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A N
INAUGURAL DISSERTATION
O N
CHOLERA INFANTUM.

SUBMITTED TO THE EXAMINATION OF THE
REV. JOHN EWING, S. T. P. PROVOST,
T H E
TRUSTEES AND MEDICAL FACULTY,
O F T H E
UNIVERSITY OF PENNSYLVANIA,

ON THE TWENTY-SECOND DAY OF MAY, 1798,

FOR THE DEGREE OF

DOCTOR OF MEDICINE.

BY HENRY DISBOROUGH, OF NEW JERSEY,
HONORARY MEMBER OF THE PHILADELPHIA CHEMICAL SOCIETY.

“ A man perhaps, the moment of his breath,
“ Receives the lurking principle of death,
“ The young disease, that must subdue at length,
“ Grows with his growth, and strengthens with his strength.”

POPE.

PHILADELPHIA:
PRINTED BY BUDD AND BARTRAM,
N^o 58, NORTH SECOND STREET.

MAY, 1798.

18259

TO

NICHOLAS ROMAYNE, M. D.

OF NEW YORK,

A PERSON eminently distinguished for his extensive acquaintance with the whole circle of Medical Science, and for his politeness as a gentleman ;

This Differtation is inscribed,

With sentiments of gratitude and respect,

By his obliged Friend,

And former Pupil,

THE AUTHOR.

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To Mr John Mow
with the Compliments
of the
Author

TO

DOCTOR BENJAMIN SAY,

FELLOW OF THE COLLEGE OF PHYSICIANS,

PRESIDENT OF THE HUMANE SOCIETY
OF PHILADELPHIA, &c.

SIR,

IN departing from you, under whose directions have been continued my studies with pleasure and satisfaction, accompanied with numberless opportunities for improvement in practice—Permit me thus publicly to return you my sincere thanks for the favours you have been pleased to confer:— And as a person distinguished for your humanity; and usefulness in the practice of your profession;

This Dissertation is respectfully inscribed,

As a small tribute of gratitude,

By your Friend and Pupil,

THE AUTHOR.

T O
THE MEDICAL PROFESSORS
OF THE UNIVERSITY OF PENNSYLVANIA.

GENTLEMEN,

PERMIT me, in leaving the school where I have had the honor to finish my medical education, thus publicly to return you my warmest acknowledgements for the useful information I have received from your valuable lectures; and, believe me, I shall ever bear a lively recollection of the pleasure with which I attended you. To your reputation as men of science, I can add nothing: the high estimation of the University is sufficient to distinguish you as worthy professors, justly meriting honor and respect.

That the whole family of mankind may share the salutary effects of your improvements, is the sincerest wish of,

Gentlemen,

Your very humble Servant,

THE AUTHOR.

THE HISTORY OF THE

PROVINCE OF NEW YORK

FROM THE FIRST SETTLEMENT TO THE PRESENT TIME

BY JOHN BURROUGHS

IN TWO VOLUMES

VOLUME THE SECOND

NEW-YORK: PUBLISHED BY G. B. LEITCH, 1852.

INTRODUCTION.

NO diseases to which the human species are subject, in the different progressive stages of life, more particularly claim our compassion, and the extension of medical aid, than those which are incident to the period of infancy and childhood. The great irritability of their delicate frames, and particularly the mismanagement of those to whom the immediate care of them are intrusted, render them the subjects of much pain and misery.—So great is the mortality among children, especially in large cities, that it has been found from pretty accurate calculations, that above one half die within the first four or five years.*

The causes and seats of infantile disorders are various: none of these diseases are more common and distressing than those which affect the alimentary canal; of such importance has been deemed

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* Gregory and Black. Comp. View.

the due action of these parts, that many Physicians, both ancient and modern, have considered a morbid or diseased state of them as the principal source of destruction among children. From the regularity of their appearance in most seasons, and from the different forms which they assume, proving very frequently mortal, I think but few diseases deserve greater attention.

