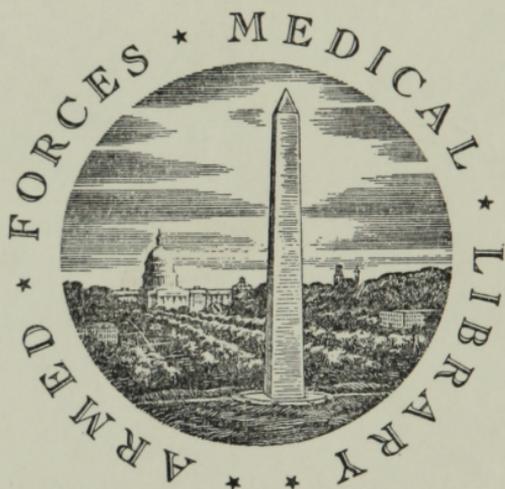




UNITED STATES OF AMERICA



FOUNDED 1836

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WASHINGTON, D.C.





V

A

# COLLECTION OF PAPERS

ON THE SUBJECT OF

## BILIOUS FEVERS,

PREVALENT IN THE UNITED STATES FOR A  
FEW YEARS PAST.

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✓  
COMPILED BY NOAH WEBSTER, JUN.

MEMBER OF THE SOCIETY FOR PROMOTING AGRICULTURE,  
ARTS AND MANUFACTURES IN THE STATE OF NEW-  
YORK, AND HONORARY MEMBER OF THE  
HISTORICAL SOCIETY IN  
BOSTON.

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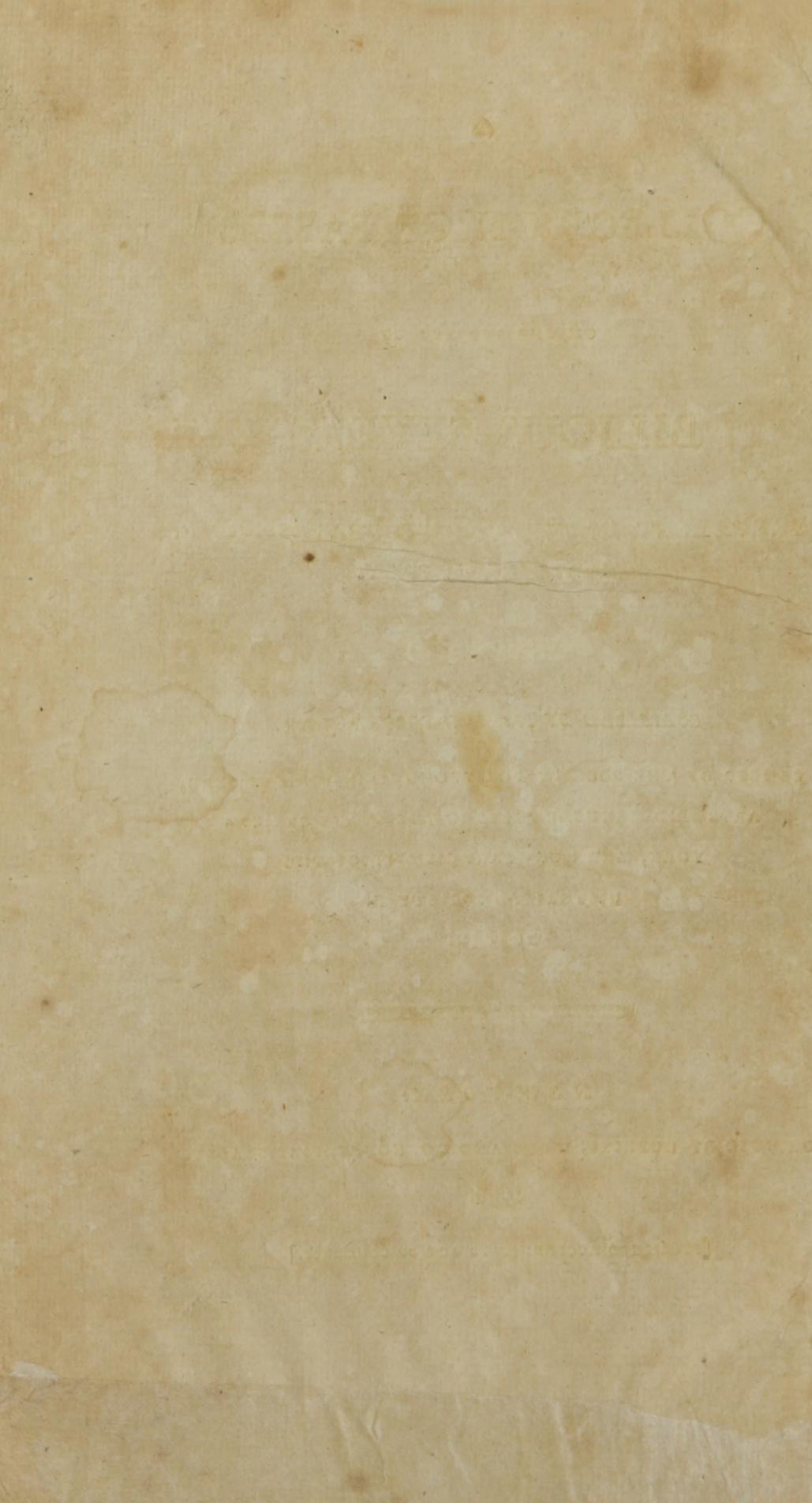
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1796.

[PUBLISHED ACCORDING TO ACT OF CONGRESS.]



# C O N T E N T S.

- I. *Account of the Yellow Fever in New-York in 1795—By Dr. Valentine Seaman.*
- II. *Account of the same, by Dr. Elisha H. Smith: to which is prefixed,*
- III. *An account of the Fevers that prevailed in Sheffield, State of Massachusetts, in 1794 and 1795—by Dr. Buel.*
- IV. *An account of the Fever at Norfolk, Virginia, in 1795—by Doctors Taylor and Hansford.*
- V. *Letter from Dr. Ramsay on the same subject.*
- VI. *An account of the Fever at New-Haven, in 1794—By Dr. Eneas Munson, and his Son.*
- VII. *Dr. Mitchill, on Contagion.*
- VIII. *Letter from Dr. Reynolds, on the Fever in Montgomery County.*
- IX. *Remarks on Cleanliness and Ventilation, by the Compiler.*
- X. *Concluding Remarks, by the same.*

## ADVERTISEMENT.

HAD the following collection of papers been more complete, it would have afforded double satisfaction to the Compiler. The success of this attempt has however convinced me of the great utility of undertaking.

As *facts* are the basis of human knowledge, it is of great importance to collect them. There are probably in every profession, facts enough which occur *every year*, in an extensive country, to constitute a mass of information, if collected, equal to what a long life of experience would be necessary to acquire for any *one man*. If not collected, these useful facts are lost to all the profession, except to a few individuals; if collected, they condense the knowledge of a *whole life* into the compass of a *few hours reading*. This might be done every year; and what could be more useful?

Though not a Physician, I have been accustomed to Philosophical inquiries, and feel a deep interest in the prosperity of my country and the happiness of my fellow-citizens. I am persuaded that the Americans may be convinced by *facts*, that even in our climate, Epidemic and Pestilential Maladies may be generated by local causes. If they can be convinced of this, that sources of disease and death may be found among themselves created by their own negligence, it is a great point gained; for until they learn this, they will never attend to the means of preserving life and health. They will still wallow in filth, crowd their cities with low dirty houses and narrow streets; neglect the use of bathing and washing; and live like savages, devouring, in hot seasons, undue quantities of animal food at their tables, and reeling home after midnight debauches.

If they can settle this point with themselves, that danger may exist at home, some persons may profit by the conviction. Our police at any rate may be wholly changed, and the mode of building our cities, undergo a thorough alteration.

I have to make my acknowledgments to the Gentlemen, who have favored me with their communications. Those who have neglected my applications, doubtless have good reasons for it; those who have treated this undertaking with contempt, have my most hearty forgiveness.

I have been solicited to advertise for similar communications, the next year, and am assured, that more numerous papers may be expected. But I have neither inclination nor leisure to devote much time to this object; nor am I convinced that the object itself will reward a continuance of my labors.

N. WEBSTER, JUN.

*New-York, July 1, 1796.*

(C I R C U L A R.) .

*To the Physicians of Philadelphia, New-York, Baltimore,  
Norfolk and Newhaven.*

GENTLEMEN,

AS a malignant fever has, for three summers past raged in different parts of the United States, and proved fatal to great numbers of our fellow-citizens, and extremely prejudicial to the Commerce of the Country, it becomes highly important to take such efficacious steps as human wisdom can devise to prevent the introduction, arrest the progress, or mitigate the severity of such a serious calamity. It is a cause equally interesting to every part of the United States, and one that deeply affects the happiness of families, and the general prosperity of the country.

The first measure to be taken in this business seems to be, to ascertain the following points—Whether the bilious remitting fever, commonly called the Yellow Fever, is of foreign or domestic origin; whether it is always imported or *may* be generated in our own country; whether it is an epidemic, or depends for propagation on specific contagion; or whether it partakes of the nature both of an epidemic and a contagious disease.

These points, however clear to many of the faculty, are subjects of warm controversy among others; and while professional men differ in opinion, other citizens will differ also; and while a difference of opinion exists as to the origin and nature of the disease, no legislative remedies, no effectual police-regulations can be expected for the prevention of this calamity.

To decide on the origin and nature of the Yellow Fever, we want the *evidence of facts*; these have occurred in the United States, sufficient in number and clearness, to furnish evidence that shall produce universal conviction, if all those facts were brought together and offered to the Public in a mass.

If the gentlemen of the faculty will take the trouble to furnish me, severally, or by committees, with such facts as have fallen under their notice, relative to the foregoing points, I will be at the pains to arrange them, and will risk the publication and circulation of the work throughout the United States.

In an undertaking of this kind, private interest ought not to be wholly abandoned; but my principal motive, is to promote the best interests of my fellow citizens, by doing what few men will undertake: that is, collecting the fragments of knowledge which lie scattered in various places, and arranging and publishing them for the common benefit of my country.

The particular points on which I wish to obtain information, are the following :

The *origin* of the yellow fever in the respective places to which you belong—the time of its appearance and disappearance—its symptoms and, the most successful mode of treatment—what proportion of persons seized with decided symptoms of this fever have died—how far the fever has been attended with specific contagion, and the proofs of this—in what situations as to free air, water, streets and buildings, this disease has been most fatal—what descriptions of people have suffered most, and their mode of living—what malignant complaints have, for two or three seasons, preceded the yellow fever—how it differs in

symptoms from the ordinary bilious fever of the country—whether or not you have known a fever, with the same or similar symptoms, to occur in scattered instances, in other seasons than that in which the yellow fever has prevailed—and whether such cases can be traced to any known cause—and in short, please to communicate any other information which, in your opinions, may throw any light on the origin, nature and cure of the disease.

The Health Committees of the Cities above mentioned, are particularly requested to furnish such facts, on any of these points, as may have come to their knowledge.

The Physicians of Newbern, Edenton, Wilmington and other towns in North-Carolina; of Charleston and Beaufort in South-Carolina; of Savanna or other large towns in Georgia; and the Physicians on the eastern shore in Virginia, Maryland and Delaware, together with those of Alexandria, Richmond, Petersburg, or other large towns in the southern states where bilious fevers prevail, are requested to communicate such facts and observations relative to those fevers, as may enable the public to judge how far the ordinary remitting bilious fever of our country corresponds in origin and symptoms, with the fatal epidemic which has raged in Philadelphia, New-York, &c.

A similar request is made to Physicians in every part of the United States, especially in the neighborhood of the drowned land, and at Shawangunk in the state of New-York, and those who have had the care of those persons who were taken with a malignant

fever at the treaty with the Indians near lake Cayuga, the summer past.

The Physicians about Coxhackie, the drowned lands in Salisbury in Connecticut, and Sheffield in Massachusetts, and who attended the sick in the neighborhood of the marshy ground on the borders of those towns—in short, all Physicians who have had experience in bilious fevers of a malignant kind, are requested to communicate whatever facts can throw light on the origin, nature, or cure of such fevers.—They are requested to inform, in what seasons the fevers prevail most, whether wet or dry—at what time in summer they appear and disappear—at what distance from a marsh they prevail, to determine the extent of the contagious influence arising from low grounds—whether the water is running or stagnant—whether such fevers ever prevail near fresh water ponds, whose banks are high and rocky, and the margins of which do not abound with grass and weeds—whether the putrid fevers arising evidently from marsh-exhalations in the country are ever attended with specific contagion—in short, every species of facts that can serve to explain the cause, the progress, and the symptoms, of bilious fevers.

It is requested that your answers to these inquiries may be forwarded to me at New-York as soon as convenient, and by private conveyance, if possible. I am persuaded that a full investigation of the causes of the disease, will enable the government of our states and cities, to make such regulations as to guard our commercial towns from a repetition of the calamities they have once suffered. If the disease has been imported, more effectual measures must be taken to prevent its introduction—if generated in our own

country, it is absolutely necessary for our populous towns to suffer most decisive amendments, in their docks, houses, streets, &c.

Our latitudes are the same as many countries in Asia, where the plague rages; and perhaps, our climate, which formerly resisted the progress of fatal epidemics, is assimilating itself annually to that of Smyrna and Constantinople.

I cannot but hope, gentlemen, that you will be of opinion that this subject is of great and universal concern to the United States; and that you will consent to aid a plan which has the health of our fellow-citizens, and the happiness and prosperity of our country for its object.

I am, gentlemen, your fellow-citizen,

NOAH WEBSTER, JUN.

*New-York, Oct. 31, 1795.*

P

AN  
A C C O U N T  
O F T H E  
E P I D E M I C Y E L L O W F E V E R,  
A S I T A P P E A R E D  
I N T H E  
C I T Y O F N E W - Y O R K I N T H E Y E A R 1795.

C O N T A I N I N G,  
*BESIDES ITS HISTORY, &c.*  
T H E M O S T P R O B A B L E M E A N S O F P R E V E N T I N G I T S  
R E T U R N , A N D O F A V O I D I N G I T , I N C A S E I T  
S H O U L D A G A I N B E C O M E E P I D E M I C .

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B Y V A L E N T I N E S E A M A N , M . D .  
O N E O F T H E P H Y S I C I A N S O F T H E H E A L T H C O M M I T T E E  
O F N E W - Y O R K I N 1795.

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—————“ And tho’ the putrid South  
Be shut; tho’ no convulsive agony  
Shake, from the deep foundations of the world,  
Th’ imprisoned plagues; a secret venom oft  
Corrupts the air, the water, and the land.”  
“ Even Albion, girt with less malignant skies,  
Albion the poison of the Gods has drunk,  
And felt the sting of monsters all her own.”

A R M S T R O N G .

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N E W - Y O R K :  
P R I N T E D B Y H O P K I N S , W E B B & C O . N O . 40, P I N E - S T R E E T .  
—1796.—

[ENTERED ACCORDING TO LAW.]



TO BENJAMIN RUSH, M. D.

PROFESSOR OF THE INSTITUTES, AND OF CLINICAL MEDICINE,  
IN THE UNIVERSITY OF PENNSYLVANIA.

*THY* general liberality of sentiment, together with the unparalleled manner in which thou durst, in the noble cause of humanity, to introduce innovations in the treatment of the Epidemic Fever of Philadelphia in 1793, amidst the persecuting shafts of thy opponents, point thee out as a most proper patron for the free thoughts advanced in the following pages.

Besides this, I should consider myself greatly deficient, was I to neglect this opportunity of acknowledging the high sense of gratitude I entertain for the benefit received, not only from thy valuable public instructions, but also from thy ever useful private conversations.

Wishing thy long continued and increasing usefulness, in thy profession and in the diffusion of Medical knowledge,

I remain,

With respect and esteem,

Thy Friend,

*Valentine Seaman.*



T O

JOHN BROOME,            ROBERT BOWNE,  
GABRIEL FURMAN,      NICHOLAS CARMER,  
ANDREW VAN TUYL,    ISAAC STOUTENBURGH,  
JOHN CAMPBELL,        SAMUEL BARD,  
ROBERT LENOX,         GEORGE JANEWAY, and  
THEOPH. BEEKMAN,    NATH. HAZARD,

*Surviving Members of the Committee of Health of New-York  
for 1795—*

*Whose undaunted attention to the objects of their appointment, and whose persevering care for the relief of their afflicted Fellow-Citizens, must, no doubt, have been followed by the gratifying sense of well done, in their own bosoms :—Blessed be their reward.*

*As the following observations were drawn up partly at their solicitations, and as the ideas and opinions advanced in them, are considered as meriting their serious attention, they are most respectfully submitted by*

*Their Friend and Fellow-Citizen,*

THE AUTHOR.



## P R E F A C E.

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THE utility of accurate Histories of Epidemics to the improvement of medicine, has never been doubted from the time of the early and valuable publications of Hypocrates, to the late and no less judicious observations of Dr. Rush: but as the Yellow Fever has been so accurately and fully described and treated of by several physicians in the West-Indies, in Philadelphia, &c. it may be thought entirely superfluous to give any account of it as it appeared in this city. Fully sensible of the force of this remark, I long declined attempting any thing of the kind; but as several facts have occurred to me, a general knowledge of which I consider as highly interesting to humanity and of importance to the community at large, and especially to the inhabitants of this city, I am finally induced to submit them to the consideration of the public, particularly as the Medical Society, which had made some progress in the business, have declined the prosecution of it.

THE many accounts and complete descriptions already given of this disease, seem to render it unnecessary to enter into a minute detail of its several symptoms in this place; I have therefore been very short upon that part of the subject, referring the more

nice inquirer to the beforementioned authors, particularly to Dr. Rush's account of it, as it appeared in Philadelphia, in 1793, where he will find its various appearances very particularly and accurately delineated.

As the following observations have originated almost entirely from facts and circumstances of the disease, as it appeared in this city; the reader will find himself much deceived, if he looks for references to long catalogues of eminent authors, or for an elaborate account of the diseases of the West-Indies, pestilences of Europe, or plagues of Asia: and as my conclusions are drawn chiefly from cases and occurrences, that have come within my own personal knowledge, (which favored by my local situation in the center of the Epidemic, and my providential preservation from its influence, till it was nearly extinguished, were considerably numerous) he will also find that my remarks have not been much either influenced or supported by the uncertain communication of my brother practitioners or other citizens; hence, if decided and undoubted facts, shall hereafter appear which shall disprove them, my error should be assigned only to my general scepticism respecting current medical reports, and the limited nature that I have imposed upon my sources of information.

