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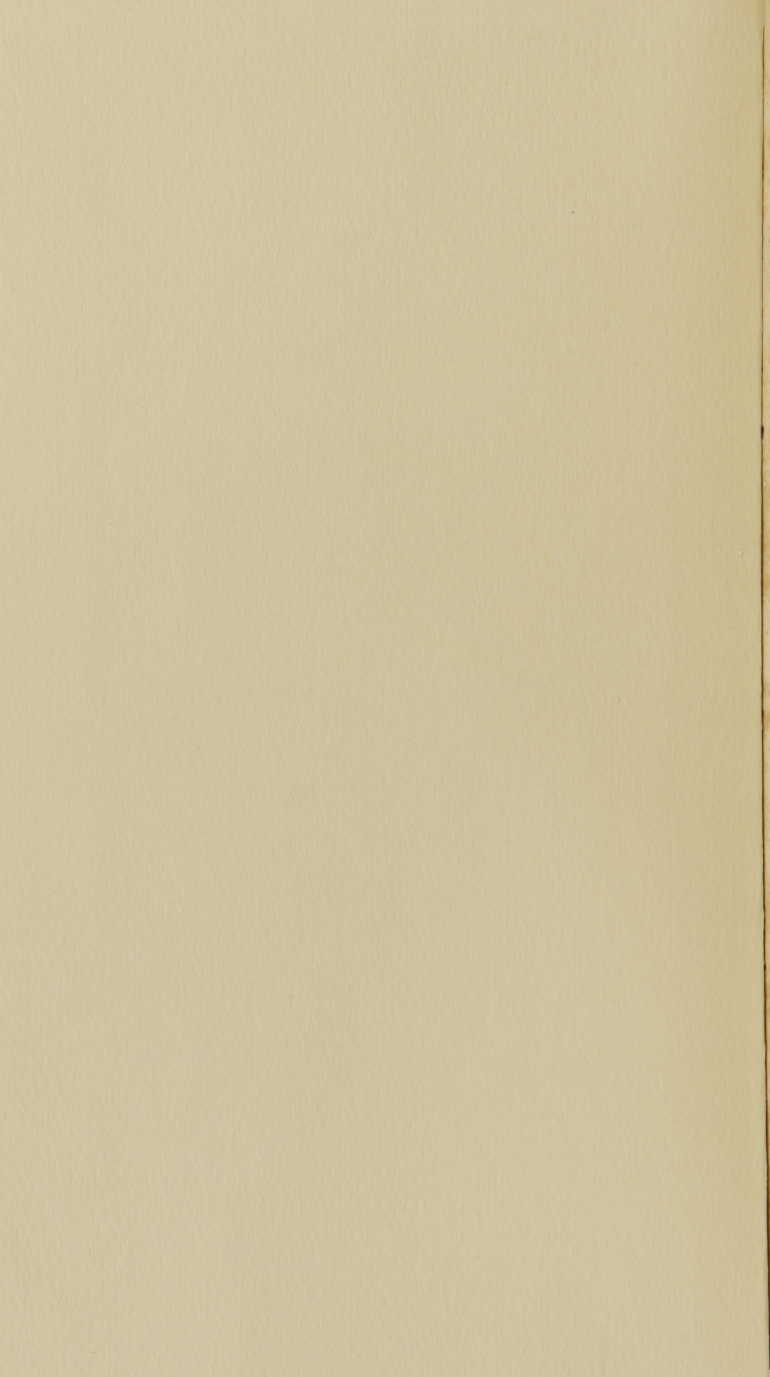
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A PRACTICAL NARRATIVE
OF THE
AUTUMNAL EPIDEMIC FEVER
WHICH PREVAILED
IN PHILADELPHIA
IN
THE YEAR 1803.

BY WILLIAM SHAW,

HONORARY MEMBER OF THE PHILADELPHIA MEDICAL AND
CHEMICAL SOCIETIES.

..... *dii talem urbis avertite pestem*

VIRG.

PHILADELPHIA:

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.....
1804.



AN INAUGURAL DISSERTATION
FOR
THE DEGREE
OF
DOCTOR OF MEDICINE;

SUBMITTED
TO THE EXAMINATION
OF THE
REV. JOHN ANDREWS, D. D. PROVOST
(PRO TEMPORE);

THE
TRUSTEES AND MEDICAL FACULTY

OF THE
UNIVERSITY OF PENNSYLVANIA,

ON THE 5th DAY OF JUNE, 1804.