Before I proceed to take notice of one particular state or grade of the disease to which this dissertation will be confined, I shall take a short view of the diversified character which it occasionally assumes.

Of *Diarrhœa*. This, it must be obvious to every person, differs only in its violence—it attacks children at the same season of the year, of the same age and habit of body, and when left to nature, generally continues to increase in its violence till it puts on every appearance of a true Cholera :

Cholera Infantum, does not appear to be a distinct disease, from intermitting or remitting fever and cholera morbus in adults, but a variety of the same—this I infer from the same causes inducing

these feveral diforders ;—with this difference only, that the exciting caufe, with lefs force, will produce morbid action in children and perfons pre-difpofed to the difeafe. * Dr Cleghorn describes this complaint as invading children fome weeks fooner in the feafon, than fimilar affections are difcovered in adults. This he very juftly attributes to the greater excitability and tendernefs of the alimentary canal in the infantile fyftem.—Further, in fpeaking of the tertian intermittent fever (page 163) he fays “ as
“ the cold fit goes off fome bilious matter is com-
“ monly difcharged by vomit or ftool.” “ † From
“ the difcharge of bile which generally introduces
“ the difeafe, from the remiffions and exacerbati-
“ ons of the fever which accompanies it, and from
“ its occurring nearly in the fame feafon with the
“ cholera and remitting fever in adults, I am dif-
“ pofed to confider it as a modification of the
“ fame difeafes. Its appearing earlier in the feafon
“ than the cholera and remitting fever in adults,
“ muft be afcribed to the confutations of children
“ being more pre-difpofed from weaknefs to be act-

* Cleghorn on the Difcafes of Minorca.

† Dr. Rush, 1ft. vol. of Medical Inquiries.

“ ed upon by the remote causes which produce
“ those disorders.”

From these considerations, I am induced to believe, that all the intestinal complaints in warm seasons are modifications of the same primary affection and constitute *the febris introversa of Dr. Sydenham.*

AN
INAUGURAL DISSERTATION
ON
CHOLERA INFANTUM.

HISTORY.

THIS disease becomes most prevalent, and is attended with symptoms of the greatest danger, during the warmer months of summer and beginning of autumn, when it is known by the common name of *the disease of the season*. It prevails in most of the large towns of the United States: and “it is distinguished in Charleston, South Carolina, by the name of *the April and May disorder*, from its occurring in those two months.” It seldom appears in Philadelphia or New York until June or July, and continues till the latter end of September—though from the premature heats of summer it may occur much ear-

lier or from the unusual continuance of the same, it may be considerably protracted.

It generally spreads and assumes a more dangerous aspect, in proportion as the heat of the season increases.

The temperature of the weather has a very considerable effect on this disease.—Great vicissitudes of heat and cold—sudden and long continued rains, after a very dry state of the atmosphere, generally favour the operation of the exciting cause;—hence the reason, why in some years, it proves so alarming and distressing among children, whilst in other years, from the mild and more uniform temperature of the atmosphere, it is comparatively a rare occurrence.

This disease may arise at any period of the infant life, and few children, especially those in large cities, entirely escape some of its various forms. It is my intention to describe one form only, which consists in a nausea, vomiting and purging.

Although this complaint may attack children at any age, we find that, most frequently, it affects them from the second or third week after birth, to

the third or fourth year. It is not unfrequently preceded by the usual precursors of the common bilious intermitting and remitting fevers of warm seasons. It comes on, and is continued with evident symptoms of pyrexia, loss of appetite, occasional fits of nausea, and sometimes vomiting without the purging, though more usually the contrary—but it most commonly comes on with violent purging and vomiting, which continue together or alternately with each other.