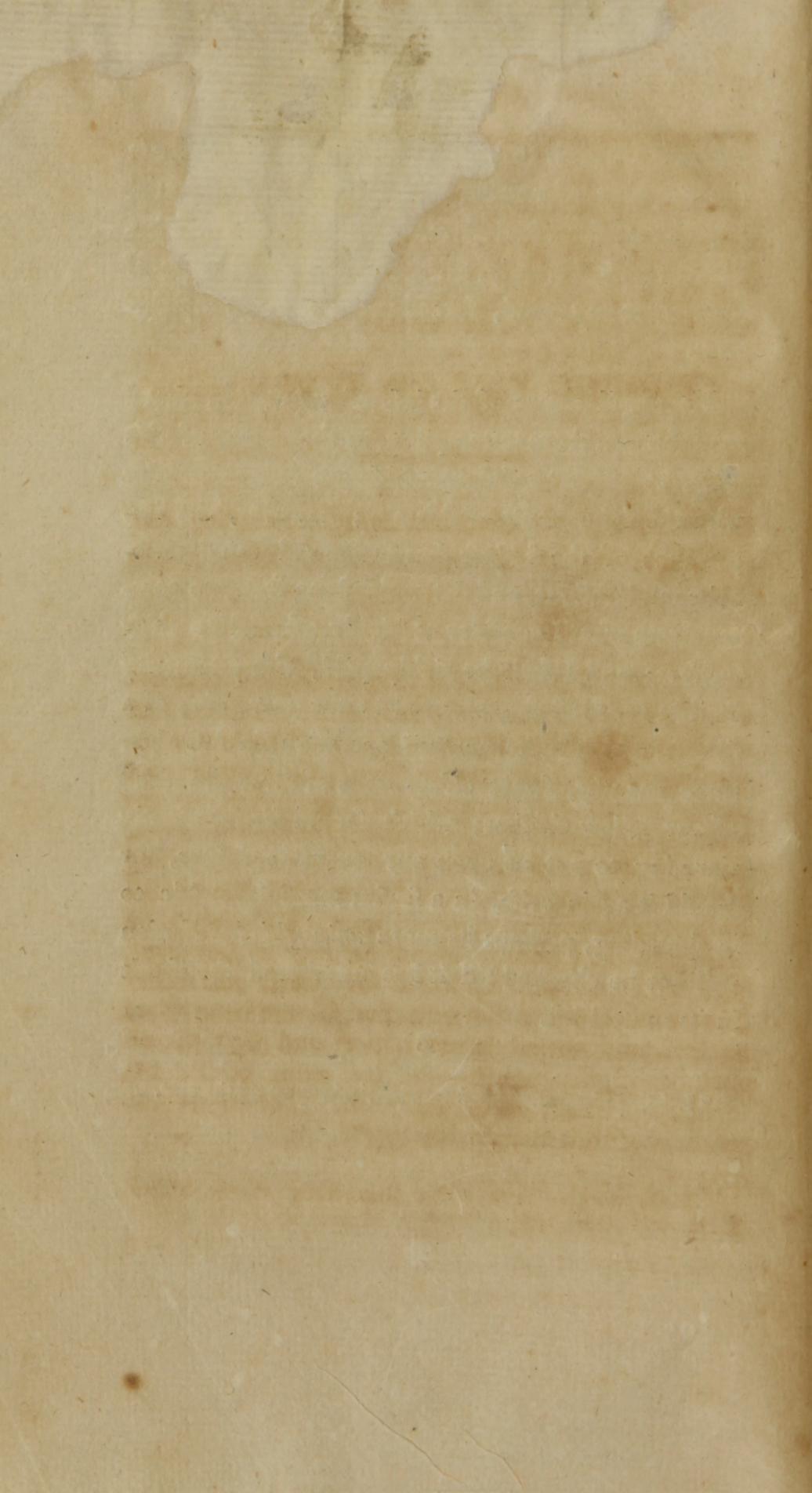
As some thoughts which I have advanced, are decidedly opposed to the *common sense* of the faculty in

general, I wish it to be considered that they are not the offspring of any favorite theory, or influential hypothesis; for I had heretofore been taught and believed very differently, till the stubborn obtrusion of facts upon my mind, forced me to change my opinion.

I AM well aware of the loss of reputation that I may sustain, from attempting, in the course of this essay, to support opinions which are very unpopular with the inhabitants of this city; however, the importance of the subject, has swallowed up all personal considerations, and determined me freely to communicate what I consider as highly essential to their welfare; and I shall be richly paid, if my temerity shall in the least degree, tend to the prevention of a disease, which in its *partial*\* operation, in less than three months, swept off upwards of seven hundred of our fellow-citizens; which should be sufficiently alarming to put us upon our guard in future, for should it again arise, in a season more favorable to its spreading, perhaps its more *universal* devastation will not be checked till it has numbered thousands in its mortal list.

## B

\* It being chiefly confined to a particular part of the city.



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A N  
A C C O U N T  
O F T H E  
E P I D E M I C Y E L L O W F E V E R, &c.

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*Of the State of the Air, and Diseases preceding and accompanying the Epidemic, and a History of the Disease.*

**F**ROM the tables of Meteorological observations, inserted immediately before the considerations on the cause of the disease, it appears, that in the beginning of the sixth month (June) the weather was pretty warm, but became more moderate on the seventh and eighth days, and that its temperature was suddenly increased on the 9th of the month, raising the Mercury  $12\frac{1}{2}$  degrees in Fahrenheit's thermometer in the space of twenty-four hours; it was warm on the tenth, then became cooler for four or five days, after which time it continued very warm and sultry for several days; on the 19th the thermometer stood at  $87^{\circ}$ , and varied between that and  $69^{\circ}$  the remainder of this month—we had rains on the 2d, 11th, 20th, 24th, 25th, and 30th. The mean temperature of this month was  $73^{\circ}$ .\*

\* These were the states of the thermometer at one o'clock, P. M.

It gradually became cooler for the first five days in the seventh month (July); on the 6th the mercury rose to  $83^{\circ}$ , which was  $13^{\circ}$  higher than it stood the day before; the next day it fell to  $72^{\circ}$ ; after which, in the course of six days, it rose to  $89^{\circ}$  without any material sudden change; the weather then moderated in some degree, so that in the last nine days of this month it did not rise above the  $80^{\circ}$  and in one of them it stood at  $68^{\circ}$ —the mean temperature of this month was  $81^{\circ}$ : it rained on the 3d, 10th, 18th, 23d, 24th, 27th, 30th, and 31st.

The thermometer stood near  $90^{\circ}$  most of the time during the first ten days of the eighth month (August); on one day it was upwards of  $93^{\circ}$ ; in the remainder of the month it varied between the 60th and  $88^{\circ}$ —great part of this time it was above  $80^{\circ}$ , and there were but a few days wherein it was below  $72^{\circ}$ ; the medium temperature of this month was  $83^{\circ}$ ; we had rains on the 3d, 9th, 10th, 11th, 12th, 13th, 20th, 21st, 23d, and 31st days, and several of them were very great.

The first week in the ninth month (September) the mercury remained between 70 and  $75^{\circ}$ ; in the second and third week it varied but little, one way or the other, from  $80^{\circ}$ ; but we had some cool days in the latter part of the month, the mercury being as low as  $58^{\circ}$  on the 22d and on the 30th; mean temperature about  $73^{\circ}$ ; we had five rainy days, viz. the 2d, 7th, 13th, 19th, and 20th.

In the tenth month (October) the temperature of the air was at no time above  $75^{\circ}$ , but varied between that and  $49^{\circ}$  irregularly; the mean temperature was  $62^{\circ}$ ; the latter part of this month we frequently had white frosts at night; it rained on the 10th, 20th, and 31st.

Musquetoës were never before known, by the oldest inhabitants, to have been so numerous as at this season, especially in the south-eastern part of the city; they were particularly troublesome to foreigners, many of whom, had those parts of their bodies that were exposed to them, covered with blisters from their venomous operations.

Our summer fruits in general were no ways extraordinary; water-melons particularly, from the wetness of the season, were very flashy and insipid.

It was remarked that many laborers employed at the different buildings, gave out at their work, from the excessive heat of the weather.

An unusual number of persons suffered in the warm part of the seventh and eighth months, from drinking cold water; and several fell down and died in the streets, whose deaths were assigned to that cause, when it more probably was induced by an apoplexy, brought on by the excessive heat of the sun; one case came under my particular observation which was certainly of that kind, although currently reported otherwise.

The *cholera infantum*, was very common in the early part of the *sixth month*, and increased as the weather became warmer. *Bilious cholics* and *dysenteries* became very prevalent in the *seventh* and *eighth months*. At this time also the *cholera morbus* carried off a number of grown persons.

In the beginning of the *ninth month*, the measles made their appearance, but they suddenly vanished with the above mentioned diseases, as soon as the *yellow fever* had spread itself among us: I did not

observe but a single case of it during the dominion of this powerful epidemic.

The common *remitting bilious fever*, was no ways uncommon in the summer months, but this also gave way, or rather perhaps, run into the *yellow fever*, as that gained ground in the city.

As early as the sixth of the *seventh month*, I was called upon in conjunction with Dr. Treat, then health-officer to our port, to visit Thomas Foster, a patient brought into the alms-house, whom we found affected with all the full marked and decided symptoms of an highly *malignant yellow fever*; the adnata of his eyes and his skin were of a bright yellow, the latter covered with purple spots, his mind deranged, his tongue covered with a dry black scordes, with hemorrhages from his gums and nose, and a discharge of black and very offensive matter from his stomach and bowels; he died on the ninth.

Dr. Treat was taken on the 22d of the *seventh month*, and died on the 30th. Several other undoubted cases occurred, about this time, in the neighborhood of Dover-street, but the first one that came under my particular observation, was that of James Dalton on the 12th of the *eighth month*, then in the fifth day of his illness, of which he died the day following as yellow as gold. From this time the disease became more and more frequent; yet as we find by the accurate accounts of the Health Committee, not above two a day upon an average died of it, till the 24th of the month.

The increasing prevalence of the epidemic at the upper part of Water-street and in Cherry-street, and in all the neighboring low ground between them and Chatham and the lower part of George-streets, in

The forepart of the *ninth month*, became so alarming as to drive many of the most opulent of their inhabitants to the country, while the less prudent and the more indigent remained exposed to a disease, which, from this limited spot, in less than three months, carried as many as five hundred to their graves.

The disease was not, however, confined *entirely* to this part of the city; for in every other situation, favoring the accumulation of filth and stagnation of putrefactive materials, there it was no stranger: it raged with peculiar violence in the vicinity of a most intolerable pent up sink, to the west of Peck-slip, which is the receptacle for all the refuse kitchen articles, and yard wash of a number of lots fronting Pearl and Water-streets, that back upon it; it was likewise very prevalent in the neighborhood of the Fly-market, also in and about Skinner-street, as well as in some of the unregulated grounds on the north side of the town.

If an account of the epidemic, as it pervaded the different parts of the town, could be accurately ascertained, and depicted in colors, heightened in proportion to the combined early time of attack, and the numbers affected, blazoned by its comparative malignity, there can be no manner of doubt, but that the low ground in the southeast of the city as above mentioned, would appear as the grand center of the calamity, diffusing its effects, like diverging rays, to the adjacent parts; aiding by its most powerful influence, different secondary centers, already smoking hot, to flame out its pestiferous operations. The many solitary cases of the disease that have occurred in distant healthy situations, appear to have been kindled up by imprudent individual exposures too near these sources of infection.

The black people appeared to be as subject to the disease as the whites, but it was not so fatal to them; of eight that I prescribed for, only one died, and with her, the complaint having stolen in under the deceitful form of a common cynanche, was permitted to run on for some days, before medical aid was called for. By report of Dr. S. L. Mitchell, in behalf of a committee of the Manumitting Society of this city, it appears that not a single scholar of the free black school, under their patronage, died with it.

Several circumstances tended to render the disease particularly fatal to the more indigent part of the community: 1st. The higher prices of house-rent in the other parts of the city, having concentrated a great proportion of them in the epidemic neighborhood, and crowded them in very small confined apartments; a number of houses contained as many families as it had rooms in it. 2d. Their poverty not permitting them to quit their place of residence when the disease came around them. 3d. The great difficulty of getting nurses, and their exorbitant prices preventing them from getting proper attendance before their situation became known to the Committee of Health, often-times a whole family being taken down about the same time, their panic struck fair-day friends quitting them in their distress, from the fear of infection. 4th. The neglect of obtaining early medical assistance, from a hope that their disease was not the prevailing one: and 5th. The refusal of many, after they were taken ill, thus miserably situated, to go to Belle Vue, "lest (to use their own expression) they should catch the Yellow-Fever and die."

Foreigners who came from a more temperate climate, as the English, Irish, Scotch, &c. and people from the country, who had not long resided in town, were particularly obnoxious to this complaint.

The French from the West-Indies, seemed proof against the influence of this epidemic, a numerous family of them continued in the midst of it, and viewed without danger the death of a great many, and the disease of nearly all their neighbors who remained in town; not one of them suffered the least indisposition: In another boarding house of them, containing at least thirty or forty persons, not far from Peck-slip, not any of them took the complaint, although numbers of the other inhabitants were dropping away with it, on every side of them.

The disease spared no age or sex, although it was most fatal to the young and those in the prime of life.

*Symptoms of the disease, as exhibited in the different parts and functions of the body.*

1st. *The vital functions* suffered extremely in the first attack of the disease, it generally coming on with *chillness*, an anxious and interrupted *respiration*, with a total *absence of perspiration*; this however, in some instances, came on very copiously, after the great heat that generally followed the chill, had existed for a time, but in most cases the skin continued dry and parched, except a sweat was induced by artificial means.

The *pulse* was as variable as the hues of the cameleon; in most cases it was frequent, and after the chill had subsided, it became somewhat hard: yet instances occurred of a preternatural slowness. I met with one case in a black man, where it beat only forty-two strokes in a minute; and in another person there was a complete intermission of it in every twelfth or fifteenth pulsation: and in other patients,

particularly in the 3d or 4th day of their complaints, were physicians to judge from the pulse alone, they would declare them in a convalescent state, at the very time they were in the most imminent danger and sometimes within a few hours of their end. Although I firmly believe with my most eminent teacher Dr. Rush, that the pulse is our best guide in the knowledge of diseases, yet in no complaint that has ever occurred to my observation, have I found this most sure index of the state of the system, so little to be depended on. *Hemorrhages* from the nose, gums, stomach, uterus, &c. were very common at the commencement, as well as in the more advanced periods of this disease.

2d. In the ANIMAL FUNCTIONS this disease in its first attack, produced *lassitude*, and an aversion to all kind of bodily exertion with a sense of general *debility*, attended with violent pains in the head and back, sometimes shooting down the legs: these frequently preceded the chills, and in most cases accompanied it and continued afterwards, as a very distressing symptom of the disease. The mind was oftentimes very much *dejected*, with *imperfect vision and memory*, followed by *delirium, subsultus, tendinum*, &c. before death.

There was in many cases an evident, though slight, remission in the violence of these symptoms sometimes in the course of twenty-four hours from the time of the attack, as also at some other periods; but in the hurry of the raging epidemic, I was unavoidably prevented from gaining an accurate knowledge of them.

3d. No part of the body appeared to suffer more than the NATURAL FUNCTIONS, which includes the alimentary canal and secretions. The *stomach*, as in

all fevers, was affected with a degree of nausea, and sometimes vomiting at the first accession of this disease, which frequently subsided for a while, but is succeeded about the third day, if proper means are not used to prevent it, by an almost unconquerable irritability and retrograde movement of this organ, throwing up large quantities of green or yellow bile, and rejecting immediately every particle of medicine, food or drink, that was taken into it—afterwards discharging an aqueous fluid containing a number of light dun colored specks in it; this, if not checked, was followed by a puking of a fluid exactly resembling coffee, with its grounds floating in it, which by standing, would settle to the bottom.

The vomiting which occurs about the third day, frequently, is the only distressing symptom that the patient labors under, his pulse becoming natural, skin cool and moist, with an entire freedom from pain, and a perfect clearness in the mental operations, that insuperable circumstance standing alone, as it were, to humble the pride of physic, and to warn, in cool blood, the unhappy sufferer of his precarious existence.

A *hiccoughing* often was very troublesome in the different stages of this complaint. The *bowels* were very uniformly and obstinately *costive*: there were some cases it is true, that were attended with frequent evacuations, but these generally seemed rather of a partial dysentery nature, and not free discharges from the whole course of the intestines.

The *secretion of bile* was greatly increased, as appeared by its copious discharge from the stomach in vomiting, as well as from the bowels when excited by proper purgatives. The flow of saliva and excretions from the mouth and fauces were not much in-

peded; in the beginning the *tongue* appearing moist and a little white, after a few days it became more thickly furred and assumed a deeper hue, but frequently in the latter stages it became quite dry and covered with a black crust.

The appearances on the *superficies* were various, the *skin* oftentimes retained its natural appearance, but frequently, though not uniformly, as the disease advanced, it assumed a yellow tinge. Musquetoe bites, which before had entirely disappeared, shewed themselves in all the parts that had been exposed to them, in small purpleish red spots; these were often taken for *petechia*, which sometimes, but more rarely appeared.

Unseemly scabs, oftentimes in the latter stages, formed about the mouth, which, on being scratched off, frequently were followed by troublesome little hemorrhages. These eruptions did not in this fever as it does in others, indicate any favorable event of the complaint.

The *adnata of the eyes*, in the beginning where the attack was severe, generally were tinged and suffused with a reddish color, changing with the skin to a yellow, as the disease advanced: there were many, however, even among those who died, whose skin nor eyes shewed the least appearance of this color.

## DIAGNOSIS.

If it should be established, that this fever is as highly contagious as is, perhaps, too generally believed, its diagnosis or peculiar symptoms distinguishing it from others, would become a matter of the greatest importance, both to individual safety and to the welfare of the community at large.

This part of the study of medicine has, of late, been considered of less consequence than formerly, since the fallacy and imprudence of prescribing for the name of a disease, has been so fully exposed and justly condemned by the generality of physicians;— however, in this particular complaint, as the hopes of a cure depend, almost entirely, upon the means used in the first two or three days of its attack, it certainly must be of prime necessity to know it in its early stage. We cannot be too careful in detecting the existence of this disease, for in its commencement, its evident symptoms are oftentimes no way in proportion to the danger. Hence, as Dr. Jackson observes, (in his treatise on the fevers of Jamaica) “ persons unacquainted with the nature of the disease, “ would be disposed to believe that the patient expressed sufferings that were not real.” And hence physicians are sometimes led to neglect them till it is too late to save their patients.