From Mr. Mendenhall

Presented by his friend
The author

TO THE MEDICAL PROFESSORS

IN THE

UNIVERSITY OF PENNSYLVANIA

THIS ESSAY

IS RESPECTFULLY DEDICATED,

AS A GRATEFUL TESTIMONY

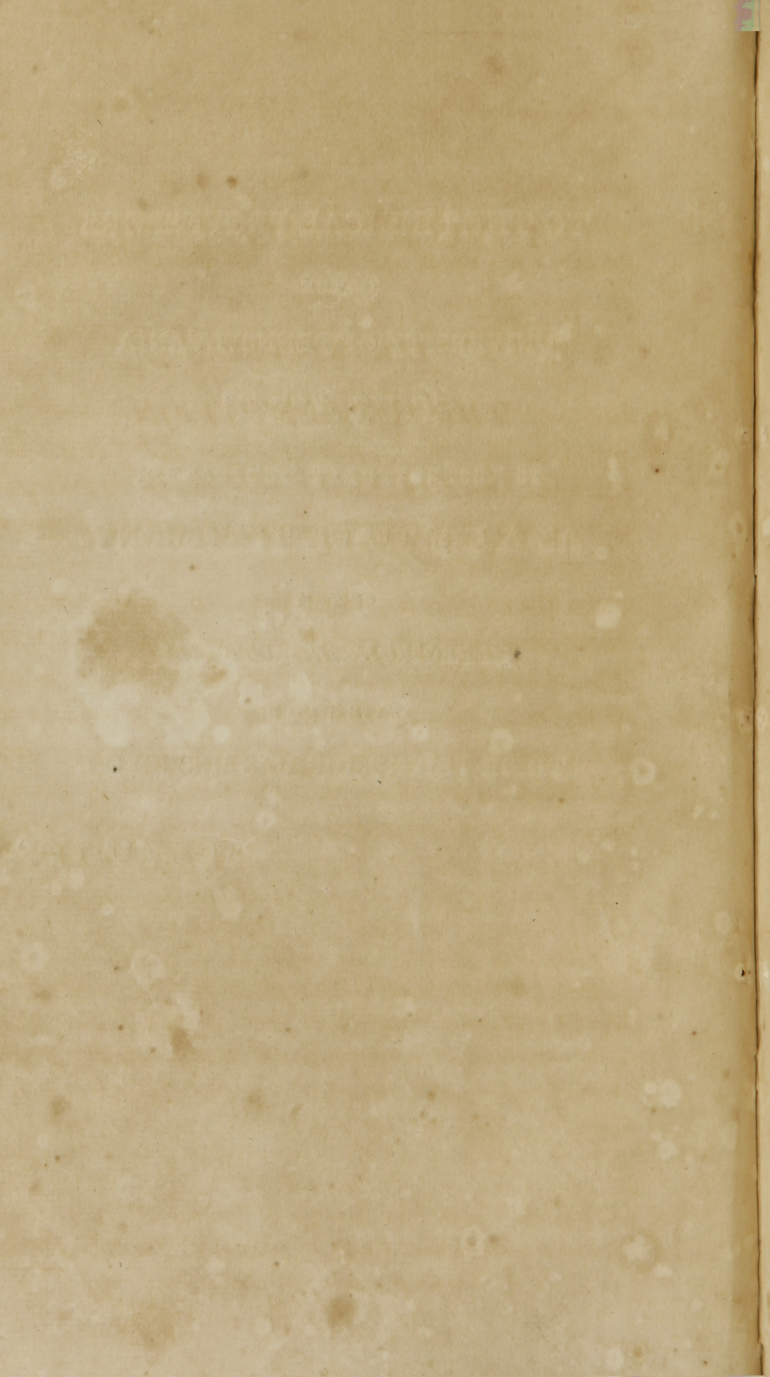
OF THE

AFFECTION AND ESTEEM

WITH WHICH

THEIR FRIENDSHIP HAS INSPIRED

THE AUTHOR.



TO HUGH FERGUSON, ESQ.

OF

PHILADELPHIA;

THIS DISSERTATION

IS ALSO INSCRIBED

IN GRATEFUL REMEMBRANCE

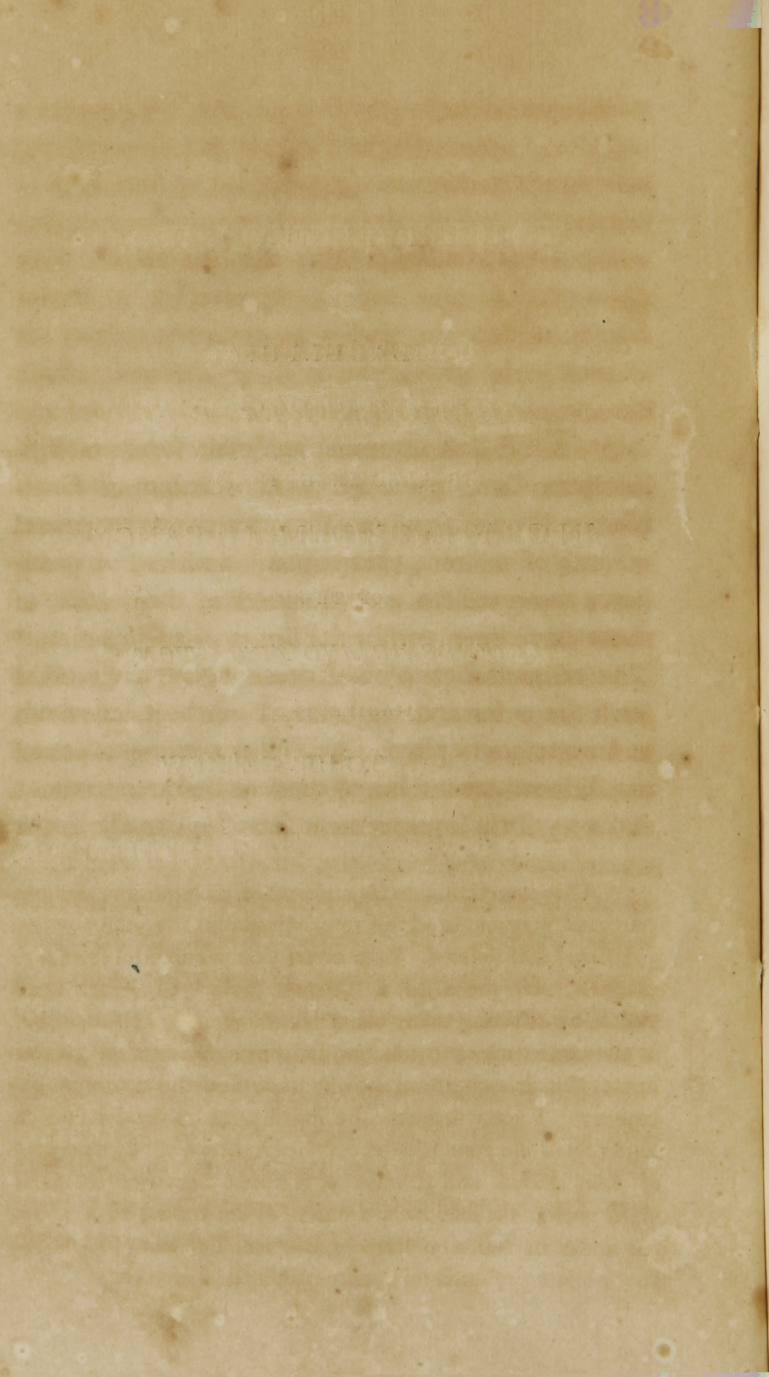
OF THE

FRIENDSHIP AND AFFECTION

MANIFESTED

TO HIS NEPHEW

THE AUTHOR.