The matter evacuated is more or less mixed with bile; its appearance is green or yellow. The stools, however, vary in their appearance and have been distinguished into * “four, curdled, slimy, clayey, watery, and bloody.” Dr Rush informed me, that he had a case in which they were black; and I have heard of two other similar cases. In many instances, the stools are large and foetid, but in others they are without smell, and consist chiefly of the aliment as taken in, without having undergone any material change in its passage; (this in adults is called *Lientery*). Sometimes in violent cases, where the disease has run to a considerable length, some degree of *tenesmus*

* Underwood on the Diseases of Children.

will occur. Prolapsus ani has been noticed by some writers; but this is by no means a common case: where it does occur it must be owing to a relaxation of the Levator and Sphincter ani muscles and will mostly disappear as the patient gains strength. Worms are often discharged in different stages of this disorder.

The symptoms enumerated are accompanied with a fever “ which is of a remitting kind and discovers evident exacerbations, especially in the evenings,” and like many other bilious diseases of the season, is marked with morning remissions. The pulse in the beginning of the disorder is quick, and considerably tense, full, and hard, but in the advanced stage of the disease, from the excessive evacuations, it soon loses its force and becomes weak, frequent and quick; great thirst is pretty constant through the disease; the skin hot and dry—though sometimes during the nausea, and perhaps of vomiting, a moisture breaks out, mostly about the face; the abdomen often swells, and is remarkably hot, whilst the extremities are much colder than natural. One of the most frequent and distressing symptoms in this formidable complaint is a severe pain or griping in the bowels: this may be known by the child starting, by frequent fits of crying, and

the forcible contraction of its arms and feet towards the stomach. “ This disease affects the head so much, as in some instances to produce symptoms not only of delirium but of mania.”*

The duration of this disease is various, depending much on the manner in which it comes on, the habit, and changes of weather, &c. If the first attack is with violence and left to nature, all the alarming symptoms rapidly increase till the strength of the patient is suddenly diminished, when a fainting comes on, attended with cold extremities, cold sweats and subsultus tendenum, which sometimes put an end to the unhappy sufferer, in the term of one day. A hot, dry and moist atmosphere seldom fails to increase all the violence of the disease, whereas a cold day very frequently abates its violence, and disposes it to a favourable termination. It continues, in some instances, with but few occasional alterations, five or six weeks, and even three or four months, before any considerable change is effected, when the symptoms grow more numerous and distressing: the body becomes emaciated to such a degree, that the bones, in some cases, almost protrude through the skin;—a con-

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* Dr Rush's 1st. vol. of Medical Inquiries.

stant inclination to stool takes place, though but little matter can be voided, and that is of a watery or green colour—the eyes become languid, and sink deep within their sockets—the features are contracted—livid spots appear—a fore mouth—hiccup—convulsions—and a strongly marked hipocratic countenance, generally precede the fatal termination of the disorder.

DIAGNOSIS.

THE diseases with which cholera infantum, may be confounded are, hydrocephalus internus, dysentery, and affections arising from worms in the alimentary canal.

To distinguish it from hydrocephalus internus it is necessary to remark, that the pulse in the latter generally continues more full, tense, and frequent, and the evacuations, when they do occur, are not so copious, nor accompanied with any discharge of bile. It is more commonly attended with an obstinate pain in the head, the pupils of the eyes much dilated, strabismus or squinting, much disturbed with noise, and pretty constantly preced-

ed by or accompanied with a constipation of the bowels.

It is distinguished from dysentery by its not being contagious in any stage; nor is it attended with that degree of pungent pain and griping, so distressing in dysentery, and from the latter being a more rare occurrence among children.

The cholera infantum has been blended with affections arising from worms in the alimentary canal, though some physicians have thought it sufficiently distinguished, from worms not having been discharged in the first attack of the complaint; but it has been observed, that worms are sometimes evacuated in the different stages of the disease—which I conceive to be owing to the violence of the diarrhoea suddenly repelling them.

