assimilating and nutritive functions,” organs not under the control of the will. The sympathetic system of nerves has with propriety been called the abdominal brain, notwithstanding their intimate connection and usual reciprocated action, yet it does not follow that this sympathy cannot be suspended. A specious objection to our theory (one certainly more specious than solid) is that if the respiratory organs were primarily affected, “the effects would fall upon the sensorium, as in the burning of charcoal in a close room.” If the change in the lungs was more sudden and complete it might produce that effect. Under the canvas at Galt this effect was in a degree produced. We have interrogated more than 50 that were

present and all say they "felt so sick and dizzy during the exhibition that they were hardly able to stand." Under the effect of ordinary epidemic influence a very small portion only of the matter that should be excreted passes the lesser circulation so small that no immediate evil results from it—and some days elapse before it affects the system at all. In some instances, where there is a retention of this matter, its effects are resisted for months, when, owing to some change in the system, favorable to the operation of this retained poison, its deleterious influence is exhibited.

As already observed, when the impurity in the blood becomes insupportable by the nerves, the first gland affected is the liver. The hurtful impression is upon the sympathetics, because it is in the organs supplied by this system of nerves that the blood arrives most highly charged with the poison—and upon the liver, too, devolves the labor of purifying the blood by eliminating the hydrogen and carbon in the form of bile. It is consistent then to anticipate an inadequacy in the function of the liver, and the priority so universally discovered in the entire failure of its secretory function. The hurtful impression being thus concentrated upon the sympathetic system of nerves, so diminishes their energy and abolishes their power that the usual reciprocated influence between them and the spino-cerebral is superseded, and thus the brain escapes uninjured.

Again, it has been alleged that if the proximate cause of Cholera was an imperfection in the chemical function of the lungs, the inhalation of oxygen gas would prove an effectual remedy, whereas it has not been known to produce any lasting or beneficial effects. In the treatment of almost every disease, the curative plan must be directed not to the proximate cause, but to its effects. The cause of Cholera is a diminution of the excretory functions of the lungs—contaminated blood—diminished excitement—congestions, impaired or suppressed secretions are the effects. Can it be supposed that the inhalation of oxygen can repair all this mischief? Can it simultaneously purify the blood—excite the nervous energy, unload congestions, and open the secretions?

Some whose opinions we have reason to respect conclude that a specific virus actually enters the blood with the oxygen, and yet do not consider the disease contagious—but does not the specific virus in all diseases produce specific effects, as in the smallpox and measles?

Fortunately the practice of some holding this opinion has been eminently successful, because they were convinced that this poison which they suppose enters the blood produces the same effects as that morbid matter which we believe is generated in the system itself, and retained in it.

By some the "premonitory symptoms" are not considered as any part of the disease, "only showing a predisposition to it"—and yet all acknowledge them to be the effects from the same cause. In our opinion these morbid sensations are the disease itself in its incipient state. At least the first grade symptoms should be considered as bearing the same

relation to Cholera as pneumonia does to effusion or phthisis—and as pneumonia often spontaneously subsides without producing effusion or phthisis, so the premonitory symptoms subside without producing Cholera. A knowledge of the existence of these symptoms should be sufficient (not to alarm) but to put all upon their guard—for not only these but all apparent stomach and bowel complaints frequently merge in the watery diarrhoea. The general and most frequently fatal error is in mistaking the disease in its forming state; but few ever suppose they have anything of the Cholera until they are actually “taken down.” This certainly is in some degree chargeable to physicians themselves, especially such as hold and propagate an opinion that the “premonitory symptoms”—the dyspeptic and other ailments so common during the prevalence of Cholera, are no part of that disease—an opinion fraught with no less danger than error—for while a patient imagines he has nothing but a “common bowel complaint,” he is suddenly “taken down” and in a short time in collapse. Often the patient on being asked when he was taken, refers to the time the vomiting and spasms commenced, and when upon cross-questioning acknowledges that his stomach has been out of order, or that he has been troubled with a relax for some time previous, frequently adds that he “thought” nothing of that as it gave him no pain. In almost all diseases incident to the man family, pain is a natural and faithful sentinel to warn us of danger. Not so in Cholera. The absence of pain in the bowels during the relax is a feature in the disease highly calculated to lure the unwary within its fatal grasp.

That the disease has such a forming stage or symptoms by which it can be detected, when completely controllable, even when caused by the most highly concentrated epidemic influence, is evident from several facts connected with the Galt show.