SECTION I.

INTRODUCTORY REMARKS.

THE late autumnal epidemic fevers of Philadelphia have prevailed with uncommon force. Neither the annals of medicine, nor the more general records of nations, afford many instances of pestilence more violent and destructive, than some of these have been within the limits of their action.* The reiterated ravages of those fevers have called forth the ardor and vigilance of our best informed, and most acute physicians. Yet nothing effectual has hitherto been done to prevent their recurrence; and very little improvement has been made in the

* This assertion is to be understood, as regarding the proportional magnitude of this city, compared with others where pestilence has existed. I am aware that pestilential fevers, or plagues, have prevailed at different periods in former ages, which, by affecting many countries and populous cities, either at the same time or in rotation, have made immensely greater havoc, than has ever been done by those dreadful agents in this country. I may instance the pestilential epidemics, which raged from the year 1340 to 1500 over almost all the countries of Asia, Africa, and Europe; and which destroyed in about eight years, one half, or two thirds, of the human race. For a particular narrative of those epidemics, I refer to Mr. Webster's history of epidemic and pestilential diseases.

treatment of them, since shortly after the formidable pestilence of 1793 made its appearance.

It would be foreign to the purpose of the present essay to enter into a detail of the various theories of their origin and nature, as they have been maintained by different physicians. Nor shall I review the modes of treatment, which have succeeded one another; or which were adopted by physicians of opposite theories. Respecting the *origin* of epidemic diseases the faculty have in all ages been strangely divided; and they have been rarely more unanimous on the questions of their *nature*, and the *modus medendi* that should be pursued.

My object in this performance is to give a practical account of the epidemic fever, that appeared in this city in the autumn of 1803. I shall confine my attention chiefly to the phenomena and symptoms, which attended this disease; and to the method of treatment, that has been found most successful in combating it.

There is perhaps no subject of more importance than this, to the physicians who practise in the large towns of the United States. The number which pestilential diseases has in this city alone, brought to an early grave, within the short period of ten years, is beyond calculation. And it is no less melancholy to the feeling physician, than it is unfortunate for the suffering victims of its influence, that the minds of the illiterate and of the learned have equally been distracted by contending theories, and plans of practice founded upon those theories.

Such circumstances as these have, I think, been peculiarly unfavourable to the reputation and the interests of medicine as a profession, particularly in this city. And I cannot but regard their consequences as extremely dangerous in a great variety of points. It appears to me, that among those consequences there is none more unfortunate than the general want of confidence in medical aid; which the circumstances mentioned have generated and diffused. Hundreds have suffered the disease to prostrate the energies of life, before they would consent to employ a physician....hundreds have perseveringly resisted the importunities of their friends, and deprecated the use of medicine until life was extinguished.

Considerations of this nature have made a sufficient impression on my mind, to prevent me from contending, at least on the present occasion, for any particular theory or hypothesis. A correct narration of facts and observations is principally what I aim at. I have some expectation, that, by communicating these, I may contribute a mite towards the improvement of my profession: but even thus much I could not hope for, were I to write a volume of speculations.

SECTION II.

A GENERAL ACCOUNT

OF THE

PHENOMENA AND SYMPTOMS

OF THE

EPIDEMIC FEVER OF 1803.

I. MOST of the cases of this fever, which came under my notice, commenced in a manner exactly corresponding to Doctor Sydenham's account of the early symptoms of the pestilential fever and plague of 1665 and 1666. Nor do I think this similitude of symptoms either singular or extraordinary.* The first symptoms of the plague, as this illustrious physician has related them, are the same, *generally*, as those which usher in all violent fevers of warm climates or seasons. The following are his words:

* Mr. Webster, speaking of the *pestilential fever* which raged in France and England about the year 1347, says....“ It is remarkable, that the disease, which is technically called plague, pestis, is always preceded by a *similar fever*. It is in fact the *plague in its first stage*, though it does not exhibit the glandular swellings, which modern physicians contend are characteristic of true plague.”

“ The plague usually begins with chilness and shivering, like the fit of an intermitten; soon after, a violent vomiting, a painful oppression of the breast, and a burning fever, accompanied with its common symptoms, succeed, and continue till the disease proves mortal, or the kindly eruption of a bubo, or parotis, discharges the morbific matter and cures the patient*.”

Doctor Ferrier says, he apprehends the plague to be a fever, attended with some unusual symptoms, chiefly produced by its violence†.

Guidon, an inhabitant of Avignon, observes that the pestilence, which began about the year 1347, was of two kinds. The first, which preceded the other about two months, was a fever with spitting of blood; similar to that which prevailed in the time of Fracastorius. The other, which succeeded, came on with continued fever, carbuncles, and abscesses in the glands. They were equally fatal. All who were seized with the former died in three days; those seized with the latter in five. It appears to me deserving of notice, that the first form of the disease, which was called fever, was more speedily fatal than that which bore the characteristic symptoms of plague.

Sydenham does not seem to have thought the plague a peculiar disease. He has taken considerable pains to point out its resemblance to other dis-

* This theory of morbific matter I will not wait to examine. I believe it is nearly, if not totally, exploded.

† Origin of contagious and new diseases.

eases, particularly to the erysipelatous fever, in all its symptoms, and in every stage. He makes the principal difference to consist in the greater violence of the former.

Though the early symptoms of the disease, which is the subject of consideration, would scarcely distinguish it from plague; yet the crisis, and (if the expression will be admitted) the catastrophe of the former, differ in many respects from those of the latter. This will be sufficiently evinced in the subsequent account.

II. The premonitory symptoms of the disease in question were an unusual debility, sometimes of one or two days continuance, attended with langour and occasional drowsiness. After some time a sensation of weakness at the stomach, with aversion to solid food, and commonly a slight nausea, were perceived. These precursors of fever frequently alarmed the subject of them. As those feelings progressed, aching pains in the neck, back, loins, arms, and other parts, took place; accompanied by alternate chills, and flushes of short duration.