In the first stage of this fever it is oftentimes with difficulty distinguished from the common bilious remittent, its symptoms in general being exactly similar, only aggravated in degree; the pain in the head and back are more severe and constant, and the remissions, whenever they are observable, are more obscure: Those who are well acquainted with the disease, may often recognize it by a certain undefineable appearance in the countenance of the sick, the eye is often more red, and the face more flushed than the heat of the body and the general action of the sanguiferous system, would lead us to expect.

The remarkable irritability of the stomach, that generally comes on (when the disease is permitted to run an uninterrupted course) about the third or fourth day, whereby a constant nausea and retchings

to vomit, immediately brings up every thing as soon as swallowed, seems to be a pretty distinguishing mark of this disease at this stage of it.

The yellow skin, and coffee ground or black vomitings, as they sometimes occur in the more advanced stage, may be looked upon as decided and unequivocal evidences of this complaint; but they cannot be considered as *pathognomic symptoms*, for although they are to be found in this fever only, yet in the greatest proportion of cases they do not attend it.

The prevailing epidemic should always have a great influence in fixing our judgment with respect to this, as well as other diseases. Whenever it is found, from decided cases, that it really exists in any particular situation, I should consider every fever, in that neighborhood, attended with aggravated symptoms of a common bilious remittent, to be of this kind; for I should suppose the powerful operation of its cause, would certainly predominate over the milder causes of more moderate maladies.

### PROGNOSIS.

The prognosis is to be drawn from the disposition and constitution of the persons affected, as well as from the particular symptoms. Those who had been much debilitated by previous disease, great anxiety of mind, drunkenness, &c. most generally admitted of but an unfavorable prospect as to the event of this disease, as likewise did the resolute and hardy, who would not early submit to their complaints, but endeavored to shake them off as they would a common catarrh. I used to warn such ones at my first visits, that I feared from their dispositions, that they would undertake to wrestle with their disease, and that if they did they would surely fall under it, and unfor-

tunately their conduct too often verified my fears and justified my prognostic.

In the early stages of the complaint, if it came on very moderately, without much affection of the head, if the eyes and countenance were not much affected, and the bowels were easily moved by the medicines hereafter to be mentioned, we, in general, were warranted in pronouncing a favorable termination. But when the face and eyes were suffused with a reddish tinge, or great distress and anxiety were expressed in the countenance, with severe pain in the head and back, we had great cause to fear the consequences, particularly if the bowels were obstinately constipated; this last circumstance, in every instance, portended the greatest danger; indeed, it seemed to me that the degree of danger was, very generally, in proportion to the stubbornness of the constriction of these viscera and their insensibility to the impression of purgative medicines.

In the latter stages of the complaint, when the constant vomiting came on, there was always great danger to be apprehended; yet some have recovered after discharging the coffee ground like matter before-mentioned, but these cases were confessedly very rare.

The other symptoms of putrescency, as a black tongue, petichæ, &c. were generally unfavorable, although I did not find hemorrhages such terrible occurrences as they are, by the generality of authors, stated to be. In the ninth month (September) 24th, in a communication to the Committee of Health, among other things, I observed, that “in taking a  
“retrospective view of my different patients with  
“the prevailing complaint, I found among them five  
“who had had hemorrhages, either from the nose,

“gums, stomach or uterus, and one who had lost  
 “some blood from an accidental wound in his head;  
 “these were all the patients that I had attended,  
 “who had been affected with any hemorrhage what-  
 “ever, neither of them had died, three had recover-  
 “ed, and the other three were much better than they  
 “had been.”—These three also afterwards recovered;  
 nevertheless, some patients afterwards died, whose  
 complaints were attended with hemorrhages; still  
 these facts prove that they do not indicate so much  
 danger as is commonly believed.

Having given a cursory account of the season immediately preceding and during the continuance of the disease, and also a history of its most material symptoms, together with the most essential circumstances respecting its diagnosis and prognosis, I proceed to state some facts and free thoughts relative to a question, in my opinion highly interesting to the cause of humanity, and greatly important to the community, for on it depends the welfare of the afflicted individual, as well as the method of preventing or eradicating the disease in general, viz.

*Is the yellow fever communicated by contagion\* or not?*

Unshackled from all prejudice, I shall venture to mention several facts that oppose the idea of the contagious nature of this disease, which, if they have not determined me to quit the beaten path of that old established opinion, in which I have been educated, they certainly have staggered me very much,

\* By contagion I mean a matter or “effluvia arising directly  
 “or originally from the body of a man under a particular disease,  
 “and exciting the same kind of disease in the body of the person  
 “to whom they are applied.” Cullen’s first lines.

I therefore submit them to public consideration, conceiving that they merit the most serious and candid attention.

1st. In several instances, persons have been taken with this disease, who had avoided, with the utmost care, any communication with the sick, and some that came to my knowledge, who had not been out of their houses for several weeks, nor had any affected person been within eighty feet of them, were attacked and severely handled by it; hence if it was induced by contagion, this complaint must be the most highly contagious of any other; the contagion of the plague itself, as appears by the report of physicians most conversant with it, does not extend at farthest above ten paces from the infected body. (Howard on Lacerettos.)

2d. Although many of the nurses and attendants on the sick, in the part of the city where it raged, took the complaint, yet others, who lived in the same neighborhood and cautiously avoided such employments, did not more generally escape it. And notwithstanding many from New-York died with this disease in different parts of the country, on Long-Island, in Jersey, Albany, &c. yet I have not heard of a single well authenticated case of any nurse or attendant of the sick, or any other persons taking it except they had lately been in the city. It is true, popular reports have oftentimes spread the disease about the country, yet upon close inquiry that I have made in several instances, to ascertain their validity, I have found them to have originated from diseases of an entire different nature, and sometimes from deaths that occurred about the same time, and which would have happened, had the yellow fever never existed: even should it appear that some persons were taken

with a fever in consequence of the anxious fatigue of nursing, and the distress from the loss of near and dear relatives, which finally proved fatal to them, we are no way justified in supposing that it was this complaint; for had like attention been paid to persons with a pleurisy or rheumatism, like consequences might have followed: further, should an instance be produced wherein a person who had had an intercourse with one in the country affected by this disease, should afterwards be taken with a like complaint, it would not be a conclusive proof of its contagious nature, since sporadic cases have occurred at many places where there was not the least suspicion, or possibility of its having been produced by effluvia arising from a person under a like disease;\* the communication with the sick, might in such an instance, be merely an accidental and no ways an essential concurrence.

Dr. Lining in a letter to Dr. Whytt, (Essays and Observations Physical and Literary, vol. 2d) mentions that, when this disease raged in Charleston (South-Carolina) “ If any from the country received it in  
“ town and sickened in their return home, the in-  
“ fection spread no further, not even to one in the  
“ same house.”

In the year 1793, during the prevalence of this disease in Philadelphia, several persons who had lately come from that place, sickened with it and died in this city, yet in no instance did they communicate it to others, although, they were carefully and constantly attended.

\* “ Few years pass, says Dr. Rush (account of the bilious remittent yellow fever, as it appeared in Philadelphia, in 1793, page 159) without producing them in Philadelphia.” Dr. Lird, (diseases incident to Europeans in hot climates) says “ sporadic cases of yellow fever have even occurred in England.

3d. At Bell-vue, the hospital appropriated for the reception of the poor, sick with this complaint, there was not a single attendant who took the complaint excepting such as had been but a few days from town; notwithstanding they were constantly involved in the midst of the effluvia arising from the numerous sick and dead surrounding them.

There was not a single instance of the complaint being communicated to any of the physicians at the hospital at Bush-hill at the time it raged in Philadelphia in 1793, and "among the nurses for the sick two only died, and they (as is observed by the chief physician of that institution) probably had the seeds of the disease, previous to their going to the hospital"; and which appeared the more likely, as many of the other nurses were not at all indisposed, although they eat and slept in the chambers of the sick. ("Deveze Inquiries on the epidemic disease of Philadelphia in 1793.")

At our city alms-house, two persons died of this disease, which they must have taken from going into that part of the town where it prevailed, as they both frequented that neighborhood, yet in neither case did they communicate the complaint to a single one either of their attendants, or of their numerous companions that were crowded in the same room.

4th. There were many patients sent to Bush-hill laboring under other complaints, and were put in the same apartments with the patients afflicted with this fever, and where they saw persons dying with it on all sides of them, and were surrounded by an atmosphere, as highly impregnated as it was possible to be, with every infectious discharge that could be emitted from the bodies of those under that complaint, and breathing the same air; still warm, from

the lungs of their dying room mates : and “ what is  
 “ very remarkable, there was not seen one example  
 “ of these patients having the epidemic, and never  
 “ notwithstanding these circumstances so favorable to  
 “ contagion, did their disease change its character,  
 “ since they were all restored.” (Deveze’s Inquiries, &c.) How different was this from what happened in the city ; there it obliged all diseases to partake of its nature, and to pay obeisance to the ruling power : (Rush’s account of the yellow fever) it seems as if those patients had been protected for a time, by their diseases, from the influence of the cause of the destructive epidemic, till they had gained a happy retreat from the contaminated boundaries of the town.

5th. Some contagions are communicated by contact only, as syphilis, itch, &c. others may operate at a certain distance through the medium of the air, as the small-pox, measles, &c. yet all, that we have accurate knowledge of, are the most certainly effective *ceteris paribus* in an inverse proportion to the distance of the body from whence they arise, and *vice versa*. From this consideration, we cannot conceive any thing more certain of producing the disease in question, than the handling the bodies of those who have died with it, that is, if we suppose it to be caused by effluvia arising from persons already affected ; yet we find dissections of such ones have been performed, by Dr. Mitchel in Virginia, Dr. Mackrittrick in the West-Indies, Drs. Fleming and Jackson in Jamaica, Dr. Lining in Charleston, &c. and they all have lived afterwards to publish an account of them : in Philadelphia, Drs. Physick and Cathrall did the same, and Dr. Annan attended the dissection of others, and although it is very probable, that they, from living in the atmosphere of that city,

may have had the disease, yet we do not find that their hardy exposures have augmented its violence so much in them, as to enroll their names in the register of deaths. Dr. Baily dissected a person dead with this disease in this city, and suffered no inconvenience from it: but what would seem still more extraordinary, Dr. Deveze and all his surgical assistants entirely escaped the disease, notwithstanding he opened a great number of bodies, and consequently was under the necessity of dipping his hands in their black and corrupted blood, and of breathing the infected vapor that exhaled from them. Who could suppose it possible for any one who never had had the small-pox, to have such close connection with persons in every stage of that complaint, and even to handle their bodies after death, and escape being affected with it?

6th. Specific and acknowledged contagions, all seem to arise from themselves only: hence it would be almost as hard for me to believe that the syphilis, small-pox, or measles, could be produced from any other cause, than from their proper virus, obtained from persons affected with the like disease, as it would be for me to conceive of the formation of a plant, without having received its seed or radical from one of the same nature. Contagions seem to fix in the soil of our bodies, and there seed, and from thence spread themselves as naturally and regularly as vegetables do on the earth. But the yellow fever has been produced from other causes than contagion.\* Does it not then admit of a doubt whether it can possess a power of propagating itself? I confess I am almost

\* Lind's essay on diseases incident to Europeans in hot climates, has many facts in proof of this disease being produced by other causes, and without the aid of contagion. Also note p. 16.

ready to believe, that it either is always produced by contagion, or never. It is very difficult to conceive, that two such different causes, should produce exactly similar effects.

7th. It is an acknowledged fact with respect to contagions in general, that they are no respectors of persons, but that all of every clime and color, under like circumstances, are equally susceptible of their operations. But this is not the case with the cause of the disease under our present consideration: I have already observed, in the history of the complaint, that the French people from the West-Indies, although involved in the midst of the epidemic, universally escaped it. The same remark was made with respect to them in Philadelphia in 1793, (Rush's account of the yellow fever). Dr. Jackson (Treatise on the fevers of Jamaica) observes, "that this disease seldom discovers itself among those people who have lived any length of time in a tropical country," and that "it has never been observed, that a negro immediately from the coast of Africa, has been attacked with this disease; neither have creoles who have lived constantly in their native country, ever been known to suffer from it." These circumstances certainly should tend to make us hesitate in pronouncing this fever contagious.

8th. It is generally observed of contagious diseases, that they have a determinate period of invasion after an exposure to their cause: thus, if a thousand persons under similar circumstances, should be exposed to and receive the infection of the small-pox or the measles, at the same time, they would generally be taken with the complaint within a few hours one of another; but in this disease, this would be pinning the matter too close; the supporters of its con-

tagious nature, find their doctrine requires that it must be permitted to act at any time, between that of the exposure and the sixteenth day, otherwise it would not embrace cases enough to give it a currency. This seems to be allowing themselves great latitude, as there are but few persons during the prevalence of an epidemic in their neighborhood, that avoid every kind of connection or near approach to the diseased for as much as sixteen days together. Might not intermittents, when they occur generally in the vicinity of mill-ponds and marshes, as well be considered contagious, since few, I apprehend, could be found among such patients, but that had some time or other, and generally within two or three weeks, been near them that had that complaint, or to something that might have imbibed some effluvia from them? It may be said, that although there are but *few* cases, still there are *some* who have agues and fevers that never have been within the reach of febrile effluvia from an affected person: I answer, so are there of the present complaint; few physicians who have had an extensive practice in this city, can be strangers to the occurrence of single instances of it without any other cases existing, that could be suspected of having communicated it to them. (See page 19, note 16.)

9th. Contagions act more or less at all places and seasons, simply of themselves without the aid of any particular circumstance of air or climate; but the supporters of the yellow fever being contagious, are obliged by the force of the foregoing observations to acknowledge their imaginary fondling, at best, but a half formed monster, and perfectly inactive without being assisted by "the concurrence of a predisposing constitution of the air." (Rush on yellow fever) This fever exists only in warm weather; hence its cause in

this city was perfectly extinguished by the frosty nights in the 10th month. It is confined mostly to low situations, in thick settled places; otherwise our alms-house and the surrounding country would have sadly experienced its deleterious effects.

Let us examine a few cases which are supposed decidedly to have been caused by contagion. Dr. Malachi Treat, is said to have taken the fever from a person in a vessel that he was on board of the day before his indisposition; his complaints might as well have been assigned to having visited a patient in the Alms-house seventeen days before. But I cannot conceive why he should be singled out as a fatal victim of the effluvia of this man's body, merely from a moment's visit, while all his room-mates and continued attendants, univervally escaped any inconvenience: nor do I know any reason why Dr. Treat might not have taken his complaints from the same cause as this patient did; and he was sick and died several days before the arrival of any of the vessels, supposed to have brought the seeds of the disorder to this city. Daniel Phoenix, the city treasurer, is supposed without doubt, to have taken his complaints from contagion: the corporation, some time past, having issued into circulation, for the accommodation of the inhabitants, a great number of paper penny bills, it has been concluded that he must have received contagion, through the medium of some bundles of these bills, which he opened, that had been brought to him, after having been soiled and nearly worn out, to be exchanged, and which he opened and examined to ascertain their amount some days after he had received them: the probability of those having conveyed contagion, \* cannot be very striking, when we reflect,

\* Although it is very possible, that he might have taken his complaint from the effluvia, that arose from these bills, highly

that he was one among the first of those that were taken. Whence then could the bills have gathered the infection to give to him? we cannot suppose them to have come from the West-India islands; but even if his indisposition and like circumstances should have occurred at a more advanced period of the epidemic, it would not to me, appear to be a very likely method of communicating contagion; for persons in that stage of the disease, which is believed to be the most infectious, seldom have much to do with handling money, or even of wearing such clothes as have pockets in them, that might possibly have contained some. It may be observed, he lived in a part of the town that soon after suffered much by this complaint.

Dr. William M. Johnson's case, is published in proof of the fever being communicated by contagion; (Daily Advertiser, Vol. 2, No. 3343) but I cannot conceive whence the author derives his authority for asserting that his complaints "have actually happened in consequence of intercourse with the sick." It is true, he had previously been in company with persons that had the disease, but he also resided in New-York before he was stationed at Bellevue, he consequently must have been exposed to the same general cause of the epidemic, as his suffering neighbours were; and from inquiry, I find he had

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loaded with putrefactive materials that they had collected from the hands through which they had circulated, rendered active by their being packed up together in great numbers and confined for a time in a close chest before they were opened, still it puts them only upon a par with (and in my opinion corroborates the idea of the diseases being caused by) putrefactive effluvia in general, and is far from proving them to have conveyed contagious particles from persons laboring under such a particular disease.— (See definition of contagion, p. 28.)

not left town but a few days previous to his being taken ill.

Frederick Steymets, one of the Committee of Health, supposed his complaint to be the effects of contagion, received by examining some papers that had belonged to a patient that died at Belle-View hospital. Is it probable, that these papers, which perhaps had not been within ten feet of the patient after his disease had put on such a serious aspect, should imbibe and convey the cause of his complaint three or four miles, while the effluvia arising directly from his body, had no effect upon those who were constantly about him, and performing the most menial and loathsome services for him? This valuable citizen's activity and perseverance in the noble cause of humanity, often led him in the most sickly parts of the city; whence, more probably, his complaints must have originated.

The "*positive facts*" insisted on by Dr. Lind, (Diseases incident to Europeans in hot climates, page 195) I consider as very exceptionable proofs of the contagious nature of this fever, for although an infected person came on board one of the sloops of war which lay in the river Gambia, two or three days before the sickness began in them, yet it is very likely they would have been sick at the same time had he not come on board, as they had not been but eight or ten days in that river, for the same author observes that symptoms of indisposition in some instances, do not occur till twelve days after having received a taint from the land air. Robertson's case (p. 195) is by no means conclusive; the little spasmodic shock that he sustained, being, no doubt, an accidental occurrence; which, had it happened at any other time, perhaps never would have been noticed; his being taken

with a fever soon after, proves nothing but that the feeling the pulse of a person dying, did not prevent him from getting a like complaint from the operation of causes that had been previously applied. Nor is what occurred on board the Merlin sloop (page 196) more satisfactory: all the conclusion that I can draw from them, is, that different classes of the men, were taken earlier or later with their complaints, according as they had been more or less exposed to the noxious land air.

To these remarks may be added the observation of the experienced Dr. Hunter, (Diseases of the army in Jamaica) when speaking of the yellow fever, that "It is a matter of some consolation in the history of so grievous a disease, to be able to say with certainty, that it is not contagious."

It has been said, and I suspect with too much truth, that were all the physicians in this city to assert, that our late autumnal epidemic was not contagious, they would not be able to make the people in general believe them, since so many think they are well acquainted with decided proofs of its being so. This, however, will not carry a full conviction to the minds of the more considerate and reasonable part of the community, since the most popular opinions are not always the most just. I suppose were all the faculty in America to unite, and declare their disbelief in the power of the imagination to mark the *fœtus in utero*, that they could not persuade the generality of women, but that, crossed appetites, unsatisfied cravings, and frightful sights, will patch their offspring with roast pig, plumb cakes, strawberries, &c. or give them hare lips, stain them with bloody spots or something of the kind; for most of them fancy they have facts enough within their own knowledge, fully to sup-

port the opinion of that most influential operation of the mind.