Of several families that we attended who had been at the show, several of which were attacked, not one died that followed the course we have recommended.

In a letter from A. Shade, Esq., after giving a detailed and very lucid account of the appearance and progress of the disease in Galt, says in conclusion: “I believe, generally speaking, all were sick at the stomach or felt a tremor or faintness throughout the whole system, and then a relax, *before* the puking and cramps set in.”

The disease improperly called Dysentery, prevalent during the time of Cholera, is very different from Dysentery as it prevails in seasons and situations unoccupied by Cholera.

Although the blood is obstructed in the vena portea, and the bile diminished, yet it is not substituted by the more common increased secretion from the gastro-enteric mucous membrane but by vitiated mucous—and when the portal congestions are more complete, a reflux of blood takes place, and is effused undissolved from the numerous minute veins, which alike accounts for the dark color, and intimate admixture with mucous. The peculiar appearance of the inside of the mouth, lips and tongue, the absence of the usual tenderness discoverable

by pressing the abdomen and the appearance of the stools are sufficient to distinguish it from Dysentery.

TREATMENT RECONSIDERED

When the theory of a disease is correct, it supports and is supported by the practice. The most conclusive evidence of the correctness of the premises here set forth is in the efficacy of the practice they indicate—which is to rouse the energy of the sympathetic nerves—to restore the secretions and to remove congestions. These are the primary and cardinal indications in the cure of Cholera.

In the animated machinery of man we perceive a system of causes and effects so mutually connected and mutually dependent that we cannot understand the operation of a single isolated part without reference to the whole. So in this disease, and fulfilling the indications of cure, all must be viewed relatively, as cause and effect—for no one indication can be fulfilled and a cure performed without affecting all—and the different indications should be fulfilled simultaneously.

The object of bleeding is to prevent or remove congestions, or in other words, to increase the power of the heart over the circulating blood. The principle is plain. By diminishing the body to be moved the relative power of the mover is increased. It is apparent, then, that bleeding is necessary, not only for the plethoric and robust, but also for the aged and infirm. The feeble and ineffectual efforts of the heart must be assisted by abstracting a portion of that fluid which clogs and impedes its motion. It is true the aged and infirm, the debilitated emigrant will not bear—neither do they require so large bleedings as patients of an opposite description. But the principle—the object to be attained is the same, which should be borne in mind and abstract such a quantity as will enable us to excite a more vigorous action of the heart, by the use of pure stimulants, and thus the congested vessels will be unloaded.

We have said that the distress at the pit of the stomach, so uniformly present before or at the time of the patient being taken down, strongly indicates the necessity of bleeding. This sensation is generally in the situation of the semi-lunar gaglion, and may be considered strictly a nervous affection. But if the nerves are thus injured, a corresponding diminution in the action of the heart, and consequent congestions may be expected, as well as an entire failure in the function of the secretory glands—but should the glands partially maintain their wonted secretions, before they could sufficiently purify the blood, the action of the heart would be so impaired that congestions would ensue. The precept to draw blood until it flows “a full stream” is intended for that advanced stage of the disease in which blood is procured with difficulty. It not unfrequently happens that after congestions have taken place, the blood upon opening a vein starts suddenly and flows freely. If allowed to flow thus freely the pulse will sometimes fail, growing weak and tremulous. Under such circumstances it is safer (as in other congestive

diseases) to draw it slowly, or restrain it until the action of the heart be excited by pure stimulants.

The uniformity with which Calomel promotes the secretions, particularly the biliary, naturally led to its employment for that purpose in Cholera, and it has not disappointed any reasonable reliance that has been placed upon it. But to the neglect of powerful, and in many cases indispensable auxiliaries, some have placed their dependence on Calomel alone, or what is worse, have joined with its use such narcotic or nauseating medicines as to counteract its efficacy. So dependent are all glands upon a due degree of nervous energy, which is so depressed and inefficient, that with Calomel should be joined the most pure stimulants—that is, such as are unalloyed with any narcotic properties. These excite the nervous energy and render the operation of the Calomel upon the liver much more speedy and certain. In the significant term of a patient “the Capsicum makes the Calomel take hold.”

A professional friend, and gentleman of well-merited celebrity, prefers giving the Calomel in small doses, lest larger ones induce nausea and further depress the nervous power. But when the importance of early opening the secretions is considered, and as we have no unfortunate precedent when pure stimulants only have been joined with the Calomel, we cannot but look upon the most efficient measures as the most safe.