The formation of the fever was usually preceded by a chill, which sometimes approximated to a complete rigor. It frequently, however, assumed a more malignant aspect, and the fever came on without a chilly fit, as will be noticed hereafter. Great sickness of stomach, and severe vomiting, now took place. As the rigor abated, pains in various parts; oppression at the breast, and sighing;* inflammation

* I observed in a few persons an unusual serenity of mind and elevation of spirits in this stage.

of the eyes; head-ach; intense heat; thirst, and fever, supervened. The nausea, and distressing efforts to vomit, still recurred from time to time; until at length the whole of the matter thrown up, appeared to be bile, blended with the natural secretions of the stomach. During the rigor, the pulse was, generally speaking, small, soft, irregular, and often fluttering. As the febrile commotion advanced towards its height, the pulse became gradually more tense, hard, regular, and strong. Its frequency in adults was commonly between 100 and 120 strokes in a minute: this, however, was much varied by the agitation of vomiting, and other attending circumstances.

As the fever declined, weakness and universal quiescence succeeded. The change from a strong, inflammatory diathesis, to a prostration of the vital energies, was generally very sudden and very great. Insomuch, that the uncommon torpor or defect of animal motion, which took place in the system, almost always threatened the extinction of life; and death was not seldom the melancholy result. The patient complained of anxiety and pain at the heart, breathed short, frequently sighed, and was restless and disconsolate. If the vomiting continued, it sometimes, not often, had (what has been commonly called) a coffee-ground appearance.

III. The progress of the disease was always distinguished into three well marked stages; unless where, by the adoption of vigilant measures, its course was interrupted before it passed to the second.

1. *The forming stage.* In this there was a combination, or an alternation, of premonitory and febrile symptoms. The whole of that period, which commences after the earliest premonitory symptoms have become blended with those of irregular action, and which continues until the fever is completely formed, is therefore included in this stage.

2. *The inflammatory or febrile stage.* The termination of this stage is usually denominated the crisis of the disease.

3. *The typhus stage.* This would, I think, be more correctly termed the stage of debility. It is strictly a stage of the disease, and not merely a state of weakness without disease. Though an apyrexia exists, or rather a state which is the opposite of fever; yet many of the most important functions of life are performed in a morbid and irregular manner. The brain and nerves; the stomach and intestines; and the various branches of the absorbent system, are more especially subject to a morbid performance of their offices in this stage. I have seen some persons who were comatose throughout the greater part of their illness. A much larger number were delirious, during the inflammatory stage; and melancholy, with a sense of oppression or distress about the breast, in the subsequent stage of debility. In this last, the patient is also much afflicted by tremors, twitchings, and imaginary terrors. My friend Doctor Rogers of this city informs me of a curious incident, which resulted from terror of this kind. He attended a person, who in this situation was

lifted contrary to his orders, and placed on a chair, for the purpose of having the bed arranged. The patients head was greatly disturbed by this new posture. He fancied the nurse, who stood before him, was a certain enemy whom he hated and dreaded. Notwithstanding his weak state, imagination operated so powerfully, that he acquired a temporary vigor; he sprung off his chair, seized the nurse by the hair, and dragged her to the floor; he fell, or rather sunk back into his chair, and instantly fainted. After being restored from his syncope, he regretted the mistake he had committed, and described the horrors he felt at the imaginary presence of his enemy; who, he thought, approached him with a knife in his hand, and attempted to cut his throat.

The whole of the typhus stage is, in all violent cases, a period of the utmost danger, if great care has not been taken immediately before, and at its commencement, to prevent the system from sinking too far in debility and torpor.

IV. The epidemic was very irregular in its form in different subjects. It affected some in the shape of a stubborn intermittent, and others in that of a remittent fever. In a few, the predominant characters were those of a dysentery; and in many violent cases, a cholera introduced the low stage of debility and danger. In several, the inflammatory stage was without any distinct remissions or exacerbations; but answered to the character of a continued fever. In the latter form, a jaundice

usually accompanied the typhus stage, and conferred upon this, as it did upon former epidemics, the vulgar name of yellow fever. The disease in some instances wore the deceitful mask of a malignant fever; commencing without a chill; and attended with coma, a depressed or intermitting pulse, and a natural temperature of the skin. As the season advanced, it assumed, in a few instances, the appearance and symptoms of a peripneumony. In these, during the inflammatory stage, there was a burning fever, insatiable thirst, pains of the breast, difficult respiration, cough, and in the progress of the disease expectoration of a dark coloured mucus.

V. It may be proper in this place to take notice of some of the peculiar appearances, and conditions of the disease, wherein it differed from the epidemics of former seasons. This, however, cannot be done, without admitting many exceptions to the general circumstances, which marked the line of deviation. I observed that the disease of 1803 was less abrupt in its attack, or in other words, that the forming stage was of longer duration, than that of former epidemics; and that in a given number of cases its approaches were rather oftener inciduous, as the premonitory and first febrile symptoms were not so strongly marked. The patient has sometimes remained for several days in a state of indisposition; but in which, he would not acknowledge himself sick; and afterward, a high fever has formed, which required every exertion of skill and attention to guide it to a safe issue. It is not to be

inferred from this, that the disease was less malignant or dangerous than formerly. The reverse, I think, was the fact. It often had a crisis, of the kind which has been termed inciduous; the pulse suddenly sinking, too often never to be raised.

That this disease differed very considerably, at least in its essential constitution or form, from the diseases of former years, is perhaps best evinced by the different treatment which it required. But to this, some farther attention will be paid in the following section.

It appears to me, that instances of dissolved blood were more frequent in proportion to the number of persons affected, than in preceding epidemics.

The epidemic was by no means so general as was the case in the years 1793....7....8....9 in this city. Its proportional prevalence, compared with that of 1798, might be as one to twelve. The number of cases, which were reported, was one hundred and eighty five. This was probably not more than half the number which actually existed in the city and liberties.

The crisis of the disease was more protracted than was common in those of former seasons. I have not heard of a single death occurring as a consequence of this fever before the fifth day; and few before the seventh, or ninth day. The typhus stage seldom took place before the third day; generally not till the fifth. Instances however of a much earlier crisis may have happened without coming to my knowledge.