Should it be asked, whence could the general idea of this disease being contagious, have originated? I answer, perhaps from no better foundation than the popular belief in witchcraft arose, in a part of Massachusetts about one hundred years ago, as well as in different parts of Europe sometime before, i. e. from the credulous fears of the people, worked upon by the erroneous opinions and publications of influential personages\*. Nineteen persons were executed in and about Salem in 1692 from this demoniacal delusion, and no doubt, but ten times that number have been shamefully permitted to die of the yellow fever in Philadelphia† and New-York, in consequence of neglect from the fear of contagion, when perhaps the unhappy sufferers, were as free from the power of afflicting their friends, as the New England witches were.

\* Hutchenfon's Essay concerning Witchcraft.

† See Carey's Account of the Malignant Fever in Philadelphia, 1793.

METEOROLOGICAL OBSERVATIONS,

MADE BY GARDINER BAKER, AT THE EXCHANGE IN

THE CITY OF NEW-YORK, IN 1795.

Sixth Month (June)

Days of the Month.	Thermometer observed at			Prevailing winds.			Observations on the weather.	
	8 A. M. deg. hun.	1 P. M. deg. hun.	6 P. M. deg. hun.	8.	I.	6.	A. M.	P. M.
1	57	69	65	N	W		clear	
2	65	70 50	62	W	S W	N W	rain	
3	58 50	73	74	N	W		clear	
4	67 50	73	67	N	S		do.	
5	68	76 50	76 50	S	W		do.	
6	71 50	79	75	W	S		do.	
7	74	72 50	67	N	SE		do.	
8	64	67	65	N	E		do.	cloudy
9	66	78 50	77	S	W		do.	
10	71 50	79	74	S	W		do.	
11	65	65	62	N	E	SE E	rain	do.
12	62	65	60 50	E			clear	
13	61	66 50	60	SE	E		do.	
14	58	60 50	59	N	E	SE	cloudy	clear
15	63 50	71	69	N	W		clear	
16	72	78 50	76	N	W	SE	cloudy	clear
17	59	65	61	N	W	SE	do.	
18	67	79	77 50	S			clear	
19	75	87	79 50	S			do.	
20	66	74 50	68	S			rain	
21	71	76	76	S	W		clear	
22	70	75	78	S	W	S W	cloudy	
23	72	76 50	73 50	W	S	SE	clear	
24	69	74 50	70	N	E		do.	rain
25	65	69	68	N	NW	N	cloudy	do.
26	63	73	72	N	W		do.	clear
27	66	76	76	N	W	W	clear	
28	70	80 50	77	N	W	E	do.	
29	73	74	73	SE	S		do.	
30	72	73 50	69	S			do.	rain

## METEOROLOGICAL OBSERVATIONS,

MADE IN THE CITY OF NEW-YORK, IN 1795.

Seventh Month (July)

Days of the Mnth.	Thermometer observed at			Prevailing winds.			Observations on the weather.	
	8 A. M. deg. hun.	I P. M. deg. hun.	6 P. M. deg. hun.	8.	I.	6.	A. M.	P. M.
1	71 50	75	72	S S E			cloudy	lt. wind
2	68	70	66 50	S E	E N E		do.	do.
3	66	71 50	68	E	N E		rain	
4	65	69	67 50	N E	E		cloudy	
5	67	69 50	68	S E	S		clear	lt. wind
6	68	83	82	S	S W		do.	
7	65	71 69	50	N			chand.	&light.
8	68 50	79	77	N		N W	clear	hi. wind
9	71 50	84	80	S W		W	do.	
10	76	86	78 50	W		N W	light.	and rain
11	75	82 50	76	W		S	clear	lt. wind
12	77 50	89	87	S			do.	
13	70 50	85	87	N E		S W	do.	
14	71	82	81 50	N		N E	do.	lt. wind
15	72 50	77	73	N	S E		do.	
16	73 50	77	72	S E	W	S W	do.	
17	74	78 50	76	S W		S	do.	
18	74	82	76 50	S W	S	S W	cloudy	th. rain
19	79	84	87	S W			clear	lt. wind
20	77	87 50	82	W		S	do.	
21	77	81	76	N E	S		do.	lt. wind
22	76	85	88	S		W	cloudy	
23	74 50	78	74	S	N E	S E	do.	th.&lig.
24	73	75 50	74	N E			rain	cloudy
25	78	80	74	W		E	cloudy	lt. wind
26	71	76 50	73	E		S E	do.	clear
27	70 50	73 50	69 50	S E		N	do.	rain
28	69 75	79 50	78 50	N	N W		clear	lt. wind
29	73	78	74	N E	S W		do.	
30	69 50	67 50	66	E	N		do.	rain
31	72 50	73	73	E	N		gt. rain	

METEOROLOGICAL OBSERVATIONS,

MADE IN THE CITY OF NEW-YORK, IN 1795.

Eighth Month (August)

Days of the Month.	Thermometer observed at			Prevailing winds.			Observations on the weather.	
	8 A. M. deg. hun.	1 P. M. deg. hun.	6 P. M. deg. hun.	8.	1.	6.	8.	1.
1	73 25	80	77 50	W	SE	S W	cloudy	
2	79 50	86	78	SW	S		clear	
3	73	71 50	74	E	SE		storm	& rain
4	77	82	80	W	NW		cloudy	lt. wind
5	80	88 50	83	W		S W	clear	
6	80	89 50	86	W			do.	
7	82	93 50	84	W			do.	
8	82 75	87	78	W	SE	W	do.	
9	79	87	82 50	S	SW		gt. rain	
10	80 50	87	78	W	SW		clear	rain
11	75	79	76	N E	SE	S	cloudy	lt. wind
12	74	80	75	NW		SE	rain	
13	69	75 50	75	N			do.	
14	69	71 75	72 50	N E	SW		cloudy	
15	71	73 50	73	N E	SW		clear	
16	69	78	77	SW		W	do.	
17	75	85 50	76	NW		SW	do.	
18	79 50	88 50	82 50	SW	NW	W	do.	lt. wind
19	77	86	82	W			do.	
20	79 50	88	63	W		N	do.	rain
21	57 50	60 50	59	N	N E		rain	lt. wind
22	61 50	66	67 50	N E			cloudy	do.
23	66 50	68 50	68	N E	SE	E	do.	rain
24	69	71	70	E	SE		do.	
25	73	81	77	SE		S W	clear	lt. wind
26	76	84	77	N	S	SE	do.	calm
27	75	81	74	SE	S	SE	do.	
28	72	79	76	S			do.	
29	73 75	82	80 50	S			cloudy	
30	76	85	79	S			do.	clear
31	78 75	74	72	S			clear	rain

## METEOROLOGICAL OBSERVATIONS,

MADE IN THE CITY OF NEW-YORK, IN 1795.

Ninth Month (September)

Days of the Month.	Thermometer observed at			Prevailing winds			Observations on the weather.	
	8 A. M. deg. hun.	1 P. M. deg. hun.	6 P. M. deg. hun.	8.	I.	6.	A. M.	P. M.
1	73	75	77	W	N		cloudy	lt. wind
2	66	70	70	NE			rain	high do.
3	65	71	71	W			clear	
4	64	75	73	NW			do.	
5	67	74 50	72	NW			cloudy	
6	70	75	73	NW			clear	
7	68 50	74		N		NE	rain	
8	71 50	78	77	S	SW		cloudy	lt. wind
9	75	83 50	77	SW			clear	
10	75	82	76	SW			do.	
11	74	84 50	79	SW	W	NW	do.	
12	63	70	67	N	NE	E	do.	
13	68	66	70	SE	S		cloudy	rain
14	72 50	81	80	S			do.	
15	75 50	85 50	82 50	SW	S		do.	clear
16	76	87	83	SW			do.	do.
17	68 50	79 75	78 50	NE			do.	do.
18	77	78	76	S			clear	lt. wind
19	60	65 50	64	N	NW		rain	
20	60	68 50	68	W	SW		clear	rain
21	53 50	61	57	NW			do.	hi. wind
22	48	58	57	N	NW		do.	do.
23	53	68	66	W			do.	light do.
24	57	66 50	64	W	SW	S	do.	high do.
25	58	73	72	SW			do.	
26	62 50	72	65	SW	NE	SE	cloudy	
27	66	68 75	67	E		SE	do.	
28	66	73 25	68 50	S			clear	lt. wind
29	63 50	64 25	60	NW			cloudy	
30	50	58 75	60	N			clear	lt. wind

METEOROLOGICAL OBSERVATIONS,

MADE IN THE CITY OF NEW-YORK, IN 1795.

Tenth Month (October)

Days of the Month	Thermometer observed at			Prevailing winds			Observations on the weather	
	8 A. M. deg. hun.	1 P. M. deg. hun.	6 P. M. deg. hun.	8.	I	6.	A. M.	P. M.
1	56	70	66	NW	NE	S	clear	lt. wind
2	57	61 50	60	NE	E		cloudy	
3	55 50	63 50	62	E	SE		clear	
4	65 50	72 50	67 75	S		SE	do.	
5	65	75	69	S		SE	cloudy	
6	62	67 50	66	W	SW		clear	
7	57 50	67	65	W		SW	cloudy	rain
8	54	54	55	NW			do.	
9	51	62 50	61	NW	W		clear	
10	48 50	63	61	W		S	cloudy	rain
11	60	69	65	NW	W		do.	
12	55 50	66	66	W			do.	lt. wind
13	60	71	66	S	SW		do.	do.
14	61	68	68	SW			do.	
15	65	66	71	S			clear	dif. thur.
16	52 50	62	60	W			clear	lt. wind
17	58	49	52	SW	W		cloudy	high do
18	42	54	50	W	SW	W	clear	
19	38 50	49 50	49 50	W		S	do.	
20	55	62 50	55 50	S		NW	rain	
21	46	52 50	53 25	N		NE	clear	
22	44 50	53 50	55	NE	S	E	cloudy	c. wind
23	55	61	59 50	N	E		rain	
24	52 50	63 50	58 50	NW		W	clear	
25	47	57	57	W			do.	
26	47	54 50	55	W	N		do.	lt. wind
27	43	58 50	54	N	SW		do.	do.
28	49	60 50	60	SW		W	do.	
29	52	70	66	W			do.	
30	55	69	61	W		S	do.	
31	52 50	55	54 50	S	W		foggy	rain

*The Cause of the Fever, and the most probable method of preventing its return: likewise, the Precautions to be used to avoid an Attack, if it should again become Epidemic.*

On the sixth of August, 1795, I received a note from John Broome, Chairman of the Committee of Health, “earnestly soliciting me to give them every aid in my power, by my prudent advice, &c. for the accomplishment of the important end of their institution.” In consequence of which, a few days after, I made him the following communication.

‘ That a malignant fever exists among us, is a melancholy certainty, well-known to the Committee of Health; that this fever, in itself, is of a dangerous nature, there can be no doubt; but whether it is contagious or not, is a question yet undetermined. I have not known or heard of a single well attested proof, of any person taking the complaint from another that was affected with it.

‘ My *advice* is, that the Committee, while they continue their unremitted and benevolent exertions, in preventing the introduction of infectious diseases from abroad, settle not in a false security, and neglect the causes of diseases that may exist in the city. It is from the unguarded operations of these inwalled enemies, that I conceive we have to apprehend the greatest danger.

‘ If I have been rightly informed, a great proportion of the persons, that have at this season been affected with fevers of a suspicious nature, has been

‘ confined to those whose residence or occupation  
‘ has obliged them to pass a considerable part of their  
‘ time between Peck-slip and the New-slip. If so, it  
‘ certainly is a matter of consequence, to know, whe-  
‘ ther in this part of the city, there is not some local  
‘ cause that may induce so fatal a malady.

‘ That putrifying substances, after a continuation  
‘ of very warm weather, will give rise to such com-  
‘ plaints; the fatal operation of the dock mud de-  
‘ posited at Peck-slip in 1791, the putrid coffee in  
‘ Philadelphia in 1793, and the noxious exhalations  
‘ from the creek in New-Haven in 1794, sufficiently  
‘ prove, without the aid of many other equally cer-  
‘ tain, though more remote facts, that might be ad-  
‘ duced in its support if necessary.

‘ On these principles I have been led to search into  
‘ this part of the town, for the cause of the present  
‘ complaint, and I believe my inquiries have not been  
‘ in vain: I suspect that I have discovered a fruitful  
‘ matrix generating the seeds of this complaint, and  
‘ which if not properly cared for, may possibly spread  
‘ mortality in its vicinity.

‘ A few years ago the Corporation have had Wa-  
‘ ter-street, between the two beforementioned slips,  
‘ filled up, without obliging the proprietors of the  
‘ property on the north side of the street and in  
‘ Cherry-street, to fill up their yards even to a level  
‘ with it. Hence, the refuse water and offal sub-  
‘ stances, from the families occupying these places,  
‘ are left to stagnate and putrify; and what renders  
‘ it particularly distressing, is, that the healthful show-  
‘ ers, that in general wash away all such matters from  
‘ other places, here only tend to render them more  
‘ active; for by the water not running off, it dissolves

‘ and prepares them, thus pent up, for entering into  
 ‘ their pestilential fermentation. Our regular and  
 ‘ heavy rains, perhaps have been one great remote  
 ‘ cause of the frequency of these distressing diseases,  
 ‘ in this neighborhood at this season.

‘ It may be worthy of remark, that many of these  
 ‘ tenements contain several families; hence an addi-  
 ‘ tional cause for putrefactive materials.

‘ I make no apology for giving these hints to the  
 ‘ Committee; the impresson of their importance on  
 ‘ my mind, rendering it a duty: the hurry of an ear-  
 ‘ ly communication, amidst frequent professional in-  
 ‘ teruptions, must answer for their incorrectness.”

‘ With a sence of respect and esteem,

‘ I remain thy friend and fellow-citizen,

‘ VALENTINE SEAMAN.’

New-York, 8th month }  
 (August) 17th, 1795. }

The cause of the disease as above suggested, not being removed, its effects, in full support of my apprehensions, truly “spread great mortality in the vicinity,” as is seen by its history in the foregoing observations.

This early idea of the origin of the epidemic, constantly gained confirmation from the manner in which it increased: it appeared to be almost entirely confined to the level south-eastern part of the town, and there it was the most general and fatal, in the particular situations that mostly abounded with these

pools of putrefactive exhalations. Thus it first became the most general in and about the lower end of Dover-street: this is what might reasonably be looked for when we consider that besides all the lots fronting this street being sunk beneath the common level of it, there are also on the docks at its lower end several store-houses and granaries, built partly over the water on piles, without having the space under them filled up; the foundation of some of them, on the sides fronting the water are partitioned up so as to prevent the free circulation of the tide from washing away any thing from under them; however, these partitions were not so tight but that they let in water sufficient to favor the fermentation of the putrefactive materials that such a common receptacle will always collect, not only from exterior sources, but also from the showers of grain that frequently would pour down through holes that the rats sometimes would gnaw in the floor. Hence there can be no wonder, that the seeds of this disease should ripen in such a hot bed of putrefaction, aided by the effluvia emitted from the great flats of mud in the several surrounding impaired docks, left bare during the recesses of every tide. It is remarkable that several persons employed in a large grain store-house, thus situated over such a source of noxious miasmata, were among the first victims of this disease.

The disease soon increased; numbers were taken in every part of that quarter of the town, lying between the upper part of Water, Pearl and Chatham-streets, and across to the lower part of George-street. From an attention to the subject not only during the hurry of the epidemic, but also since its extinction, I am led to believe according to my best judgment, that four fifths of all the lots in this affected part of the city, were situated below the level

of the streets they fronted, whence from our regular rains, they very generally became stagnant, putrid mud puddles. I can hardly think it possible, was it not for the obstruction of the houses preventing a free observation of these grounds, that any candid person acquainted with the common causes of fevers, could harbor the least doubt after walking through this part of the town, but that the epidemic originated from this source, rendered active by the continued excessive heat of the sun during the last summer. It raged with peculiar violence in the parts that were near the docks; this is what might be expected from the additional vapor of the dock mud as above-mentioned. It also was very fatal in a part of George-street, "not less than sixty persons were buried out of it within the small compass of twenty houses." This was probably owing to the poisonous steams discharged from large quantities of street dirt and manure, collected during the summer and deposited near the head of it, subjoined to the common causes above-mentioned. Its fatality to the West of Peck-slip was induced, no doubt, by the noxious vapors from the putrid sink there. The reason of its prevalence about the Fly-market, can seem no ways strange to any one acquainted with the situation of that place, the market being built over an offensive sewer, whose exhalations were confined only by an imperfect board floor, to which may be added, the effluvia constantly arising from the putrefying animal and vegetable matter all around, as well as from the slip that puts in at it. Skinner-street is lowly situated, unpaved and very imperfectly drained.

That putrefactive effluvia will give rise to, and are the common cause of such diseases, is clearly proved by the accurate observations of the most judicious wri-

ters on the diseases of hot climates. Lind's valuable book of interesting facts (Essay on the Diseases of hot climates) abounds with proofs of this disease being caused by the air from the low lands in the West Indies; he particularly mentions, that it often raged in the Greenwich Hospital at Jamaica; which, as he observes, was unfortunately built near a marsh, and that it could not proceed from any source of infection in the hospital. Dr. Hunter says (Diseases of the army in Jamaica) ships lying at Port Royal in Jamaica, on moving and taking their station higher up the harbor, have in a few days become sickly. "The men, says he, have been seized with fevers  
"owing to the low swampy lands along shore, and  
"at the head of the harbor, from which last the ex-  
"halations are carried every morning towards the  
"ships, when the regular sea breeze sets in, as is  
"perceived by the bad smell which accompanies it." He says that there are examples, where out of sixty or seventy men, employed in filling the water casks, not one has escaped a fever, from the watering place being wet and swampy. The same author observes, that Fort Augusta, which was at other times a salubrious situation, became sickly in 1783, the sea that year having risen higher than usual, so that it  
"overflowed the whole of the ground on which the  
"fort stands, near a foot above the surface in some  
"places, and on ebbing left much slime and ouze.  
"A few days after this, many of the men were taken  
"with fevers." Dr. Jackson (Treatise on the Diseases of Jamaica) as well as a host of other authors, might be brought if necessary, to prove that putrid exhalations are the common causes of epidemics. The above facts, together with the many others adduced by Dr. Rush (Account of the Yellow Fever &c.) in their support, appear to me to be sufficient

to establish that opinion with every unprejudiced person—which if allowed, no one acquainted with the situation of the part of this city where the yellow fever raged as above stated, can have the least doubt but that it was owing to like causes, without the necessity of ransacking West India vessels or innocent bags of cotton, for that which is within ourselves, and whose very essence perhaps, is such as proves it not to be of a transportable nature\*.