In the impaired and irregular biliary secretion and consequent uneasy or painful sensation in the abdomen, which often precedes a decided attack, and which seldom fails of following one, the Elixr. Pro. is singularly efficacious. We have so uniformly noticed its anodyne effects, as induce us to believe it a most valuable and well-adapted stimulus, and so certainly does it subsequently produce bilious evacuations that under these circumstances it may be said to have a specific action on the liver.

Having denounced the use of several medicines heretofore used, we give our reasons for so doing by referring to their operation in connection with the pathology.

The absence of bile in the excretions has induced some to prescribe Emetics, in the hope to stimulate its secretion. Others have supposed bile of a highly deleterious quality was retained in the biliary ducts of the liver and gall-bladder—and that the injurious and highly depraved quality of this bile acted as a poison to the system, and have prescribed Emetics to dislodge it. Without recurring to facts and arguments to prove the falacy of these premises, the effect of an Emetic only need be considered. Whenever nausea is induced a depressed or diminished action of the heart is sure to follow. In Cholera all acknowledge the dangerous depression in the action of heart. Whatever induces nausea, then, increases the disease, so far as the action of the heart is concerned—and also increases the serious effusion and diarrhoea. Of such importance are these considerations that with a knowledge of indigestible substances in the stomach, we could not recommend an emetic to eject them, lest more danger be incurred from further sinking of the

heart's action. The safer course being to excite the nervous energy and raise what in other circumstances would be considered an undue degree of excitement, when the offending matter could be evacuated without danger—but should it be thought necessary to dislodge indigestible substances, the most safe emetic would be the sulphate of zinc (white vitrol). Several cases of Cholera where emetics had been given have come under our care and more have come to our knowledge, not one of which survived.

Scarcely less injurious are such cathartics as induce nausea, though their hurtful impression is not so suddenly made—yet if the disease is somewhat advanced, they as surely increase the profuse discharges, and their injurious effects are of longer continuance.

To allay the spasms in Cholera a most unfortunate use has been made of Opium. Ordinarily, spasmodic action is the result of nervous irritation produced by some irritating substance of matter, remote in situation from the muscles thus spasmodically affected—and the use of Opium as an antispasmodic in Cholera has been predicated upon the supposition that the spasms were produced by an accrimonious or some other poisonous quality of the bilious or other matter acting upon the stomach or other internal parts. But in Cholera cramps are produced by the direct application of the irritating matter to the extremities of the spino-cerebral nerves (see p. 35). At the same time the effect of the poison upon the parts supplied by the sympathetics are suffering a great diminution of power—or in other words, the effect of the poison upon them is that of a narcotic. Now if opium be given in sufficient quantity to affect the spasms—the nervous depression—impaired or suppressed secretion and congestions are all increased. The too common idea then that the quantity of opium may safely be apportioned to the violence of the spasms is a most gross and dangerous error.

It is evident from the works of Drs. Rush and Armstrong that opium has not been found a safe medicine in the yellow and typhus fever, where they were attended with great venous congestions.

But in the morbid bilious or other secretions which are attended with pain, opium in small doses is safe and useful. After a decided attack of Cholera it is commonly several days before the functions of the abdominal viscera become regulated. To relieve the pains often attending this state of the bowels opium is very necessary, especially if the Elixr. Pro. fails of having its usual anodyne effects.

With some persons cold water has had the credit of curing Cholera. Every case within our knowledge where a recovery was attributed to the use of cold water, large doses of Calomel had been previously given, to which the cure, in our opinion, was attributable.

It is a well-known fact that cold water, when taken in large quantities, has a tendency to produce sudden and dangerous congestions, especially in the intemperate, who are also most liable to Cholera. Its use in Cholera, therefore, is attended with much risk, and many more cases could be adduced of its evident bad effects than of its supposed efficacy.

ON EXCITING CAUSES

First Cold: The temperature of the body being diminished from the imperfect generation of animal heat, abstraction of caloric from the surface is one of the most common causes of the disease becoming suddenly aggravated. During rest and sleep the circulation becomes more languid, and upon exposure to cold air the vomiting, flux, etc., are excited.