I intentionally wave the consideration of the remote and proximate causes of this disease. Though this may, while I propose to dwell upon its treatment, appear singular, or even inexcusable; yet I think it altogether unnecessary. The remote causes were certainly similar to those of former epidemics; and they have hitherto afforded a theme for controversy, which may not soon be decided. The proximate cause is the same as that of other fevers; for a full elucidation of which, I refer to the publication on that subject by the illustrious professor of the institutes and practice of medicine in this university.*

This excellent physician, and benevolent reformer of medical science, has favored mankind with the simplest and most correct theory of the immediate cause of fever, that has yet been published.



SECTION III.

THE TREATMENT

WHICH WAS MOST SUCCESSFUL IN THIS EPIDEMIC.

I. OF the treatment during the forming stage.

1. Before the symptoms of fever had prevailed over those, which were merely premonitory; such remedies as were calculated to invigorate the system, and remove the languishing debility, without exciting febrile commotion in the blood vessels,

* See medical inquiries and observations by Doctor Rush, vol. iv.

were of most certain effect in preventing the formation of the disease. The most important of these were;

1 The pediluvia;

2 Simple bitters;

3 Peruvian bark;

4 Wine;

5 Rest, and the uniform warmth of a bed.

When consulted early in the forming stage, I have directed the person to avoid violent exercise, and strong food; to indulge in rest, and tranquil amusements; to use light digestable food very often; and to take a small dose of gentian or columbo every two or three hours. Instead of these I have sometimes directed a cold infusion of chamomile or centaury, to which a little elixir of vitriol was added. These means had the effect of preventing the fever in several instances, by removing the debility and languor of the system. My friend Doctor Rogers informs me, that he adopted a similar plan of prevention in the autumn of 1802 and 1803. He says, that in certain habits of great torpor he is persuaded he has often prevented fever, where it otherwise would have taken place by a very moderate, but steady use of bark and wine. He also says, that, where those constitutions appeared subject to hypochondria, he gave sixty drops of the Tinct: Opii Camph: twice or thrice a day with manifest advantage.

2. If this stage was more advanced before I saw the patient; especially if he complained of nausea, slight pains, alternate chills and flushes; or if he made much pale urine, sighed often, and complained

of oppression about his breast; I ordered him to bathe his feet in warm water, to go to bed immediately after, and without tasting any solid food, to drink very abundantly of a warm infusion of chamomile, centaury, or common tea, in order to promote a diaphoresis, without debilitating. As soon as the symptoms were removed by this plan, I had immediate recourse to bitters and tonics, after the manner above related. The eupatorium, which as I am informed by several respectable physicians, was a valuable sudorific in this epidemic, is I think, peculiarly adapted to this state of the system.

3. The remedies which operated most powerfully as preventives in the highest steps of this stage, that is, toward the commencement of the inflammatory stage, but before the fever was confirmed, were,

- 1 Gentle antimonial emetics;
- 2 mild cathartics;
- 3 cooling sudorifics; namely—
 - vegetable acids,
 - saline mixtures of the alkalies and vegetable acids,
 - nitre,
 - spirit of nitrous ether,
 - antimonials in minute doses.

When a rigor had taken place, and a fever was suddenly setting in, an emetic or a cathartic of the kind above mentioned, was often premised with advantage. The former, when there was a sick stomach without costiveness; the latter, when costiveness existed. It was in the next place proper, after the operation of the emetic, or in an hour after the

exhibition of the cathartic, to attempt a sweat by some of the articles in the list of sudorifics. If a sweat was produced in this stage of the disease, the febrile action was subdued in the course of twelve hours, or at most in twenty four. The tonic remedies, already spoken of, were then administered, with the effect of restoring the patient to his accustomed health. This practice I was induced to adopt partly in consequence of certain conversations which I had with Doctor Rogers, shortly after the close of the autumnal fever of 1802, and partly from an unsuccessful exercise of other means that were then generally employed. When at that time he mentioned to me his method of preventing the establishment of the disease; which, he said he had not tried till about the beginning of October 1802; he assured me, that he had not found it to fail in a single instance.

He says, that by this method he prevented the complete formation of the disease twice in his own person, after he was so much indisposed that he was obliged to take his bed. He first drank largely of warm toast water, in which two scruples of nitre and one grain of Tart: emetic were dissolved, until he sweated. In twelve hours he was entirely free from fever, head-ach, and every unpleasant symptom. He felt feeble. He immediately resorted to the use of the bark and the elixir of vitriol, and his usual strength was restored in twenty four hours. The Doctor says, he found the spirit of nitrous ether a valuable sudorific in this condition of the system; when the stomach would not easily receive those which were

nauseating. It often seemed to act like a charm in relieving the stomach and head, even before the sudorific effect was produced. He generally exhibited it in form of a julep.

Under the use of those sudorifics the patient should drink largely of warm toast water, barley water, oat-meal gruel, or vinegar-whey. The latter I have often employed, and greatly to my satisfaction, as well as to the advantage of the patient.

II. OF the treatment during the inflammatory stage.

This was usually a period of the disease, which required, from a variety of circumstances, a very great exertion of resolution, attention, and judgment. The remedies and plan of practice, which succeeded best in former epidemics, were for the most part either useless or pernicious in this.

Blood-letting and mercury were (I assert it upon the authority of our most eminent physicians), both powerful and necessary in former epidemics. In the disease in question they were not so. Blood-letting was seldom necessary; mercury, as a sialogogue, was perhaps in no instance of any service; but often hurtful. A moderate use of the former was probably admissible in a few cases, in others it was not to be employed. I have taken pains to inquire of several physicians concerning many particulars on this subject. I find my own observations respecting those remedies corroborated by the observations and practice of most of the gentlemen with whom I conversed.

The following is an extract from some notes, which I received from Doctor Rogers some time ago, and which tends to corroborate the foregoing remarks.

“ During the epidemic of last fall I attended
 “ only thirty-five adults in different forms of fever.
 “ Thirteen of those cases were considered as yellow
 “ fever.