Many of the strenuous supporters of the contagious nature of this disease, compelled by the force of the foregoing circumstances, acknowledge, that the disease may be caused by other means, however they cannot *entirely*, give up this favorite opinion, but persist in asserting that contagion often does induce the disease, when the foregoing state of the air favors its operations; and they defy any one to prove that it does not. To prove a negative is always difficult, such a one, perhaps impossible. But since the only proof we can have of the existence of a cause, is the necessity of it for producing known effects, and since we are to admit, (according to Newton's first philosophic precept) no more causes than are sufficient to explain the appearances, and, as has been observed, (Pemberton's view of Newton's philosophy) "When one cause is sufficient, if there  
 " really should in nature, be two, which is in the  
 " last degree improbable, we can have no possible  
 " means of knowing it, and consequently ought not  
 " to take the liberty of imagining, that there are

\* It has been observed by Dr. Rush, in Vol. I. of his *Med. Observations*, as well as by Dr. Lind, that musquetoës generally attend a sickly season—the same was observed here during the last summer: the cause is very clear, for circumstances favoring the rise of putrid miasmata, equally favor the generation of these insects.

“ more than one.” Now, therefore, as the above suggested cause of our epidemic seems fully sufficient of itself to produce it, nothing can be more unphilosophic or imprudent than to suppose, that contagion ever had any thing to do with it.

The most probable means of preventing a like calamity in future will be—1st, To have all the lots, particularly in the low parts of the town, filled up, so as to afford a sufficient descent to carry off the water into the streets, and not permit any of it to stagnate in them. 2d, To have the dirt and filth in the streets and yards more carefully and frequently cleared away. 3d, To have the docks repaired and regulated in such a manner, as not to permit the mud to gather and be exposed to the sun at the ebb of the tide. 4th, To have the spaces under the granaries and store-houses on the docks, properly filled up or walled in. 5th, To prevent great quantities of street-dirt and manure from being collected in heaps, and left for any time on the vacant lots, in and about the city. 6th, To have the streets properly paved with a sufficient descent to prevent any water from standing in them; and 7th, To have the common sewers, in good order and well covered. An attention to these circumstances, no doubt, will prevent the return of a like epidemic in this city; for, as I suggested some time since to the corporation, “ whether the disease “ is contagious, or whether it was imported or “ not; this one fact seems to be pretty firmly established, that it never has *spread*, but by the influence “ of putrefactive effluvia.”

If, either from a neglect of the foregoing precautions or from any other causes, the yellow fever should again become prevalent in any part of this

city, it certainly would be most prudent for such as have it in their power, to remove from it; or if unavoidable circumstances, or the calls of humanity should render it necessary for some to continue there for a part of the time, let them if possible, shun the night air, as the harbinger of death, and especially to avoid sleeping in that neighborhood, as they value their lives; for perhaps in the relaxed hours of rest, the epidemic miasmata may act with redoubled force. Dr. Lind's instances clearly shews the particular danger of sleeping within the limits of the contaminated air; many persons having been taken with the complaint, after having slept a night on shore in the low ground, while others, who had passed a considerable time there during the day, and always returned to the vessels at night, generally escaped it.

Besides, keeping from the night air of the epidemic neighborhood, and the sleeping in a healthy part of the town: all persons who are forced to pass some of their time in the contaminated atmosphere, should avoid with the most scrupulous attention, excesses of every kind; not only of eating and drinking, but also of heat, exercise and watching. But I wish to be understood, not to mean a rigid abstinence from, or a restriction with respect to these things; but only to advise moderation and regularity in the use of them, because it is likely that a very low diet and the entire neglect of wine, with them who have been accustomed to it, as well as cold, inactivity, too much sleep, fear, &c. may as effectually predispose to this complaint, as their opposite extremes: I believe the more regularly we support the natural healthy tone of our bodies, the more powerful they will resist the causes of diseases applied to them.

The observation of Dr. Lining must be a great satisfaction to those who have once suffered with this disease. He says (Essays and Observations, Physical and Literary, vol. 2.) "It is a great happiness that our constitutions undergo such alterations in it, as forever afterwards secures us from a second attack." He certainly had a good opportunity of knowing whether it did or not, as it raged four times in Charlestown, South-Carolina (the place of his residence) within sixteen years. In the West-India Islands an attack of this disease, which seems almost entirely confined to persons from more northern climates, is called a *seasoning*, and after which, if the patient recovers, he is supposed to be pretty secure. I never have known of any person having had it twice decidedly; perhaps some instances supposed to have been that fever, were only common remittents. Dr. Rush says, (Medical Observations, Vol. 2.) that "during the prevalence of the measles, he as well as Dr. Quier, observed several persons (who had had that disease, and who were closely confined to the rooms of persons ill with it) to be affected with a slight cough, sore throat, and even sores in the mouth." And what are called nurse pocks, are no rare things with persons (who have previously had the small pox) that have much to do with patients in that disease: so also is it possible that some people may suffer a slight indisposition from the cause of this disease, after having had it once, which perhaps ought not to be considered as a full attack of it. It may be that the great debility, remaining after a complete removal of this disease, may predispose to an attack of some other, perhaps of a fever of a different nature, that might even prove fatal, so like consequences might follow a severe attack of the small pox and no one would consider this as a return of the disease. Notwithstanding these remarks are not en-

tirely conclusive with me, yet they have so much influenced me, in the opinion of the impossibility of taking this disease more than once, that should it again become epidemic here, although I could not again venture among it with less hesitation than heretofore, I certainly should with much less apprehension.

#### METHOD OF CURE.

In the treatment of this, as of all other diseases, the first object should be to remove their cause; for although in some instances, the human body by habit may be enabled to resist the effects of injurious impressions, and even by proper means to recover itself after morbid effects are inducted, while the cause still continues; yet that physician would be considered very deficient, who would undertake to cure an *ophthalmia* caused by residing in a smoky apartment, or the *cholera infantum*, originating from the impurity and heat of the city air, without first advising his patients to remove from such an obnoxious situation, for although he might sometimes succeed in his attempts, yet it certainly would be attended with more difficulty and uncertainty; so also is it in the yellow fever; hence in this disease it is of the highest importance to have the patient removed, as soon as possible, out of the reach of the original cause of his complaints, into a more salubrious atmosphere; a neglect of this perhaps was one main reason of the great fatality of this epidemic; therefore, should it again prevail, it would be of the utmost consequence, for those whose circumstances would admit of it, to secure a proper asylum in case of an attack, and the poor ought to be industriously sought after and earnestly advised, early in their complaints, to remove to such places as the police may prepare for their reception. It may be remarked, that but a small pro-

portion died at Belle-vue who went there in the early stages of their diseases.

Whether the original cause be removed or not, the next indications are,

1. To obviate the restricted state of the bowels, and clear the alimentary canal of the super abundant bile that seems to attend the disease.

2. To use all means in our power to obtain a remission of the fever; and

3. During the remission, to restore the tone of the system so as to prevent a return.

Whether the *seat and throne* of this disease is in the stomach and bowels, according to Dr. Warren, or not, it must be acknowledged that it is in a great degree upon a particular attention to them, that the hopes of a cure depend, as it is upon a particular morbid affection of them that the greatest danger is to be apprehended. To fulfil the first indication, a sufficient dose, viz. ten or twelve grains of calomel, with as much jalap or rhubarb, should be exhibited immediately and repeated every six or eight hours, till it purges freely; its operations should be favored by the plentiful drinking of warm chicken or barley water or gruel, and keeping warm in bed; by these means oftentimes a free perspiration is brought on, and the second indication is accomplished at the same time; an almost complete remission being the consequence.

Let no one fear the largeness of the dose of the purgative, or its early repetition as above recommended, for in no disease perhaps is it of more consequence to obtain the speedy operation of medicine

than in this; it is probable many lives have been lost from the cautious timidity of Physicians, in giving but small and repeated doses of cathartics, till the disease stole on to that stage wherein the great irritability of the stomach utterly refused to retain any more of it, before they have given a sufficiency effectually to evacuate the intestines.

If a remission does not succeed to the operation of this medicine, but symptoms of great excitement, with violent pain in the head, &c. particularly in persons of a full habit of body, with a plenitude in the vascular system, bleeding undoubtedly promised and proved of the most essential service, and ought by no means to be neglected; but I do not wish to be understood to recommend the indiscriminate use of the lancet by any means, for there are innumerable circumstances, both as they relate to the previous state of the patient, as well as to the existing symptoms, that should always govern the judicious physician in the use of this most powerful remedy.

After the operation of the purgative, if the degree of excitement or tone in the vascular system, should not justify the loosening of blood, or if as much has been drawn as the state of the patient may render adviseable, and still there remain a degree of tension in the pulse, a dryness on the surface, &c. a sudorific draught of half an ounce of *spt. minderer* with twenty drops of *inct. thebaic* has often been exhibited with the happiest effects; a sweat generally succeeding with a considerable remission of all the symptoms; in conjunction with the sudorific portion, the patient should have his feet and legs fomented with flannels wrung out of warm water, for as long as half an hour at least; he should also favor its operation by a plentiful dilution with the beforementioned drinks.

The use of antimonial medicines have been greatly recommended in this state of the disease, to bring on a remission; but I confess, in the few instances where-in I made trial of them, they did not answer my expectations, the state of the stomach generally being such as would not bear even the smallest doses of them.

For the violent pain in the head attending this first stage, nothing seemed more effectual than the constant application of linen cloths, wetted with cold vinegar and water to the forehead and temples, and changed as soon as they became warm.

I know not whether Dr. Jackson's method of using the *warm* and *cold bath* alternately, has been practised by any physicians of this city; but the dashing of *cold water* over the body, and afterwards drinking plentifully of a strong infusion of *rad. serpentar.* has been much cried up by some; I used it in but a single case, and although the patient was particularly attended to, yet the looked for sweat and remission did not succeed; this was nevertheless, accomplished afterwards by the partial application of cold vinegar and water to his forehead.

After the bowels were properly evacuated and a remission obtained, I lost not a moment's time, but immediately applied to the use of the *bark*, in doses apportioned to the state of the stomach, half a drachm, if it would retain so much, was given every two hours, otherwise half that quantity was given and increased as the stomach would bear it; it was exhibited in milk and water or some of the drinks before-mentioned, which ever was most agreeable; a few drops of the acid *elix. vitriol* with each dose of the bark, sometimes would make it more agreeable to

the stomach; it seems hardly necessary to mention that in this case it must not be given in milk. When the bark in substance could not be retained, the cold infusion was substituted in doses from half an ounce to an ounce, according to circumstances, and repeated every two hours or oftener if it sat well on the stomach. At the exacerbations of the fever, the use of these remedies was often suspended, and the means beforementioned were applied to, till a degree of remission was again obtained, when the use of the bark, &c. was again resumed. When the patient was costive, he had a few grains of rheubarb united with each dose of his bark, till that state was obviated.

The acid *elix. vitr.* was used with advantage during the remission of this disease, particularly if hemorrhages attended it. I have already mentioned it, as useful in making the bark sit easy on the stomach; but in case the bark should be retained well without it, it then would perhaps be better to administer it between the times of taking that medicine; it may be that this acid, while it covers the bitter taste, may likewise tend to lessen the tonic effects of the bark.

Generally, if the abovementioned means were not used, and frequently notwithstanding our greatest attention, about the third or fourth day, the second stage of the disease would be ushered in with pain and constant sickness at stomach, particularly upon swallowing any thing; an epispastic was often applied to the scrobiculis cordis in this situation, and sometimes with advantage; some others received benefit from using warm fomentations to the part. Laudanum was rejected; but in some instances I thought a grain of solid opium was administered

with good effects, and small bleedings seemed sometimes useful; this, however, as well as all other means, often failed, the stomach throwing up every thing that was taken into it. In this desperate state, our last refuge was to the bowels, and our only dependence appeared to be upon the plentiful exhibition of our remedies *per anum*, half an ounce of powdered bark, with a gill of milk, chicken soup or beef tea, and twenty-five or thirty drops of laudanum, make a proper injection for this purpose; it should be repeated at least twice a day. This means no doubt has preserved the lives of many; should the bark be retained in the bowels till the period of administering the third dose, it would be adviseable to bring it away by a common injection of warm water, before that is given.

From observing that none died who were affected with a salivation, I attempted in several instances to induce that affection, by rubbing the gums with calomel and using mercurial frictions; but as these attempts were made only in the latter stages of desperate cases, I never succeeded. May not mercurial frictions be advantageously used from the commencement of the disease to produce this affection?

The diet of the patient in this disease, should be of the mildest nature; panado, chicken soup, beef tea, roast apples and milk, tapioca, &c. appeared to agree best with the delicate situation of the stomach, and perhaps were the most proper food that could be taken.

In the convalescence, a continuance of the bark and elixir of vitriol, a more nourishing diet of roasted oysters, beef-steakes, porter, &c. together with

moderate exercise in the country air, were the most effectual means of restoring the lost tone to the debilitated systems of those who happily survived the effects of this most dreadful disease.

*FINIS.*

L E T T E R S

TO

WILLIAM BUEL, PHYSICIAN,

ON THE

FEVER WHICH PREVAILED IN NEW-  
YORK, IN 1795.

*BY E. H. SMITH.*

TO WHICH IS PREFIXED,

AN ACCOUNT OF THE FEBRILE DISEASES OF SHEFFIELD,  
(MASSACHUSETTS) IN THE YEARS 1793, 1794 AND 1795.

*BY W. BUEL.*



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ACCOUNT OF THE FEBRILE DISORDERS  
WHICH PREVAILED IN SHEFFIELD, IN THE STATE  
OF MASSACHUSETTS, IN THE YEARS  
1793, 1794 AND 1795.

EXTRACTED FROM A LETTER OF WILLIAM BUEL,  
PHYSICIAN AT SHEFFIELD, TO E. H. SMITH,  
PHYSICIAN, OF NEW-YORK.

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**B**EFORE entering directly on the subject of the disorders, which prevailed here in 1793, 1794 and 1795, I shall mention some circumstances relative to the face of the country in the Town of Sheffield.

The river Housatonak runs in a serpentine course through this town, from North to South. Upon the banks of the river, on each side, is an extent of intervale, or meadow land, averaging on both sides at about a mile in breadth. The greatest part of this intervale is overflowed at the time of the thawing away of the snow, in the spring; and sometimes, by large and sudden freshets, at other seasons. The nature of the soil, in general, is such, that, very soon after the water is off, the land is dry and fit for tillage. It is, however, much interspersed with coves and marshes; in the former of which the water remains stagnant a considerable part of the summer, and in many of them perpetually; of the latter there are not many upon this river, but there are some which remain such through the season.

Beside the Houfatonak, there are two other considerable streams, running through part of this town, which unite and empty into that river. Upon each of these streams are large tracts of low, marshy lands; great part of which is overflowed by freshets, and is never perfectly dry.—There is (which is very material) a mill-dam, on each of these streams; and the two dams occasion the overflowing of several hundred acres of the low lands. As summer advances, and the ponds fall, considerable parts of these lands are left uncovered by the water; more or less, according to the drought of the summer. In both of these ponds are large quantities of timber and other vegetable matters, which, in hot weather, are always in a state of putrefaction. This state exists in an increased degree as the substances become more exposed to the action of the sun. The foetor occasioned by this putrifying mass is such, in hot weather and when the water is low, as to be extremely offensive to the smell, at the distance of many rods.

The inhabitants of this town, who live in the vicinity of these marshy and drowned lands, have, as would naturally be expected, been always subject to remittent and intermittent fevers, from its first settlement. It is, however, generally remarked by the old people, that these disorders have of late years—until the three last—decreased: owing, probably, to the clearing, or partial draining, of the lands.

Although the disorders which have prevailed in this town, for two or three years past, are owing undoubtedly, principally to these local causes; yet it is not improbable that some predisposition to them was occasioned by a general constitution of the air: To ascertain this point, with any degree of precision, we ought to have before us an accurate history of the

weather, for several years past. Even then it would, perhaps, be impossible; as it has ever been found a difficult matter to trace any connection between the manifest qualities of the air, and the effects of a general constitution of it, favorable to disease. As I am unable, either from minutes, or memory, to give any account of the weather, I shall leave the matter unattempted.

In the year 1793, during the season in which such complaints usually appear, intermittents and their concomitants were more frequent than they had been for many years before. In September and October, there were a few scattering instances of bilious fevers.

Early in the spring of 1794, inflammatory complaints, chiefly of the pneumonic kind, were unusually prevalent. They were soon succeeded by intermittents; which were more frequent than they had been the year before. Nothing peculiar attended them; and they continued to occur pretty often through the summer.

Towards the last of July, the bilious, or, as it is called here, the pond-fever, began to make its appearance; principally about the South Pond, one of the mill-ponds beforementioned, and near the Canaan line. There were some scattered instances about the North Pond: and a few, which were at such a distance from both, that they were, probably, occasioned by the stagnant water about the great river, the Houfatonak. But the disorder was chiefly confined to the vicinity of the South Pond. The influence of this pond appeared to extend about one mile and a half from its borders. Within this place there are about 150 inhabitants; and about 80 of this number

were affected with the fever: part of them inhabitants of Sheffield, and a part of Canaan. Among those who were sick, there were five or six instances of mortality. There were not more than ten or twelve persons who had the disorder in other parts of this town. From these there was but one death; and that in a case complicated with pregnancy, and eventually with phthisis pulmonalis. People continued to be attacked with this fever through the months of August, September and a part of October.

The disorder was, probably, in all respects, what is termed a bilious remitting fever. It began with an ague fit; intense pains in the back, head and limbs, soon succeeded by thirst, dryness of the skin, &c. continuing without much variation 18 or 20 hours: a slight moisture then broke out upon the skin—seldom a profuse sweat; a degree of remission of the fever, and abatement of the pains, then ensued, and continued till about the time of day of the first attack, when another exacerbation of fever commenced, with symptoms similar to the first. If the disease was left to itself, the remissions would sometimes become shorter and more imperfect, as the paroxysms were repeated, until it grew to be nearly or quite a continued fever. A diarrhoea, and sometimes dysenteric symptoms were added to the rest. Most of those who died were attended with a preternaturally lax state of the bowels; which, in several instances, might properly be called dysenteric. The tongue was, from the first, covered with a white fur. After three or four days, a black stripe began to appear; extending from the root, towards the extremity; and gradually spreading, as the disorder advanced, till the whole tongue assumed a black appearance. Even the teeth and gums were sometimes covered by this black fur; and in some patients who afterwards recovered.