Second: The depressing passions of the mind, but few are wholly unacquainted with the distressing sensation which grief, fear, or great anxiety, produce at the pit of the stomach. Any of these depressing passions have an almost direct influence in inducing a depressed state of the system of nerves principally concerned.

Third: Many articles of diet have been considered as exciting Cholera. In the impaired state of the digestive organs they become incapable of digesting almost any substance—and sometimes the gastric juice possesses some accrimonious or other quality capable of exciting a capricious or depraved appetite, and at others a full meal is taken after undue fasting and fatigue. These are all circumstances under which the disease is likely to become developed. But the fault is not so much in the diet as in the state of the digestive apparatus. A course of stimulating deobstruents, tonics and perhaps Calomel should be resorted to rather than attempt to elude the disease by avoiding a numerous list of prohibited articles. We would not be understood that the use of unripe or other indigestible substances are not improper and attended with danger—or that when the digestive organs are weak, light, easily-digested food is not most proper.

But our protest is against the general system of starvation which in some instances has been so injudiciously recommended and adopted. If the appetite continues unimpaired and the habit of body unchanged, the accustomed diet should not be altered. Under such circumstances a regular and usually nutritious diet is the natural and certain stimulus to the whole abdominal viscera, whereby all the natural and healthy functions of the system are promoted.

We should have mentioned in its proper place that in the dangerous consecutive fever of collapse we have succeeded by small and repeated bleedings, mild stimulants and tonics—congestions and local inflammation existing at the same time.*

In proportion to the importance of our subject we find upon reviewing it but a bare introduction. Some parts requiring much reflection and length of discussion—the limits and intention of this paper admit of little more than a general position. To the arguments adduced to support our opinion of the proximate cause of Cholera many might be added. The fact that the elementary principles of alcohol are principally hydrogen and carbon, that it is indigestible and enters the blood unchanged—that it produces a disease (*mania a potu*) strikingly analogous to many cases of the consecutive fever of Cholera, and the

*In this fever Emetics are safe and often useful.

marked susceptibility of the intemperate to the disease, are all grounds for arguments in support of our hypothesis, strong and convincing, and if properly advanced might be interesting to the profession; but as they would be devoid of interest or use to that class of readers for which this book is written, we present it to the world as it is, unfinished and unsightly, but in humble confidence that even in this state it will serve as a "Beacon" by which to guide upon safe and philosophical principles that practice which has been so much tossed upon the wild and conflicting waves of empiricism.

AUTHOR

APPENDIX

1. (See p. 29.) Mrs. S., aged 50, of strong and robust constitution, and for many years previous of uncommon good health, was attacked in the night (14th August) about 12 o'clock with great distress at the heart and oppression in breathing. The day previous she had several times "a strange weakness and trembling and quick beating at the heart," and also felt the same when she first awoke. We saw her within an hour. The surface of the body, particularly the extremities, were cold (but not the coldness and clammy sweat common in Cholera), the pulse frequent and oppressed, with an occasional intermission—the tongue and mouth a little darker color than natural, and rather moist, somewhat thirsty, and an "awful weight at the heart"—the panting or laborious breathing most resembling a person completely exhausted by running. When presented with a drink, swallowed with avidity, from the necessity of constant respiration. The first remedy used was bleeding 20 oz., followed by mild aromatics and stimulants, with hot applications to the feet and legs. It gave immediate relief to the distressed and oppressed breathing, but there was little alteration in the pulse short of an hour—they then began to rise; in three hours bled again, and gave a large dose, 30 grs. Calomel. A high fever through the day with full bounding pulse—the excitement was marked by great irregularity—the medicines were moderate stimulants and laxatives, castor oil and an infusion of senna. She recovered without any other difficulty except unusual debility. She has up to this time (May) enjoyed perfect health.

2. D. B., of Beverly, a stout, hale lad of 18, was attacked much in the same way (as case 1) and had the same symptoms the day previous. When he first awoke, felt much sickness, but vomited only once. Saw him in two hours. The distress and difficulty of breathing very great, and the pulse barely perceptible. The treatments the same as the first case and with the same result.

Elixir. Pro.—properly elixir proprietatus—is prepared by infusing in three half pints of spirits or strong whiskey 1 ounce of Gum Myrrh and the same quantity of Gum Aloes.

Huxham's Tincture is prepared by infusing in three half pints of spirits or whiskey 2 ounces of Peruvian Bark, 1 ounce of dried Orange Peel and half an ounce of Virg. Snake Root.