“ My method of treating the disease was very
 “ different from that which I followed in the begin-
 “ ning of the fever of 1802. I was always averse to
 “ the use of mercurials; but early in that season I
 “ bled as often as three times in most cases. Re-
 “ peated observations of a melancholy nature forced
 “ me to relinquish entirely the use of the lancet, a
 “ considerable while before that epidemic had sub-
 “ sided. I was happily successful in the change of
 “ remedies, which I adopted. None died under the
 “ use of them. I never put any dependance in
 “ mercury in febrile diseases; and my confidence
 “ in bleeding was destroyed. I was of consequence
 “ in some measure prepared to combat the fever of
 “ 1803 by other means; and my success was equal
 “ to my wishes, for I did not lose a patient during
 “ the season. Of the number already mentioned I
 “ bled only one. He was a young man about nine-
 “ teen years of age. This fever seemed to effect
 “ his breast in the manner of a peripneumony. I
 “ directed him to lose eight ounces of blood, but
 “ I afterward became persuaded that this bleeding
 “ would better have been omitted. And in reading
 “ accounts of pestilential fevers I find, that those

“ which attack in the shape of peripneumony, and
 “ are at the same time attended with symptoms of
 “ malignancy, seldom bear bleeding. My observa-
 “ tion in nearly two hundred cases, led me finally
 “ to become much more solicitous about support-
 “ ing my patients strength just before the approach
 “ of the low typhus stage, than in exhausting the
 “ febrile action during the preceding period of the
 “ disease. I endeavored to diminish this action,
 “ chiefly by mild cathartics, and cooling sudorifics;
 “ but not to destroy it by those means of depletion,
 “ which powerfully debilitate and exhaust the
 “ energies of the system. It was highly necessary to
 “ give support to the system, by administering
 “ tonic and cordial medicines, and by applying sina-
 “ pisms or blisters before the termination of this
 “ stage, that is, before the febrile action was quite
 “ destroyed. This early and salutary support
 “ was always proper, in order to obviate a danger-
 “ ous debility, which was otherwise apt to suc-
 “ ceed.”

The remedies most valuable in this stage of the disease were;

1. Cathartics of the least stimulating kind.
2. Sudorifics such as have been already enumerated.

Cathartics were of great service during the inflammatory state of the system in every form of the complaint. I generally preferred *castor oil* or *Glauber's salts*, particularly the latter. The operation of Glauber's salts was, I remarked, peculiarly favora-

ble toward the production of a subsequent sweat. After the use of this cathartic, especially if a little vegetable acid had been added to it in preparing it for the patient, it was much easier to induce a sweat, than when more drastic purges were employed. Glauber's salts were of singular service, when the patient had violent retchings to vomit. I usually ordered an ounce to be dissolved in a little vinegar and water, and instantly taken. If this was rejected, I directed another to be taken in the same manner one hour after the first was thrown up. The second dose, when it was necessary to be administered, always remained on the stomach, and constantly removed the nausea and vomiting. It was proper to omit drinking immediately after taking this or any other purge, when the stomach was much sickened.

Sudorifics appeared to me the most essential remedies in the inflammatory period of the disease. These should be resorted to in one hour after the exhibition of a cathartic. There need be no fear of the patient being disturbed by the operation of the purge, while a sweating existed. This operation will be over, for the most part, before the sudorifics have produced their effects. Otherwise it is easy to employ a bed pan, and thus obviate the danger of checking perspiration. The patient should keep his bed, proceed in the use of his sudorifics, and drink abundance of warm, light drinks; keeping himself covered with at least his usual quantity of bed clothes. Nor ought he to move from this situation until a sweat has subdued his fever.

Cold vinegar and water applied by means of a towel or napkin to the face, breast, and extremities, appeared to give great relief to the patient during the febrile state of the paroxysm. This application assisted the sudorifics in producing their effects, cooled the skin, relieved the difficulty of breathing, and seemed to be an effectual mode of abstracting the preternatural heat from the body. Doctor Church informs me that he made use of a similar means with the happiest effects. As soon however, as a tendency to diaphoresis takes place this remedy should be discontinued. To obtain the greatest advantage from it, the patient's skin must be kept constantly wet until the heat is removed. The affusion of cold water has been found a valuable remedy in inflammatory diseases*.

The medicines which most safely and effectually answer the intention of sudorifics have been already enumerated.

Tartarised antimony and nitre, either separately, or combined, are powerful instruments for reducing inflammatory action. Nor is their immediate operation that of sweating exclusively. Their principal effect is the reduction of fever, and the sweating succeeds in some measure as a consequence. For a high fever, speedily brought to a crisis by any means, usually terminates in a profuse sweat. I am not inclined to think, however, that those remedies act in producing their sudorific effects, only by diminishing fever. Their first effects are certainly

* See Currie on water.

produced upon the stomach, and the minute glandular vessels on the surface sympathise with this artificial condition of the stomach, while this new state of both has apparently, a great influence over the heart and arteries. Thus to diminish fever will induce a sweat; and to produce a sweat will diminish fever. But this subject is, in the present state of physiology, too intricate to admit a perfectly correct explanation. It is sufficient for my purpose that those articles taken in a proper manner diminish fever, and all its symptoms; and that under well regulated circumstances they produce sweat, whether fever has or has not existed in the person who takes them.

When the stomach is in so irritable a condition that nitre and antimonials cannot conveniently be exhibited, saline mixtures of the alkalies and vegetable acids will be perhaps easily and usefully administered. These latter are far inferior to the former in efficacy. But it has sometimes happened, that they have been so well retained on the stomach and have contributed so much to remove nausea and vomiting, as to produce a favorable change in the system, which could not be effected by remedies of a more powerful, but less soothing nature. The best saline mixtures for the indications hinted at are the aqua ammoniæ acetatæ supersaturated with the acid; and the mixtura salina of the Edenburg Pharmacopia.

In similar indications the spirit of nitrous ether is an invaluable febrifuge, and sudorific. It is

extremely agreeable to the stomach, and efficacious in restraining vomiting. It enables that viscus in a little time to retain other powerful articles, as antimonials, which are more apt to ruffle it; and it contributes greatly to relieve the head and prevent delirium. It is not altogether from my own observation, nor upon the authority of authors, that I recommend this article; but chiefly in consequence of the high encomiums which Doctor Rogers gives it from his own experience of its usefulness in the epidemic in question.