In the treatment of this disorder, evacuation of some kind, is undoubtedly necessary in the early stage of it. Venesection generally produced a temporary relief from the violence of the pain, and was, probably, when the constitution was firm and robust, and the habit plethoric, frequently useful; but it did not appear to me to be important as a curative remedy. Emetics sometimes did well; and where there was a great degree of nausea, I thought them useful. But purging, with calomel and jalap, was the mode of evacuation I preferred, and generally practised; and the remedy which of all others appeared to me most advantageous in the early stage of the disease.

It is unnecessary for me to say any thing more, in this place, than that assiduous purging, in the beginning, and a plentiful use of the Bark, after the remissions had become such as to make it admissible, were the essential parts of the management of this disorder.

So strong was the tendency to disorders of this kind, that people continued in some instances to be affected with intermittents, or fever and ague, thro' the winter. These were very frequent in the spring, but with no peculiarities, and yielding to the common remedy with the usual facility.

During the month of August 1795, I was in the county of Ontario, in the western part of the state of New-York. There was, at that time, a disorder prevalent there, of the same nature with that which I found rise in Sheffield, on my return, and which I am about to describe. It was chiefly existent in the neighborhood of stagnant waters, and in situations similar to those places, in this town, to which the disease was mostly confined. The treatment required was, of course, the same.

On my return to Sheffield, which was the 5th of September, I found a number of the inhabitants, about the North Pond, afflicted with a fever, which began to appear about three weeks before. The people first attacked were those who lived nearest to the pond; whole families of whom were down at once. Numbers continued to be taken, daily, chiefly within the vicinity of this Pond, or within three quarters of a mile of its borders, till about the middle of October; after which time there were few instances of new attacks. In this time, i. e. from the 10th of August to the 20th of October, of about 200 (which is not far from the number of persons living within three quarters of a mile of some of the borders of this pond) not less than 150 were affected with more or less of this disease; out of which number, but one person died, and that an aged man, previously debilitated and disordered.—The number affected with this fever, in all other parts of this town, did not, I believe, exceed thirty. Of these, three died: one, an aged woman: the other two, pregnant women; of whom, one died in the fever, the other suffered an abortion, and died some months after, dropfical.

The disease, this year, put on a different form to what it did the last. It might, with more propriety be called an intermitten, than a remittent fever; though it was very different from a common fever and ague. It began, like other fevers, with an ague fit, attended with pains in the head, back and limbs. The duration of this part of the paroxysm was uncertain. It was succeeded by a hot fit, whose duration was, in different persons, from six to forty-eight hours. A remission, and, sometimes, nearly or quite, a perfect intermission, then came on; but whose duration was as irregular and uncertain as was that of the paroxysm before. After the first, the paroxysms

were not generally ushered in by a regular ague fit; only some slight chills were felt; and these were irregular, both in degree and continuance. The length of the next succeeding paroxysms and intervals could, by no means, be calculated for, from the preceding: so completely irregular was this disorder. The fever evidently tended to an intermittent form; but it could neither be called quotidian, tertian, quartan, nor by any other name used by authors to distinguish the different species of intermitting fevers. The pains in the head, limbs and back, were very severe, particularly in the latter, which were so universally intense, that the symptom might almost be considered as characteristic of the disorder. In the *primæ viæ*, flatulency was nearly a constantly-attendant and very troublesome symptom. Evidences of an increased secretion and excretion of bile, were generally present through the disease, but were particularly observable in the convalescence. Some degree of yellowness of the skin, which was almost universal, indicated a reabsorption of this fluid, and a deposition of it upon the skin. This yellowness was in two instances, which I saw, very intense. A slight degree of delirium was very common, during the height of the fever. The appearance of the tongue was much the same that it was last year.

My method of treating the fever of this year, was similar to that which I employed the last year.—Purging, in the beginning, and afterwards a plentiful use of the Bark, appeared to me to be the most successful way of managing it. In extreme cases, particularly, a free and full exhibition of bark, wine and laudanum, seemed the only means of salvation. It was absolutely necessary that the patient should be thoroughly purged, previous to the use of stimulants, otherwise the bark, wine or laudanum, would have

very pernicious effects. I saw several instances, at the westward, where, by too early a use of these medicines, the fever was changed into a continued form, attended with a constantly dry and yellow skin, comatose symptoms, &c. One of the instances of extreme yellowness, which I have mentioned, was of this kind, and at the westward. I removed this symptom, and recovered the patient, by giving repeated doses of calomel and jalap, some perspirative medicines, and afterwards the bark, wine, &c. Each purge, in this case, lessened the degree of yellowness, very apparently. The other instance of intense yellowness, which I saw, was in this town, in the case of the pregnant woman, whom I have mentioned to have died in the fever. This woman's fever never had distinct intermissions. Several slight attempts were made to administer the bark; but it would not do. Perhaps my timidity in the use of evacuants, on account of her situation, was injurious to her.

The Bark did not suspend the paroxysms, in this disorder, in as short a time as it does in common intermittents; but, if the patient was properly prepared, and the use of it was persevered in, it never failed to have the effect.

Purging was probably useful in a twofold way: First, by carrying off the superfluous bile; which was, evidently, secreted and excreted in a preternatural quantity: Secondly, by reducing the sthenic diathesis, which was, perhaps, always present, in the early stage of the disorder.

It is true, that those whose fever was suspended by the bark, were subject to frequent relapses, and to a long and lingering state of convalescence. This drew an odium upon that medicine; and many were

induced to believe that it was owing to the use of it that people were so long in recovering, and, of course, that it was improper. I am convinced, however, from very attentive observation, that those who did not take the bark, but suffered the fever gradually to wear away, as it sometimes would, were equally subject to those inconveniences. Indeed, this seems to be the nature of the disease. The old people in this town, who recollect the times when disorders of this kind have prevailed here before, and when the bark was not at all used, inform me that those who were afflicted with them, were a long time in recovering.

It seems that, in all cases, when patients have got rid of the fever, either by means of the bark, or otherwise, there remains an increased disposition to the formation and excretion of bile, and that this humor accumulates in the primæ viæ, till it first destroys the appetite and occasions nausea, and then excites a spontaneous discharge by stool or vomiting, or a relapse of fever, or both. A continuance in the use of some laxative medicine, after a recovery, has a tendency to prevent these effects; and, if strictly attended to, would probably prevent them, and perhaps obviate the disposition to relapse entirely.

In reflecting on phenomena of this kind, the human mind is anxious to fix on something satisfactory as their causes. Specific contagion, I am convinced, was in no instance, which came under my observation, either here or at the westward, the cause of the propagation of the disorder. That marsh effluvia, to whose action the inhabitants of some parts of this town are subject, is the exciting cause, and is necessary to the production of the disorders in question, is beyond any manner of doubt. This is evident from

their existing only where this influence extends. But something more is wanting; otherwise we cannot account for their prevailing in some years, and not in others. Every circumstance relative to the ponds\* and marshes in this town has, apparently, been the same, for many years past; and yet very little of this form of disease has appeared, for ten or twelve years back, until the two last. We must either suppose a peculiar constitution of the atmosphere, occasioning a predisposition to these disorders, and coinciding with the local cause, or marsh effluvia; or that the marsh effluvia itself is, by some peculiarity of the atmosphere, wrought up to a higher pitch of virulence, and thus produces a higher degree of disease. I am inclined to admit the latter supposition, as I am convinced that the fevers which have prevailed here, for two or three years past, and the common intermittent fever, are the same, only differing in degree. I have seen all degrees, from the mildest form of intermittents, to the most extreme of bilious remitting fever. It is impossible to say where the line of division shall be drawn. The disease this year seems to have formed a connecting link between intermittent and bilious fever; and, were I to name it, I would call it a bilious intermittent. Should the intermittent fever, in its usual form, prevail next year, the disorder may be said, in the three years, to have been in regular gradations run through.

SHEFFIELD, NOV. 30, 1795.

\* I have endeavored to discover the cause why the sickness in 1794, was confined almost entirely to the South, and in 1795, to the North-Pond; but I can find no local circumstances to have existed which should produce sickness about one, and not about the other, in either of these years.

*J.*

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L E T T E R S

TO

WILLIAM BUEL, PHYSICIAN,  
SHEFFIELD, MASSACHUSETTS,

ON THE

FEVER WHICH PREVAILED IN NEW-  
YORK, IN 1795.

BY E. H. SMITH.

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PHYSICS 309  
LECTURE 1  
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## Advertisement.

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THE following letters were written at the request, and for the information, of a medical friend, with whom the writer has long been accustomed to correspond, both on professional and general topics. Being composed originally without any view to the press, and nearly finished before the idea of publication was suggested, they will need much indulgence for many defects of expression and method, which the writer has not leisure to correct. Much, too, must be pardoned to that pruriency of style, and positiveness of decision, into which persons in habits of fraternal intimacy are apt to fall, and which the laws of epistolary intercourse do not forbid. A careful revision, would, doubtless, have rendered these letters more acceptable, in these respects, and have chastised them of those repetitions of sentiment and expression, which, though partially avoided in transcribing for the press, still occur too frequently. But this was impossible. A further, and more satisfactory, apology may be expected, for the opinions which they contain;—considering the youth, and supposed inexperience, of the writer. It is not improbable that hasty and unfounded opinions have crept into the following pages; opinions unsupported by fact, and which informed reason would disclaim. If such there are, no person can be more desirous, than he who has delivered, to discover them, or more ready to relinquish them. But a conclusion against an opinion should rest on some better foundation than the age of him who maintains it. To those who think otherwise, the words of the learned Van Swieten may not impertinently be addressed.

“ Honor and respect are due to physicians, eminent from their long and extensive practice of this salutary art ; but they, on their side, ought not to be supercilious, nor despise the advice of younger professors. If even a gardener may sometimes speak to the purpose, how much more may not this be expected from physicians, though young, when regularly educated and diligent in their profession : they have an opportunity of observing the whole course of a disease and its successive changes, while the others, overwhelmed with business, view in haste some of those circumstances only which happen in the time of the disease, and are obliged to collect the rest from ignorant nurses, who do not always tell the truth. The public good will be most promoted, if the fire of the young physician be moderated by the mature discretion and experience of the old practitioner ; nor let these, while they instruct, be ashamed to learn.”\*

\* Comment : on the 1413 aphorism of Boerhaave.

NEW-YORK, MAY, 1796.

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## LETTERS ON THE FEVER OF 1795.

### LETTER FIRST.

#### *INTRODUCTORY.*

**I**N compliance with your wishes, and in return for the communication with which you lately favored me, relative to the diseases which prevailed in the neighborhood where you reside, for the last three years, I have put together all the scanty information I possess, respecting the fever which was the occasion of so much distress to this City, in the last summer and autumn.—I regret my inability to communicate a more minute and specific statement of facts; and the more, as there seems little probability, at present, that any person, qualified for the task, will undertake it. Various circumstances conspired to narrow the sphere of my observation; and this may have led me into erroneous conclusions, which more extensive practice and wider observation would have corrected in me, and may have corrected in others. But, how faulty soever my reasonings may be thought, I must demand absolute and entire credit for my facts. In these, I cannot well have been deceived: for the very circumstances which rendered them few, made me more attentive, and gave me leisure to be accurate. There is but one possible way in which any falsity can be chargeable on them; and this might be, were I to pretend to decide that the course of the disease was always such, as when it came beneath my notice. But you will understand me strictly. I

describe what I saw ; and mean only *then* to make a remark general, *when* I so express it, and when I find a concurrent opinion on the part of many. In my reasonings on facts, you will not blame me for taking a range somewhat wider ; for, should I, in my way, light on some truth, interesting and important, it will well repay you for the fatigue of accompanying me ; and, should I not, your friendship will excuse me, in this instance, as it has often done before. Of one thing further you ought to be forwarned : That, concerning every thing connected with the fever of 1795, where opinion may be exercised, there is variety of opinion. And as, in this contest of jarring and hostile opinions, but one can have justice on its side, I would have you follow mine, with diffidence, into the field of controversy. Victory does not always incline the balance on the side of right ; but even should mine deserve defeat, it will suffer in the company of myriads.

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LETTER SECOND.

*An account of the situation and peculiarities of that part of the City in which the Fever most prevailed, in 1795.*

THOUGH the fever continued to extend itself, to the last, yet it never became general over the city ; and, for a long time, it was mostly confined to a particular district. As the season advanced, the peculiarities of this district may be supposed to have become common to a larger portion of the city ; and their extension to the whole only prevented by the setting in of winter. To the district alluded to, the East river, from Long-Island ferry to Mr. Rutgers's,

forms the eastern boundary ; the northern reaches from thence to Division-street ; thence westerly, down Division-street, Chatham-street, the extremity of Pearl-street, into William-street, to Franckfort-street, down this last to Gold-street, through that to Beekman-street, along which the line proceeds to Pearl-street, as far as the Market, down which it should be continued to the river.—The space included in these bounds, is *all* over which the fever, according to the best of my remembrance, exerted any power, till after it had reached its height ; when it extended down Water-street, a little below Wall-street, and proved very mortal. It is true that there were a few persons affected in various other parts of the town ; but, during the greater part of the prevalence of the fever, it was principally active in the north-eastern and middle parts of the district comprehended as above : and, as a thorough knowledge of the peculiarities of this portion of our city is, in my opinion, indispensable to the history of the disease which afflicted it, I cannot doubt your patience with the minute description I think it necessary to give.

The first and most obvious remark, on the greater part of the district, just pointed out, is, that it is the lowest, flattest, and most sunken part of the whole city. Some places are much more sunken than others ; but the whole space is evidently so, compared with the adjacent ground ; and appears to have an inclination, more or less observable, in different streets, to the East river. This inclination is very considerable in Dover-street ; a street which is said always to have suffered from fevers of this kind, during the hot season. From the division of Pearl and Cherry-streets, down the latter, the descent is rapid, to some where near James's-street ; about which is the lowest part of the street, and from whence it is nearly level

to the northern boundary. Beyond this bound, the ground rises again; and the made ground, by the river side, is also somewhat elevated: so likewise, is the whole of the ground over which the westerly line passes—through Division, Chatham, &c. streets. Thus you will perceive, that the part of the city where the fever was most active, for the longest period, forms, as it were, a basin, having its side, nearest the water, a little inclined. Within this basin, there are several smaller cavities; one of which, in particular, will require a further description. Those streets, also, which are not included in this hollow, but which lie along the river, will require some attention; which shall be given them.

The extreme irregularity in the disposition of the streets, and the narrowness of the greater number of them, are great obstacles to a free ventilation of this city. This misfortune, common to every part of it, falls with peculiar heaviness on that district which has just been spoken of. The comparatively high and neighboring lands of Morrissania and Long-Island, receive almost solely the benefit of breezes from the north-east and east: The Sound, which divides them from the city, being too narrow to add much force and freshness to a breeze nearly spent on their heights. North, the island rises into little hills, from which the wind passes on to the high parts of the city; rarely visiting the low and intervening space; unless it may be the topmost rooms of the houses: and, as the houses are generally low, the effects of a wind from this quarter must be inconsiderable.—North-westerly, there is somewhat more of an opening; but even this is small. West, south west, and south, the other parts of the town, which are higher, and thickly settled, break the force of the gales from these points. So that, thus situated, this quarter of

the city, though it were perfectly well laid out, would have but little chance for a free ventilation: irregularly disposed and narrow as the streets are, we must be convinced of the impossibility of its receiving the necessary supply of fresh air. You will understand me as speaking of a thorough ventilation, and in the sultry season, when it is most necessary: a partial supply of air, equal to the support of a feverish existence, it undoubtedly obtains.

Much of the ground, in the northern part of this district, is swampy, and abounds with little pools and puddles of stagnant water. This was especially true last summer and autumn; there being great rains, and no adequate means for conducting off the water. Indeed, so flat are some of the *paved* streets, in this quarter, that the rains did not run down the gutters, but continued in little puddles, and were evaporated from the places whereon they fell. In the new streets, which are unpaved, and without any gutters, numerous imperfect ditches assisted the disposition of the water to stagnate. These places were often muddy, when the southern part of the town was dry; and the steams from them very offensive, when the dry streets, towards the North river, were perfectly sweet.

Several of the paved streets, and indeed the greater number, in the district of which I am speaking, are narrow and crooked; some with neither side walks nor gutters, and by far the largest portion of them, miserably built. Most of those which are unpaved, are, in all respects, still worse; the buildings chiefly wooden, and placed on the ground; the old ones falling to decay; the new, but imperfectly finished. Of them all, it may be remarked, that they are much exposed, some of them more than others, to the full

influence of the docks, whatever that may be, and it cannot be salutary; or to that of a broiling sun, from early in the morning, till the middle of the afternoon; and some of them, to both.

So much for the streets, generally: a few particulars, concerning some of them, are necessary to the formation of a perfect idea of this district.

A line, drawn from the corner of Ferry and Pearl-streets, up the latter, to where William street enters it; then down William to Franckfort, and through that, a part of Gold and Ferry-streets, to Pearl-street again, will form the ridge of a new cavity (included in the principal boundaries above mentioned) which seems contrived, by art, for the dwelling place of fever. This court-yard of the palace of death, is divided by several dismal lanes, courteously denominated streets; such as Vandewater, Rose and Jacob-streets, &c. which form the borders to innumerable tan-yats. The whole is one vast tan-yard, the firm parts of which seem to have been constructed by art in the midst of an extensive quagmire. To this place, as far as I can discover, there is no outlet. Think what must be the condition of it, in the months of August and September!—Yet human beings live here; and habit renders its noxious exhalations, in some sort, harmless to them. It is remarkable that few persons, regularly inhabiting this hollow, died of the fever last year. To those, whose evil destiny led them to seek a new dwelling place there, it proved highly pestilential.

Dover-street is a short, narrow street, running from the beginning of Cherry-street, down to the East river; and contains near twenty buildings.—The descent, from Cherry into Water-street, is very

rapid. As the exposure is nearly to the east, it receives the whole effect of the sun, from 6 A. M. to 3 P. M. in the summer. The descent makes it easy to keep the surface of the street clean; though it prevents a free ventilation. But it has been raised, several feet, since the buildings, which are mostly low, were erected; so that the road is, in many instances, up to the middle of the lower story windows; leaving the cellars to the houses, and cellar kitchens, without a communication with the street. The yards remaining as before, are, of consequence, much lower than the street; without vent; and, of necessity, all the water, and filth of every kind, which gathers in them, must there stagnate, ferment and putrify. Add to this, some of these yards are capacious, and contain little, decayed, wooden huts; sometimes built directly on the ground; and containing, oftentimes, several families.