In cholera the excretions are very different, nor is it preceded by, or accompanied with, that voracious appetite and disturbed sleep: the picking or rubbing of the nose, and most of the characteristic symptoms of worms, will be found wanting.

PROGNOSIS.

IN most diseases it appears to be a difficult task to lay down decided and unequivocal prognostic symptoms ; as patients have recovered under every discouraging circumstance—whilst others have died when the most favourable prognostics were present. Under this impression, I feel diffident in attempting to say much upon this head ; but it is natural to conclude, that where the disease attacks a very delicate habit in warm dry weather, when the vomiting is excessive, the stomach and bowels so extremely irritable as to retain nothing taken into them, with a weak, quick pulse and cold extremities—we may safely inform the parents or nurses of such, that life is suspended as by a thread, and that the probability is, that the child will not do well ; and so, on the contrary, when the symptoms are more mild—when the vomiting can be restrained or suspended, the fever and thirst not very great, a moderate or mild pulse, we may encourage them to have confidence ; for it is probable, the patient will do well.

PREDISPONENT CAUSES.

PREDISPOSITION, is that state of the body which renders it susceptible of the operation of the exciting cause. This predisposed state of the system is the same in all fevers, that is, general debility; which is of two kinds, viz. direct and indirect; “the first depends on the abstraction of the usual or natural stimuli, the latter upon the increase of natural, or upon the action of preternatural stimuli upon the body.” For a more particular account of these states of debility, and the causes which induce them, I beg leave to refer to Dr. Rush’s fourth vol.* The cause which invites morbid or excessive action, more particularly to the stomach and bowels, is debility of the parts, which is succeeded by an increased excitability or a greater aptitude to be acted upon by stimuli, and may arise,

1. From hereditary disposition, by weak organization.

2. A particular, irritable state of the stomach and bowels, arising either from natural conforma-

* On the Proximate Cause of Fever.

tion, or a diseased state of the body, as sometimes happens from dentition, and which may take place from worms.

3. Irregularity in diet, either in quality or quantity.

4. Obstructed perspiration: sometimes this takes place by exposing the child to a sudden current of air, when the pores are open—by previous confinement or clothing—instances of this are related by Dr. Say.

EXCITING CAUSES.

AS debility is the predisposing cause, and is always attended with an accumulated excitability, the exciting cause must be stimulants—and are all such as induce fever, which is to be considered as the primary affection.—For the causes which act generally on the system, I shall refer to authors: those which act directly on the stomach and intestines are,

1. An increased secretion of bile.

2. Aliments offensive from quality or quantity.
3. Sudden stoppage of perspiration.
4. Sudden repulsions of certain eruptions on the skin.
5. The use of drastic purges, or the long and too frequent use of rhubarb, magnesia alba, &c. by irritating the stomach and bowels, may induce diarrhoea and cholera.

PROXIMATE CAUSES.

IN establishing a proximate cause to this disease, (as to many others) there has been great diversity of opinions among physicians. Some supposed it to consist of spasmodic affections, arising from debility of the parts; while others affirm, that it arises from a laxity of the muscular fibres. Dr. Brown classes it among the asthenic diseases, and alleges, that it arises from direct debility.—But a more plausible opinion is, that of Dr. Cullen, who imputed it to an increased peristaltic motion of the intestinal canal, arising from the action of stimulants.—I shall now, without noticing any

further the different opinions which have been entertained, give the theory which I mean to adopt.

It is, that of fever in general, unduly determined to the liver and intestinal canal, termed by Dr. Sydenham the febris introverfa.—It consists in a morbid excitement in the vessels of the stomach and bowels.

That an increased secretion of bile, will, by acting on the alimentary canal, induce morbid or excessive action, is evident—and as a proof that a preternatural secretion of bile does take place in this complaint, as in many other diseases of warm weather, I shall mention a dissection, of which Dr. Rush informed me, where the gall bladder was found distended with black bile.—From this and the evacuations, it must appear clear to every person, that it is a bilious fever, and one of a pretty high grade.