Doctor Sydenham speaks highly of the use of sudorifics, as remedies in the pestilential fever and plague of 1665 and 1666. He preferred sweating to blood-letting for two very distinct reasons. The first and most laudable was the safety and advantage of his patient; the second, which is less philanthropic, was the safety of his own reputation. He says,

“ Though I greatly approve of this method” (copious bleeding) “ and have formerly experienced “ its usefulness in many instances; yet for several “ reasons I prefer the dissipation of the pestilential “ ferment by sweat, to its evacuation by bleeding, “ because sweating does not weaken the patient so “ much, nor hazard the reputation of the physician.”

I am far from thinking that Sydenham's method of sweating was either safe or efficacious. His sudorifics were warm alexipharmics and stimulants, the principal of which was venice treacle. The following sentence is a proof, that his sudorific remedies were badly chosen.

“ But this has its inconveniences too” (these are his words), “ for in many, and especially in young
 “ persons of a hot constitution, a sweat is not easily
 “ raised; and the more you endeavor to raise one in
 “ such subjects, by heaping on clothes, and giving
 “ powerful sudorifics, so much the greater danger
 “ there is of causing a delirium, or which is still
 “ worse, after having been deluded with vain ex-
 “ pectations, pestilential spots are at length forced
 “ out instead of sweat.”

It is manifest, that the inconveniences, of which he complains, were not the effects of sweating; but of the perniciously heating qualities of his medicines. If he had cause to speak so favourably of sweating by such hazardous means, he would certainly have had reason to exult in the effects of our sudorifics, which, while they produce sweat, diminish the fever and heat of the system, remove thirst and head-ach, and prevent delirium. The following are, I think, extraordinary sentences to come from the pen of so eminent a physician as Sydenham. After attempting to prove the plague to be an inflammatory disease, he thus proceeds:

“ But here perhaps it may be asked, how it hap-
 “ pens, if the plague be an inflammatory disease,
 “ that *heating medicines*, as most alexipharmics are,
 “ should be so successfully used, both for prevention
 “ and cure. To this I reply, that these medicines
 “ only *relieve by accident*; namely, by means of the
 “ sweat which they procure, whereby the inflam-
 “ matory particles of the blood are exhaled, and

“ expelled; but if they fail of raising a sweat, as it frequently happens, the blood being more inflamed by this additional heat, soon manifests *the bad effects* of such kind of remedies.” Thus to recommend remedies without indication, but merely upon the precarious tenor of doing good or evil by hazard, is worse than empiricism. The empiric expects that if his remedies do no good, they will do no mischief; for he is commonly ignorant of their nature as well as of the pathology of diseases. The great Sydenham, however, would not surely acknowledge such apologies for his random employment of alexipharmic sudorifics. But the state of medical science in the age in which he lived, and his bold efforts for its improvement, will constitute an ample defence with the candid physicians of every subsequent æra.

I have already observed, that the *eupatorium* proved a useful sudorific in our epidemic. I cannot speak of it from any experience of my own. Its diaphoretic properties are, I believe, very considerable. It possesses a tonic and heating quality, and is of consequence allied to the remedies which have been denominated alexipharmics. Therefore its employment in febrile diseases should be confined to periods in which there is not a high inflammatory action. Attention to the time of using it appears to me a matter of much consequence; yet it has, I believe, been administered indiscriminately in every period of the inflammatory stage. Employed in this general way, its effects would, I fear, resemble those of Sydenham’s sudorifics; and like them too,

relieve merely by accident, or do mischief by chance. It would, I apprehend, be most likely to prove useful toward the latter part of the inflammatory stage: for its stimulating properties would contribute to increase the already too great action of the sanguiferous system, if used at an early period of this stage.

The use of emetics, after the disease is formed, appears to me a very dangerous practice; perhaps nearly, though not so much so, as blood-letting would be in the succeeding stage of debility.

Blood-letting is only, if at all, to be employed in the early part of the inflammatory stage. It is dangerous, perhaps fatal, to bleed toward the termination of it, even when the pulse, and general state of the system, manifest the presence of a degree of inflammatory action. This action must soon give place to more or less of torpor, in whatever manner the patient is treated. The effect of bleeding in this condition would be to reduce the vascular action so far into this partial torpor, that it might proceed to a perfect quiescence, or cessation of all action. I may add, that experience has evinced this to be too often the consequence of an indiscreet use of the lancet, in the latter part of the inflammatory stage of this epidemic fever.

III. OF the treatment during the typhus stage.

The remedies and general management of the patient, which were proper in this period of the disease, are very different from those of the former. Here, the sinking and debilitated condition of the

system required the vigilant attention of the physician, and the watchful care of the nurse. Here, instead of proceeding to reduce the action of the system, it was necessary to support and increase that action, by tonic, stimulating, and invigorating remedies.

I shall enumerate some of the most important of these, in the order in which it was generally proper to employ them.

1. Blistering,
2. Sinapisms,
3. Vegetable tonics,
4. Stimulants,
5. Cordial drinks,
6. Nourishing digestable food.

1. Blistering is a remedy of much utility in the typhus stage of all fevers, and in none is there a greater necessity for resorting to it, than there was in the fever in question. The sudden change from arterial strength to arterial debility, to which the subject was liable in an extraordinary degree, demanded the aid of such remedies as would afford a permanent, equable, and unequivocal support. Blistering is peculiarly adapted to this intention. But it is unnecessary to enlarge on this point. I shall therefore only observe, that to have the full advantage of this remedy it is rather to be employed against the low stage of debility than in it. It is from inattention to the proper time of blistering, that many have despised it, as an unavailing and harsh practice; and so it usually is, when it is not carried into effect until the system has sunk below the point of excitement.