Water-street, above Dover-street, is chiefly composed of low, decayed and dirty wooden buildings. This street being either made-ground entirely, or raised like Dover-street, the same is true of the situation of the houses and yards. And, lest any of the filth, or water, should drain off, from any of the yards, the western side of Water-street has been kindly converted, by the enlightened zeal of the directors of these affairs, into a perfect dyke; which answers its design, most completely, by preventing even the slightest leakage. Beside, as this street lies directly on the water, it has the benefit of the whole force of the sun, the greater part of the day; and of the exhalations from the docks; which are here in great number, and in the highest state of their perfection. There is, however, a better opportunity for fresh air, in this, than in some other streets. Yet even this is an advantage which the rage for im-

provement threatens to transfer to a new street, still further out in the river; which, if completed, may form another dyke, to the increased pleasantness and health of this quarter of the town.

Of Roosevelt, Catharine, James, Oliver, &c. streets, nearly the same remarks are true as of Dover and the upper part of Water-street: for though they are somewhat wider, straighter, and have more good and new buildings in them, yet they are raised in the same manner, have sunken yards, and under-ground apartments; and Roosevelt street has an open sink, where the drippings of the tea-water pump, after having gently collected all the filth in their way, are received; and being just enough to keep up a constant dropping, and not enough to wash the gutter, or the sewer, the stench is most intolerable, during the sultry months.

To many other of these streets the same remarks will apply; and to some with aggravated force: but what has been said, will, perhaps, be sufficient to aid your imagination in the conception of a just idea of their condition: I mean of their necessary and unavoidable condition.

Of the Docks, it may be enough to mention, generally, that they are badly contrived in every part of the town; and worst of all, in this part; being broken up into numerous little wharves, thus forming narrow slips, where the ground is left bare at ebb tide; and where vegetable, animal, and excrementitious matters, being thrown in, at all times, instead of being cast into the stream, ferment, putrify, and render the stench truly pestiferous. Indeed, this is so much the case, with all of them, in the summer, that, except to persons habituated to their exhala-

tions, they are absolutely intolerable; exciting, in persons of a delicate make, immediate vomiting; and in others nausea, indigestion, head-ach, or some temporary illness, when exposed to them but a short time.

In addition to the above-related facts, concerning the condition of the streets, in that part of the city where care was most needed, it may be remarked that, at no time, was there ever so great an apparent inattention to preserving them clean. Besides the impediments which the level nature of the streets, in many parts of the town, presented to the draining off of the filth which is constantly accumulating in large towns like this, artificial impediments were permitted; as if death were not sufficiently active, and needed the aid of the magistrate. In all the streets where buildings were going forward, the workmen were allowed to restrain the course of the water, in the gutters, by forming little dams, for their convenience in making their mortar. The effect of this stoppage of water was so great, that even in Broadway, one of the streets the best calculated of any in the city for free ventilation, in that part of it where the new Tontine Tavern was building, the stench was exceedingly offensive. And in this condition was it allowed to remain for near two months; though it was almost under the windows of the principal magistrate of the city. If this were true of the widest, and one of the best aired and cleanest streets, of New-York, what think you was the state of those narrow, crooked, flat, unpaved, muddy alleys, mentioned above? No one can form even a faint idea who has not walked through them, in the middle of some one of those deadly, suffocative days, which we experienced in September last.

But this is not all: beside those masses of semi-putrid vegetable and animal matters—cabbage, turnips, the heads and entrails of fish, &c. which, at all times of the year, out of compassion to men who might be usefully employed as scavengers to the city, are allowed to complete the putrefactive process, undisturbed, in the middle of the streets,—the sight and the smell were shocked, at every turn, by dead rats, fowls, cats, dogs and pigs. So remarkably was this the case, that I question whether there could have been found a single street, alley, or even bye-lane, of any tolerable length, which did not lend its aid to render this exhibition full and frequent.

The preceding statement, melancholy as it may appear, will convey a very inadequate idea of our misfortune, in respect to situation, without special information concerning the season, as it appeared here, during the reign of the fever; and a knowledge of the people who mostly inhabited these parts of the city, and on whom the severity of the disorder was mostly inflicted. With this knowledge I shall endeavor to furnish you; but the length which this letter has already acquired will excuse me, to you, for postponing the attempt, to a future opportunity.

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LETTER THIRD.

*Some Account of the Season of 1795.*

PHYSICIANS, from the earliest ages of medical record, have remarked that great peculiarities and irregularities of season, have exercised an unfriendly influence on human health: And Hippocrates, himself, takes

notice of the difficulty, which hence arises, of forming a proper judgment, and adopting a suitable method of cure, in those diseases which occur under such circumstances. The importance of this division of my subject, makes me regret that it is in my power to furnish you with no other than general information. You will be the more ready to overlook this defect, when you recollect that I do not pretend to deliver a history of the fever, and are informed that there is some probability that this particular defect will be supplied by another hand.

Generally, then—every one knows that the summer and autumn of 1795 were excessively sultry and excessively wet. Every article of household furniture, or in use about a house, susceptible of mould, was speedily and deeply covered with it. It seemed to penetrate places where we should have deemed its appearance impossible. A friend of mine found a pocket-book of Morocco leather quite mouldy; though it was in the drawer of a private desk, inclosed within a large desk—both of which were usually locked—and covered by papers. Boots and shoes hung up by a wall, near a fire-place, heated every day, contracted mould within twenty-four hours.

Meats spoiled in the market-place uncommonly quick; and those which were brought home, apparently fresh and good, in the morning, were often found unfit to be eaten, when cooked and brought upon table.

Esculent vegetables, in general, and especially fruits, were unusually poor, tough and tasteless. The peach, particularly that called the cling-stone, was scarcely digestible; and often occasioned temporary

illnesses, quite severe, while it doubtless aided in the production, or aggravation, of the fever.\*

Flies were very numerous and troublesome, in every part of the city, in the beginning of summer; but they suddenly disappeared, about the middle of July, from the more airy parts of the town, collecting in swarms, in the less healthy parts, and succeeded, every where, by clouds of musketoes, incredibly large and distressing: and these continued to afflict us, long after the time when they commonly depart. Almost every person suffered exceedingly from the bites of these insects; and foreigners especially. In some they occasioned universal swellings, and eruptions, somewhat like Pemphigus; and in others numerous little ulcers. These last, a physician of my acquaintance, saw even in a native American. The irritation, restlessness, and consequent watchfulness and fatigue, occasioned by these animals, no doubt predisposed the well to be affected by the fever; while they extremely harrassed the sick, and retarded their recovery.

During the whole of this season, I remember but one thunder-storm; and this was very gentle. There was but a single *hard* clap of thunder, for more than four months, that I remember; and very little thunder and lightning, at any time.

\* Vegetable growth was uncommonly rapid and abundant, in the summer of 1795. I mention this that no mistake may arise from the above remark concerning esculent vegetables. The more rank they grow, beyond a certain degree, the more tasteless they are; and the influence of a wet season, in rendering roots and fruits tough, as well as insipid, is well known.

It is worthy of remark, that many fruit-trees, plumb-trees in particular, blossomed a second time, last year, and produced an imperfect and second crop of fruit.

Our rains, excessive in quantity and frequency as they were, seemed to have lost their wonted power of cooling the air. In those streets, most unhealthy, and least ventilated, this effect was, in a degree, observable ; but, in the airy and healthy parts of the town, on the contrary, they never failed to render the heat more intolerable ; and the steams from the hot pavement were like those of a vapor bath. The clouds, too, seemed to shut out every kind of breeze.—One of these heavy rains, which continued two or three days, seemed to possess all the qualities of steam. It pervaded every recess of the houses, and dissolved the best glue—so that furniture, in many instances, which had been long standing, fell in pieces.

Fogs, which Dr. Lind enumerates among the signs of an unhealthy climate, and causes of diseases—page 134 of his Essay on hot climates, &c.—prevailed in the city, and spread over all the most unhealthy parts, in particular, in a remarkable manner,—in the evenings—for a considerable part of September and October. The oppression, thickness, stench, and un-comfortableness in every respect, of these fogs, was very uncommon. In a physician, who, in the performance of his professional duty, was exposed to their influence several hours, one night, they produced bleeding from the gums and fauces, and black and fetid stools.—On the city watchmen, however, they had no such effects. About the first of October but one person had died out of their number ; and he was a man who returned to the city, a little before, and resumed this occupation, after having been some time absent in the country.—Whether this security of the watchmen is to be attributed—as it is by Dr. Rush, to the influence of the cool night-

air\*, or to that of habit, I leave others to decide. It is not impossible but that both may concur in producing this insensibility to the cause of disease in others.

To this imperfect account of the season, which, defective as it is, appeared to me too important to be omitted, I have one fact to add, on the authority of a gentleman distinguished for his attention to meteorological phenomena. He informs me, that no Aurora Borealis has been seen, of any magnitude, in our country, north of Pennsylvania (as far as he can learn) for near four years, till the latter end of September 1795; and adds, that his father, a respectable clergyman, now about 70 years of age, who noticed the same absence of these appearances, remarks, that, according to his uniform observation, some uncommon sickness has never failed to follow a long continued disappearance of these phenomena. How far the experience of other observers will tend to confirm this statement, I have had neither time nor opportunity to inquire. And, if it be admitted as indisputable, it may still be questionable, whether this is to be regarded as a cause of disease, or whether this disappearance and disease, be not co-ordinate effects of a common cause.

\* Page 35 of his account of the Fever of Philadelphia: "I ascribe it to the *habitual* impression of the cool night air upon the bodies of the city watchmen," &c. By habit, as used above, is meant that condition of the body which is produced by customary exposure to any particular impression; and I design only to suggest a probability that the watchmen escaped the fever, as much from their having been rendered by habit insensible to the influence of the effluvia, &c. of the unhealthy parts of the city, as from the influence of cold.

## LETTER FOURTH.

*Some circumstances relative to the principal sufferers by the Fever of 1795.*

IT is a fact, generally admitted, I believe, that, of those who were sick and who died of the Fever of 1795, the greater number were foreigners: persons, either just arrived from other States, from the West-Indies, and from Europe; or who had not been many months, or years, settled in this city. It is probable that the proportion of citizens, who died, to strangers, did not exceed one to seven. Of these strangers, it is thought, a large number were Irish; and there are some reasons why this should be true; but I cannot pretend to know it to be so, from my own observation. The causes productive of disease in foreigners, in those of this nation in particular, are numerous, and some of them deserve particular attention. This I design to bestow upon them, after remarking, that, both among natives and foreigners, the severity of the disease was experienced by the poor.

I. Dr. Blane, in his observations on the diseases of seamen, remarks, "that it sometimes happens, that a ship, with a long established crew, shall be very *healthy*; yet, if strangers are introduced among them, who are also *healthy*, sickness will be mutually produced;" and Dr. Rush, in the first volume of his "Medical Observations and Inquiries" takes notice of this remark of Dr. Blane's, and confirms it, by a reference to the experience of our country, during the late war. These are his words—"The history of diseases furnishes many proofs of the truth of this assertion.—It was very remarkable, that, while the American army at Cambridge, in

“ the year 1775, consisted only of New-England  
“ men (whose habits and manners were the same)  
“ there was scarcely any sickness among them. It  
“ was not till the troops of the eastern, middle and  
“ southern states, met at New-York and Ticonderoga,  
“ in the year 1776, that the Typhus became univer-  
“ sal, and spread with such peculiar mortality in the  
“ armies of the United States.”

It is unnecessary to enlarge, in this place, on the oppressions and distresses of what are called the lower order of the people in Europe. War, which doubles the burthens upon every rank in society, exercises an aggravated violence upon the poor. This violence, severely felt by all, in England, chiefly falls upon the manufacturing poor; who are, at the same time, the most ignorant, abject and depraved: in Ireland, its effects are more general, including in its circle of wretchedness, the cultivator, as well as the mechanic. The present war in Europe, unparalelled as it is for the number of men involved in it, has given birth to oppressions and calamities equally new and destructive. Under these circumstances, and when men of fortune and respectability, disgusted and disheartened at the enormous mass of misery which every day and every hour presented to their view, turned their thoughts towards another hemisphere, it is not to be wondered at, that the wretched and depressed poor should pant for a settlement in a country, where liberty is the portion of every man, and independence the sure crown of all his honest labors; and which had been, *fallaciously*, represented as courting their acceptance, and loading their untoiling hands with every gift of fortune.—The real blessings of our government and country are precious and inestimable; but they are of a nature not to be felt and enjoyed by minds depraved by ignorance and debased by slavery.

That temperate enjoyment of the goods of life, and moderate exercise of the blessings of independence, which, alone, enlightened liberty sanctions, can neither be conceived of, nor relished, by those who have been accustomed to crouch beneath the iron rod of despotism. Liberty, according to their ideas, was the reverse of all they felt; and independence, the unlimited gratification of all their appetites. The misrepresentations, too, of speculating and unprincipled men, who were interested in the sale of large tracts of unsettled territory, had fostered and extended these erroneous conceptions. Hence, when the poor and miserable emigrants, on their arrival here, found that neither gold, nor farms, solicited their acceptance; that, in America, as well as in Europe, their life was alike destined to be a life of toil; when they perceived that licentiousness, the only liberty of which they had any notion, brought punishment along with it; the disappointment, new and unexpected, became a powerful aggravation to every other cause of disease. You will not understand me as extending these last remarks to all emigrants to this country, nor suppose that deceived hope was present, or active, in every case. On some, even of the better sort, it undoubtedly had a very pernicious influence; on the poor and friendless, effects still more melancholy.—But to return:—Two motives, then, poverty and oppression at home, and the hope of independence and wealth abroad, concurred to draw to the United States, an astonishing number of the inhabitants of Europe; and as these motives were mostly active among the very poor and very wretched, people of this description emigrated in the greatest number. Of these, the largest portions fell to the share of the States of Pennsylvania and New-York; and the most worthless and profligate, probably, rested in the capitals of those States.

The distreffes in the West-Indies, especially those occasioned by the destruction of Cape Francaise, obliged numbers of the islanders, white, mulatto and black, to take refuge here. This circumstance, harmless, in great measure, to the people themselves, can scarcely be considered as so, in relation to the whole. Whatever effect it may have had, all things considered, it seems irrational to suppose it to have been good.

This collection of strangers, from various parts of Europe and America, which had been rapidly forming for two or three years, was greatly increased by repeated arrivals of large importations from Great-Britain and Ireland, during the fall of 1794, and the spring and summer of 1795. One or two ships came into this port, after the commencement of the fever, filled with emigrants.

If, then, the opinion of Dr. Blane, corroborated by the testimony of Dr. Rush, be founded in truth; that the sudden intermingling of people of various and discordant habits, climates and nations, be a circumstance favoring the production of disease; this cause of fever was certainly present, in New-York, in the year 1795.

II. "Men who exchange their native, for a distant climate, may be considered"—says Dr. Lind, page 2d, of his Essay on the diseases incidental to Europeans in hot climates—"as affected in a manner somewhat analogous to plants removed into a foreign soil; where the utmost care and attention are required to keep them in health, and to inure them to their new situation; since, thus transplanted, some change must happen in the constitutions of both.

“Some climates”—he continues—“are healthy and favorable to European constitutions, as some soils are favorable to the production of European plants. But most of the countries beyond the limits of Europe, which are frequented by Europeans, unfortunately, prove very unhealthy to them.”

The healthiness and unhealthiness of a climate, or the effect wrought on the human constitution by a change of climate, must be more or less considerable, according to the extent of its connection with other circumstances. How far such a connection was observable in this city, in respect to the Fever of 1795, will appear by and by.

Two remarks may be made, concerning the emigrants from the West-Indies. The first is, that they generally bear the first winter, after their arrival in the middle and northern states, better than the natives, while they are less incommoded by the summer heats. The second is, that they suffer less from Fevers, during the sultry season, than Emigrants from Europe. It seems difficult to explain the first mentioned fact; the second I shall attempt to account for, hereafter.

The climate of this part of America differs from that of Great-Britain and Ireland in the intenser cold of its winters; more extreme and longer continued heat of its summers; and the greater variableness of its temperature.

The great body of emigrants come over to America in large companies, crowded together in one ship, and ill-accommodated in every respect. After a long voyage, under such circumstances, they must be sensible, in an uncommon degree, to the influence of a new climate, and to every sudden variation of

temperature. If they arrive, as is often the case, in the sultry season, the effects of a change of climate must be felt in all their force. The heats of the summer must render them less able to cope with the ruggedness of the following winter; as the severity of the winter makes them more unfit to endure the scorching sun of the succeeding summer. This will account for the suffering of many who had passed a season in the country before.

To this it may be added, that, in 1795, the climate must have been particularly bad; since it may be supposed to have preternaturally affected the natives of the country. This being admitted, it is not difficult to conceive of its having had a pernicious influence on strangers; and being, therefore, fairly enumerable among the causes predisposing to the fever of this season.

III. An animal diet, or a great use of animal food, especially in summer, and when there is general disposition to fevers, is thought by many physicians, of our own and other countries, to favor their production; and a vegetable diet, on the contrary, to be a preventative, or preservative, against them. This, also, was the opinion of the humane and celebrated Howard, who is known to have abstained from the use of flesh, for many years previous to his death.—Both theory and fact seem to concur in establishing the truth of this doctrine; for a satisfactory illustration of which I may safely refer you to the publications of Drs. Rush and Mitchill.

The proportion of animal, to vegetable food, eaten at the best provided tables in America, is so great as to astonish a European. This may be said of the country generally—but is especially true

of the cities of New-York and Philadelphia. An objection, too, has been made by Europeans, particularly by the French, to our mode of cooking meats. They complain, and with apparent justice, of the imperfect action which fire is allowed to exert upon them; and represent us as little better than the Abyssinians, who devour a part of the ox, while he is yet expiring.—It is certain that a great change is observable in the appearance and kind of diseases, in the United States, since our citizens have substituted fresh meats, for salted, in summer.—Some reasons may be assigned for this effect, which would countenance the opinion of the French; but they will suggest themselves to your own mind, and would require more room than I can allow them, in this place.—But, surely, if meats be prejudicial to health, in our hot seasons; if they expose us, by their use, to diseases of the kind, which prevailed here, last year; how peculiarly must this evil have been felt by us, when they were in a condition so uncommonly bad as the year 1795.—If the wealthy often had meats brought upon their tables, in a state of incipient putrescency, what must have been the state of those which were consumed by the poor?—Add to this, that the vegetables principally used among us, are not distinguished for their ascendency.—These remarks apply to all ranks of our inhabitants; and plainly shew that the situation of our city, the last year, was unusually bad, in this respect, for natives, as well as foreigners. Other circumstances assisted to heighten the evil, in relation to these last.