That particular diet or drink taken in, may, from its quality or quantity, act by stimulating the vessels of the stomach and bowels to an undue action, is sufficiently established.—How a sudden stoppage of perspiration, or the repulsion of erup-

tions from the skin, act on the primæ viæ, to produce cholera infantum, must be imputed to the sympathy that subsists between the surface of the body and the intestinal canal.

C U R E.

AS I did not conceive it necessary to take a separate view of the different theories, laid down by writers heretofore, I shall not at present notice their different methods of cure. It would be taking up time, to serve no other purpose than only to show the progressive improvements of medical science, which, I think, must be sufficiently evident to every observer. I shall now proceed to mention the remedies, according to the present state of medical science.

Most physicians, and particularly those of the United States, have agreed, that the first and most important step towards a cure, (where the circumstances in life will permit it) is, to remove the patient from the city to some healthy part of the adjacent country, where medical aid is scarcely necessary.

On the utility of this practice, I beg leave to refer to Dr. Rush's Medical Inquiries, vol. 1.

As this disease, like all other bilious disorders of the same season, is attended with an inflammatory diathesis in the beginning, the first indication to cure must be, when we are called early, to lessen the morbid excitement. The remedies for this purpose are, to evacuate the bile from the stomach and intestines.

Blood-letting.—This has been practiced by several physicians, lately in this city, with the happiest effects; and it should be repeated occasionally, as the pulse may indicate. The bile and other acrid matters are to be evacuated by the use of gentle emetics and cathartics. The mildest and best emetic for this purpose, that we are acquainted with, is, Ipecacuanha in small doses; which should be given early in the disease, when the most beneficial effects are to be expected. The administering of emetics, in my opinion, cannot be attended with much, if any advantage, where the spontaneous vomiting has been considerable: for I believe the contents of the primæ viæ are sufficiently evacuated in this way much oftener than has been supposed.

The bowels should be opened by the use of gentle laxatives; such as, manna, castor oil, mag-

nesia alba, and rhubarb, which I have seen given in the beginning of the disease; and where the stomach was not very irritable, have known it to carry off the disorder effectually. Calomel has lately been recommended by Dr. Miller of New York, as claiming the pre-eminence over all other evacuants in this disease. It is certainly preferable to most other cathartics. For his method of exhibiting it, and for what he has said in favour of it, I refer to his paper.* Dr. Say has given the calomel combined with rhubarb, with great advantage.

When the spontaneous discharge from the alimentary canal has been considerable—when a prostration of strength, feebleness of pulse, and a coldness of the extremities are produced—we may conclude, that the disease has already sufficiently (or too much) evacuated the system—and that all further evacuation, excited by artificial means, would be highly improper; and that recourse must then be had to remedies to subdue the vomiting and diarrhoea, and to support the strength of the patient.

* In the Medical Repository of New York.

The following mixture appears to be well calculated for that purpose; a few drops of laudanum combined with prepared chalk into a julep, with peppermint, or cinnamon water. I have repeatedly seen this used with the happiest effects. It generally composes the stomach and intestines, and frequently subdues the disease entirely. Demulcent and diluting drinks, such as thin barley water, rice gruel, &c. &c. are highly useful. Glysters made of mutton broth, or of flaxseed tea, or of starch dissolved in water, with a few drops of laudanum in them, will often give ease, and produce other useful effects.—Dr. Say informed me, that where the disease was advanced to that state, in which tenesmus is produced, he had found the happiest effects from injections of flaxseed tea, a little starch, and laudanum combined, repeated two or three times a day, as occasion might require; and at the same time he gave tonic medicines internally.