Though I have introduced my remarks upon this remedy, in speaking of the *modus medendi* of the typhus stage, yet it is in the latter part of the inflammatory stage, that it should be employed. For if the system is permitted to decline into the typhus stage, before such means have been administered for the support of the excitement, as are not likely to promote internal inflammation, it will become so far quiescent, that in many instances, it is beyond the powers of medicine to renovate it. Blistering a little before the formation of this stage will, for the most part, preserve the patient from the dangerous debility, into which he would otherwise fall. But blistering in dangerous cases, after this debility has for some time existed, is usually as unavailing, as it would be after the organs of life had ceased to vibrate. If therefore any dependance at all is to be put in blistering in the typhus stage, it must be employed at a very early period of it.

2. *Sinapisims* are valuable applications in the present stage. They afford, when not greatly diluted a more sudden and violent stimulus to the system, than cantharides. Their effects may be easily modified, by blending the mustard with more or less of any inert farinacious matter. They may be made so strong, as to inflame and blister the part to which they are applied; exciting at the same time an exquisite burning pain. Sinapisims should not be employed in the early part of the inflammatory stage in common cases, since there is, instead of stimulating, the greatest necessity for the adoption of measures to reduce the excitement. In some malignant cases,

however, when there is coma and a depressed pulse, they have been employed at a very early period, even on the second day of the disease with advantage. They may always be resorted to with safety in the latter part of the inflammatory stage. Nevertheless, they are probably less safe than cantharides, when applied at a very early period; on account of their peculiar stimulus being more suddenly exerted, and of a more heating nature. For the same reason they are, I believe, of greater efficacy than blistering, when the typhus stage has become established. Doctor Rogers informs me, that he gave sinapisms the preference in certain cases in the fever of 1802; not only because he thought them more efficacious; but likewise, because he found cantharides almost constantly produced strangury in the low stage of that fever. And he observed, that strangury was more easily induced, and more difficult to remove, in this, than in any previous period of the disease; and that it was so rarely removed, and so generally succeeded by a fatal issue, that he could not avoid suspecting blistering to be an erroneous practice, in very low states of debility. It is fortunate, that we have in sinapisms a remedy of equal, if not of greater power in such states, to which those objections do not apply.

3. *Vegetable Tonics* are of so much importance in low conditions of the system, that they may be considered as the proper remedies of the typhus stage. In this disease they were perhaps indispensable. The principal tonics of this kind are peruvian bark, columbo, gentian, snake-root, and chamomile; either with or without, the addition of aro-

matics. We should have recourse to tonics, as soon as the typhus stage is formed; and in many cases a little earlier: so that when this period arrives, the patient may have such a stock of strength preserved, as will render the crisis less dangerous. The form in which those medicines should be used, must be regulated according to the state of the patient; attending particularly to the condition of his stomach. It is impossible to lay down any general rule, by which they may be most advantageously exhibited. An infusion of the peruvian bark, made by cold water, is for the most part, preferable to the powder. The stomach in this disease is easily irritated by the latter; and even when the substance is retained, it is apt to produce a sensation of weight or oppression about the breast. The other articles also are less grateful to the stomach in the state of powder. An infusion prepared by boiling water is, perhaps, the best form in which they can be employed. The metallic tonics, unless mercury be considered as such, have seldom been tried at any period of this disease.

4. Stimulants of the most diffusible kind are also very useful; and indeed often essentially necessary in the present stage. The most valuable are wine, opium, ammonia, vitriolic ether, assafœtida, and camphor. The three former can rarely be used with safety, before the establishment of the typhus stage. The three latter may, and frequently are, used a considerable while before the termination of the inflammatory stage.

When the patient complains of anxiety and oppression at the heart; or when his breast heaves in

breathing, and he appears disconsolate, assafœtida, in the form of tincture, is an excellent restorative to both the body and mind. I prefer the tincture, because its effects are more speedily obtained.

For the purpose of relieving the head, camphor, vitriolic ether, and the volatile alkali are, I believe, the most efficacious stimuli.

When the disease partakes of the characteristics of pneumonia, attended with difficult respiration, cough, and an increased secretion, or a defective absorption of mucus in the bronchia; opium is perhaps the best internal remedy; at the same time, an epispastic should be applied over the pained part.

Wine I regard as the best of cordials, for supporting the enfeebled energies of life. The state of the patient, duly considered, will be our surest guide in respect to the choice of stimuli, and the method of exhibiting them.

5. The drink of the patient should now be cordial and restorative. Wine-whey, wine and water, milk punch, water acidulated with the elixir of vitriol, beef-tea, &c. have all been used with good effect. Agreeable aromatics, as nut-meg, cinnamon, or ginger, may generally be added in moderate quantity to any of those drinks. If, however, any vestige of pneumonic inflammation remain in the thorax, aromatics would be improper. In this exigency a nice attention must be paid to the choice of stimulants, and restoratives; so that they may not prove too heating.

6. Food, strictly so called, is seldom to be administered, until the patient has arrived at convalescence. Light soup or broth, *and animal jellies*;

may be used in any period of the typhus stage; if the stomach should retain them, and the sick manifest no aversion against them. The gellies I have found of great use, particularly when the bowels were affected with diarrhœa. They are nourishing and easily digested; consequently they are well calculated to support, and restore the system in its present state; when all its functions are feebly and imperfectly exercised*. Sago and tapeoca are also useful in this period. They answer pretty nearly the same purpose, as animal gellies, in nourishing the languid frame, without requiring much exertion of its digestive, and assimilating powers. In addition to these, vegetable mucilages and farina, properly prepared, constitute articles of nutriment, which are agreeable and useful; not only in the typhus stage, but throughout the subsequent period of convalescency. It is highly necessary, that the patient during this period should not be indulged in gross, indigestible aliment; which might endanger a relapse. A certain moderation should be observed in the gratification of all his appetites.

* Professor Woodhouse has put into my hands, a letter received from a correspondent in Paris, which mentions that Mr. Seguin has cured fevers by the use of gellies. I knew nothing of Mr. Seguin's trials of animal gellies in febrile diseases, until this essay was written, and delivered to Doctor Woodhouse. It appears that Mr. Seguin considers the subject of great importance. He is at present endeavouring to establish the utility of gellies in practice, and attempting to explain their operation by constructing a new theory of fever.

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