In addition to these remedies, I am of opinion, from the nature of the disease, that cold water might be injected with great advantage. The application of cold, in various forms, has become almost universal in diseases of excessive action, and, I believe cold water might be drank, injected, and

applied to the surface of the body, with immediate relief in all the symptoms.*

Plasters of venice treacle, applied to the region of the stomach, have been found very efficacious in stopping the nausea and vomiting; and flannels steeped in infusions of bitter and aromatic herbs, in warm spirits, or in Madeira wine, and applied to the abdomen, often afford considerable relief.

Blisters applied to the arms, legs, and to the region of the stomach, by taking off the determination from the alimentary canal, have been attended with good effects.

When the violent, convulsive action of the stomach and bowels is composed, the strength of the patient must be supported by the use of tonic and cordial medicines.

The principal tonic recommended in this (as in

* Dr. Cleghorn (page 243) says, the Spanish physicians had often assured him "that they found nothing more beneficial in violent, deplorable cholera's than the drinking of cold water."

Dr. Rush's Medical Inquiries, vol. i. says, the few cases in which he applied cold water to the surface of the body, were attended with good effects.

From the Memoirs of the Medical Society of London, vol. ii. page 82. it appears, that the use of cold water, in complaints of the bowels, is of a very early date.

other diseases where debility is induced) is Peruv. bark, either in decoction or in substance; in the latter form, however, it can very seldom be taken in sufficiently large quantities to be serviceable, as children are averse to swallowing any thing nauseous—and when it is taken, the stomach will not afterwards retain it. Therefore it appears to me, that we ought seldom or never to attempt the exhibition of it to them.

The bark in decoction, with a few drops of laudanum, often repeated in small doses, has produced the most salutary effects: a valuable medicine in this stage of the disorder, is columbo root, when given in decoction or in tincture; it is both a stimulus and a tonic.

Calomel combined with opium, as recommended by Dr. Miller of New York. I believe these may be used with great advantage, as they are universal stimulants. Port wine or claret, mixed with a little water, are likewise proper in this stage of the disorder. Dr. Say informed me, that he has frequently found weak brandy and water to sit better on the stomach, thus disordered, than any other kind of drink; though a very small quantity of any kind should be taken in at a time, otherwise the stomach will reject it.

What appears to be of great importance in this disease (as well as in many others) is a proper regulation of diet. This branch of the *Materia Medica* has certainly been much neglected—and how far a particular regimen would go in curing diseases, is not known—nor am I prepared to determine in this disorder; but I suspect they would go much further than has yet been tried. I believe, in this stage of the complaint, our dependance may rest much on diet, and particularly if we can with it, have recourse to the country air—The patient will, most frequently, with no other remedy, rapidly regain strength.

The diet should be, first, of a nourishing and gently stimulating kind: some of the farinaceous substances might be employed with advantage, such as salep, sago and tapioca: the diet from animals should be, first, veal and chicken broth, beef tea and calf's-foot jelly: from these we may gradually increase to a more nourishing, as meats boiled and roasted.

I shall conclude this inaugural essay by mentioning the best means of preventing the occurrence of the disease.

1. By avoiding the causes which induce debility and all such as stimulate the system.

2. Regularity in diet and drink, with a faithful attendance in guarding against the changes of weather, by accommodating the dresses of children to them.

3. To avoid costiveness by the use of gentle laxatives—and to attend to cleanliness, both respecting the skin and clothes.

4. “ The daily use of the cold bath.”

5. “ The removal of children into the country, before the approach of warm weather: this advice is peculiarly necessary during the whole period of dentition.”

It would be ingratitude in me, were I to conclude this dissertation, without expressing my sentiments of respect and esteem for those gentlemen, from whom I have received repeated marks of friendship and politeness. To Doctor Benjamin Smith Barton, Professor of Materia Medica, Botany, and Natural History, and to Dr. James Woodhouse, Professor of Chemistry, I consider myself particularly obligated—and permit me to assure those gentlemen, that as long as useful and disinterested services merit regard—and while gratitude deserves to be viewed as a virtue—I shall retain a grateful remembrance of their names.

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