The poor of Europe, and especially of Ireland, are but sparingly accustomed to the use of meat. In that island, it is not uncommon for people to pass through life, without ever having tasted it, except by stealth, accident, or on holydays.—In this country, the great

use of meat produces a comparative scantiness in the supply of vegetables ; and a proportionate poorness and dearness of them. This is sufficient to determine the choice of the poor towards the use of meat ; and produce, in the emigrant poor, an almost total and sudden change, in their aliment. When, too, we recollect that animal food is more gratifying to a depraved taste ; that it provokes to greater repletion, than vegetable food ; that it is more necessary to hard laborers ; and that it is most craved by those who indulge in the habitual use of ardent spirits ; we are alive, at once, to the full perception of the mischievous effects arising from such a substitute, to their former bland and scanty meals. In those, with whom this change of diet took place the last year, for the first, the consequences must have been still more pernicious. For we ought to consider that if the poor always consume the worst provisions, those who were strangers, as well as poor, were least likely to procure those which were good ; and the slightest observation is sufficient to convince us, that their bad qualities could not have been much obviated by the preparation common among the consumers.

May we not, then, conclude—that the aliment used by the citizens, generally, was favorable to the production of disease—and that the great and sudden change of diet, among the emigrants, considering the nature of their food in 1795, must have disposed them, in a particular manner, to be affected by the fever of the country ?

IV. If unwholesome aliment assisted in the production, or aggravation, of the fever of 1795, improper drinks were scarcely less active, to the same end.—The use of ardent spirits, among all classes of citizens, and especially among the laboring classes, is af-

tonifhingly great and general, throughout the United States. No country in the world, in all probability, consumes an equal quantity, in proportion to its population. In vain has the eloquence of the most enlightened phyficians and moralifts been exerted againft them, for centuries : governments conftitute it the intereft of individuals to prepare and circulate them ; they withhold from men that knowledge which would teach them to fhun, or elevate them above the ufe of, intoxicating liquors ; and prejudices are excited and foftered in their favor, that the ignorant and depraved, to whom they form a congenial gratification, may continue to consume them ; to the deftruction of morals, the emolument of diftillers, and the augmentation of the revenue. As they are more eafily and cheaply obtained in America, than in Europe ; as the wages of laborers are more confiderable here, than there, and therefore permit them greater indulgences ; as there is every encouragement from example ; and as a fiercer fun, according to common notions, juftifies a more prodigal ufe of them ; it is naturally fuppoftible that the emigrants of the laboring clafs indulged in them, to an unufual degree. Unqueftionably, the ufe of intoxicating liquors was highly pernicious to thofe moft accuftomed to them ; to thofe not fo habituated, it was, as unqueftionably, ftill more pernicious. In Philadelphia in 1793, when the fever was prevalent, Dr. Rufh remarks that—“ a plentiful meal, and a few extra glaffes of wine, feldom failed of exciting the fever.” With us the difeafe was lefs ferocious and lefs active ; but, as if no means of caufing it to become more fo were to be neglected, an idea was, moft unhappily circulated—and, it fhould feem, was countenanced by perfons bearing the title of phyficians,—that free living, the plentiful ufe of vinous and ardent liquors, was a pow-

erful preventative of the fever. The dreadful consequences which a belief of this sort produced, were numerous, and shocking to the last degree. The fear of death, so active in ignorant minds, when once aroused; idleness, the parent of every vice, and listlessness, the consequence of want of employment; all conspired, with this pernicious doctrine, to effect the ruin of numbers. Never, I believe, was drunkenness so common. Not a day passed that I did not meet persons reeling through the streets, or stretched on the pavement—sometimes in the noon-day sun, unsheltered, and sometimes exposed to the heaviest rains. I have seen three men, lying in this condition, in one little street. These were all, as you may suppose, among the most depraved of our poor; and most of them were foreigners.

Is it possible that conduct such as this should fail of giving new activity to every other cause of disease?

V. I have, in a former letter, given you some account of the condition of that part of the town, where the Fever most prevailed; it is now to be noticed that it is in that district that the greatest number of the poor, especially the emigrant poor, reside. In those numerous miserable dwellings, were these wretched people crowded together; many families in one house; and not infrequently many families of different nations. In some instances, a single room in one of those half-under-ground huts, served as bedroom, kitchen and shop, to a whole family; while underneath them, a cellar, half filled with mud and water, sent up its pestilential steams; and under their window, a yard in the same condition, was rendered still more noxious, by receiving the offals cast out from every part of the house.

VI. But, if the fordid and almost unavoidable filthiness of their dwellings were promotive of the disease, under which the wretched inhabitants languished or suffered, still more so, in some instances, must have been their inattention to personal cleanliness.

It was well remarked, *formerly*, by a foreigner, of the English ladies, and is applicable, with but little deduction to our own fair country-women,—That they were *whited sepulchres*; beauteous and clean, without; but within——You know the rest.——

Were our country-women disciples of Zoroaster, they could not more studiously hold sacred the element of water.—How many of those house-wives, how many of those maidens, the cleanliness of whose houses, and the neatness of whose apparel, we often have occasion to admire and commend, think you, have applied to any other parts of their persons, than their hands and faces, this purifying element?—The infrequency of bathing among both sexes and all conditions, especially among females and the poor, in America, is surprizing.—In this respect, the emigrant poor are in no wise more commendable; and, in every other kind of cleanliness, still more backward. The French, alone, exhibit a laudable conduct, in every grade of life, as *personal ablution* is regarded.

\* “ Who can come in, and say, that I mean her;  
 “ When such a one as she, such is her neighbor?  
 “ - - - - - Let me see wherein  
 “ My tongue hath wrong'd her; if it do her right,  
 “ Then she hath wrong'd herself; if she be free,  
 “ Why then, my taxing, like a wild-goose, flies  
 “ Unclaim'd of any one.”

AS YOU LIKE IT.

To every physician, who knows the importance of cleanliness to health, and how rigid an attention to it is necessary, in Fevers, especially in those which are called malignant, it is useless to insist on the consequences of negligence in this particular.

I shall conclude this letter with a few remarks, which the subject naturally inspires.

The preceding statement is strictly applicable, in all its extent, to great numbers of those who were sick of the Fever of 1795. Your own mind will suggest to you that there must have been many exceptions; and, likewise, among whom those exceptions were to be found.

You will learn, from it, that circumstances unfriendly to foreigners were more numerous and forcible, in more instances, than to natives; and will perceive, at the same time, what is appropriate to each, and what common to all.

It will, further, be evident, that, though some of these causes may have been sufficient, singly, to create a predisposition to disease,—and probably did, in some instances, create it; yet, that predisposition must have been more considerable, and the disease which followed more severe, in proportion to the combination of two, or more, of them.

It now remains to take a comprehensive view of the results furnished to us by this letter, in connection with the two immediately preceding it; but this I shall defer to another opportunity.

## LETTER FIFTH.

*Recapitulation of Facts, and an Opinion concerning the  
Origin of the Fever of 1795.*

FROM the statements contained in the preceding letters it appears, that the Fever of 1795 was most active in

## SITUATIONS—where—

There was the least chance for free ventilation ;  
 Where the sun exerted the greatest and longest influence ;  
 there was the least drain for water and filth ;  
 the rains which fell stagnated ;  
 there were, constantly, stagnant pools ;  
 the streets narrow, crooked, unpaved ;  
 the houses partly under-ground, wooden, decayed or slight ;  
 there were considerable collections of vegetable and animal matters suffered to remain and putrify ; and  
 where the exhalations from the sewers and docks extended :—

The fever first appeared and continued to be mortal in a

## SEASON—

which was unusually sultry and wet ;  
 throughout which esculent vegetables were scanty and poor ;

meats tended rapidly to putrefaction, and were often consumed in a state of incipient putrescency;—

During which—

Insects were very numerous and noxious ;

there was scarcely any thunder and lightning ;

there were several violent and sudden alternations of heat and cold ; and

the city was, in the evening, often immersed in a very peculiar and pernicious fog :—

The Fever proved most fatal—

to the poor ;

to emigrants more than natives ;

to the emigrant poor most of all ;—and they—lived in situations, mostly, such as above-mentioned ;

were, often, crowded together, in such houses ; mingled, without distinction of nation, climate and habits ;

changed a mild vegetable, for an animal diet ;—perhaps a semi-putrid animal diet ;

were chiefly laborers in the open sun ;

were unusually intemperate ; and

were inexcusably inattentive to the cleanliness of their houses and persons.

Such are the facts :—what inferences would reason, unperverted by prejudice, interestedness, or ignorance, deduce from them ? How would she decide

on the so-much-agitated question of *domestic*, or *foreign*, origin?—Were a rational being to see hundreds of men, women and children, removed from a temperate and equable climate, to a climate subject to the extremes of heat and cold, and to sudden and excessive alternations of temperature; were he to observe this removal to take place in crowded, ill-provided, ships, which were a long time at sea, and whose arrival was at such a time as to subject them to the rigors of a winter, severe beyond their knowledge, and under all the inconveniences attendant on poverty, ignorance, and vice in a strange land—or to the terrors of a summer equally intolerable to them, from its inexperienced fultriness; were he to view them, after sustaining, one, or more, such seasons, or immediately, exposed to the influence of a season sultry and moist beyond the common course, in this new climate; should he learn that they exchanged oppression for licentiousness, and, in some cases, found all their hopes illusory; that they substituted a scanty supply of wretched vegetables and a gluttonous use of semi-putrid, ill-cooked, meats, for a sparing consumption of mild and healthy vegetable food; that they were often persecuted by swarms of insects, whose bites raised swellings or caused ulcers, when, till now, they had been unaccustomed to any; should he see them indulging, habitually, in the use of intoxicating liquors, to which many of them had hitherto been strangers; were he to find them dwelling in narrow, unpaved, funken, and illy-ventilated streets, in which large collections of putrid matter were allowed to remain, where there were puddles of stagnant water, or open sewers, and in the neighborhoods of pools or docks, whose noxious qualities were heightened by the admixture of putrefying vegetable and animal substances;—were he to discover the houses in which they dwelt, to be decayed or slight, and

sometimes pervious to sun and rain,—in part, below the surface of the earth, and with yards equally low, and in the condition of the pools and docks above-mentioned; should he, on entering these habitations, find them mingled with emigrants from various other climates, or with natives of that to which they had removed, equally debased, and perhaps still more so, than themselves—with people of discordant habits, colours, languages and countries,—and all, alike, inattentive to personal and household cleanliness;—I say, were a rational being to observe all this, and perceive all the circumstances, just enumerated, to be concurrent, in respect to time, would he, think you, find it necessary to recur to the East or to the West-Indies, for causes of disease? Would he deem it of much importance whether a single man died on board this, or that, vessel? Or whether contagion might, or might not, be imported?—Would not these circumstances, of themselves, when viewed in connection with each other, and compared with the known and established laws of health and disease, impress on his mind, with all the force of intuition, a conviction of the domestic origin of the Fever of 1795? Is it possible that he should have any other opinion than that the causes, cure, and prevention, are equally local, and disconnected with the prevalence or absence of similar diseases in other countries? But, certain as I feel that this must be the inevitable conclusion from a candid attention to the facts above-displayed, I am pleased to be able to declare that it is unnecessary to trust to their testimony, alone, for support to the opinion derived from their consideration.—*No direct, no clear, evidence, ever has been, or can be, produced, in favor of the opinion that the Fever was imported.*—I shall defer the attempt to substantiate this assertion, to a future opportunity; in the mean time, permit me once more to remark—That,

though *all* the circumstances, enumerated in this letter, as concurring to produce the Fever, did, oftentimes, in reality concur, it is not to be supposed that they did so uniformly. So much is true, beyond dispute—A concurrence of the greater number of some, or other, of them, was observable in a vast majority of the cases of sickness. More than this was not necessary:—for, expose the most temperate and cleanly native, to the full influence of all the causes predisposing to this fever, beside those which his birth, cleanliness, and temperance, would disarm, and his chance for continued health must have been small; especially, after the additional aid which they, questionless, derived from great numbers of sick and dead, and from the reign of terror. The number of natives, of this description, who died, was very inconsiderable; and, of those few, perhaps there was not an individual whose situation, constitution, or office, did not peculiarly expose him to the attacks of the Fever. To which may be added, the chance of his falling a sacrifice to an inert, or destructive practice.

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LETTER SIXTH.

*On the Evidence of the Importation of the Fever of 1795.*

“ No direct, no clear evidence ever has been, or  
 “ can be produced, in favor of the opinion that the  
 “ Fever was imported.”

The authority on which the advocates of importation chiefly rest, for the support of their doctrine, is, as far as I can discover, the letter of the Health Committee to the Governor, of the 8th of September

1795; or, more properly, on what is there reported to be the fact.—I shall quote, from this letter, the passage referred to.

“ On the 20th day of July, Doctor Malachi Treat, the late Health-Officer of this port, visited the brig Zephyr, from Port-au-Prince; on board of which he found three persons ill of fever, and the corpse of one who died that morning. The Doctor calls the Fever, in his report, a Bilious-remitting Fever. The brig was ordered to ride quarantine. On the 22d day of July, Dr. Treat was taken ill, and died on the 30th, of a fever marked by a yellow skin, hemorrhages, vomiting of black matter, resembling coffee-grounds, and all such symptoms as characterize bilious fevers of the malignant kind.—On the 25th day of July, four persons, from on board the ship William, from Liverpool, which arrived here several weeks before (all the crew having, previous to that day, and during the voyage, been perfectly healthy) were taken ill of Fever, attended with similar symptoms; and all died within seven days.

“ This ship lay at a wharf at the foot of Dover-street, in the *south-easterly*\* part of this city, which lies exceedingly low, is much of it made-ground, has an eastern exposure, and (from the streets having been raised, about three years ago, which threw the lots and yards into hollows of considerable depth) is almost unavoidably liable to great collections of offal, and filth of all kinds; is a part of the town very much crowded by poor inhabitants, and contains a great number of lodging-houses, in which seamen and strangers of the poorer class, com-

\* A mistake of the Press for—*north-easterly*.

“ monly reside ; and ever has suffered most from the  
 “ regular autumnal diseases, as well as from any new  
 “ and uncommon complaint. From all which cir-  
 “ cumstances, we entertain no doubt but that the  
 “ seamen of the ship William contracted the disease,  
 “ of which they died, here, and did not introduce it  
 “ into the city.

“ A little before, and immediately after, the attack  
 “ of the seamen of the ship William, which first  
 “ called the attention of this Committee, several other  
 “ persons, in Water and Front-streets, and in the  
 “ neighborhood of Dover-street, were seized with  
 “ fever, which, especially in those cases which proved  
 “ mortal, was marked by severe vomitings, a yellow  
 “ skin, hemorrhagy, and, in some cases, a vomiting a  
 “ black matter, resembling coffee-grounds,—and  
 “ which generally terminated within seven days, and  
 “ proved fatal to more, in proportion to the number  
 “ seized, than is usual in the ordinary complaints of  
 “ the season, in this city.”

Two remarks of considerable importance are natu-  
 rally suggested by a careful examination of the above  
 quotation : First, that the Committee appear to have  
 supposed Dr. Treat, alone, to have received the dis-  
 ease of which he died, from the Zephyr ; and, se-  
 condly, that they have, in some sort, admitted the  
 possibility of such a disease as the Fever of 1795,  
 originating here, in their statement of the circum-  
 stances relative to the ship William. It is true that  
 they are inexplicit, in both instances ; and the only  
 absolute conclusion which we are justified in deduc-  
 ing from what they say is, that the disease was not  
 introduced into this city by the ship William. This,  
 however, narrows the ground of controversy, confi-  
 derably ; for no vessels beside the William and the

Zephyr, as far as I can learn, have ever been suspected of introducing any disease, of this kind, into this city. It is necessary, therefore, only to disprove the assertion, in respect to the Zephyr, and the whole foundation of the doctrine of importation is destroyed.— But, even were we to admit that Dr. Treat did actually derive the fever of which he died, from the Zephyr, as no other person is known to have been infected by that vessel, and as the doctor communicated it to no person, the advocates for importation would not be greatly benefited by our concession. But, no such concession is necessary. The following papers, copies of which I am kindly permitted to transmit to you, appear to me, to establish it, beyond contradiction, that neither Dr. Treat, nor any other person, contracted a Fever, such as prevailed in New-York, in 1795, from any sick, or dead, man, or any thing else, connected with the vessel in question.

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NO I.

*Letter from the Captain of the brig Zephyr, to Dr. Dingley.*

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*New-York, Sept. 8, 1795.*

SIR,

Having been informed that many people have reported that the late Health-Officer, of this port, caught the disease with which he died, on board the brig Zephyr, I have thought it a duty which I owed to the public, to contradict the report.. This, I trust, will be satisfactorily done, to the minds of all reasonable men, by my deposition, taken before C. Dunn,

jun. one of the justices for the city and county of New-York; which I desire you to publish, for the information of the citizens, as soon as you may think proper.—My departure from this city is the occasion of giving you this trouble.

I am, sir, your friend &  
humble servant,

COMFORT BIRD.

Dr. Dingley.

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NO II.

*Captain Bird's Deposition.*

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Captain Comfort Bird, commander of the brig Zephyr, of Boston, sailed from Port-au-Prince on the 1st of July, and arrived at New-York on the 20th of the same month. The mate and one mariner had the Fever and Ague seventeen days on shore, and came on board with the same disease; and the captain himself had a Dyfentery on his arrival in New-York;—and John Wheeler, aged 16 years, died on the day of the arrival of the brig at New-York, by worms crawling up into his throat and choaking him. He was sewed up in a piece of canvass, and ready to be committed to the deep, when the late Health-Officer came on board, who desired the captain to have the canvass opened, that he might inspect the body—and he only cut the canvass open over the face, and viewed the countenance, but did not make any other examination of the body,—which was, soon after, carried to Governor's Island, and there interred.—The young

man who died as above-mentioned, had suffered chronic complaints, but no fever of a dangerous nature.—Eighteen passengers came in the above brig, all in good health,—who have continued in this state to the present day.—Three days after the above event, the Health-Officer visited the same brig, in as good health as usual.

Signed

COMFORT BIRD.

Sworn before me, this seventh day of September, one thousand seven hundred and ninety-five, in the City of New-York.

C. DUNN, JUN.

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OF the undoubted veracity of Captain Bird I am assured by Dr. Dingley, who is personally acquainted with him, and attended him, at the time, for the dysentery mentioned in the deposition. The opinion, therefore, that the Yellow Fever, or a contagious disease, was brought into the city, last year, by the brig Zephyr, seems wholly unsupported by evidence. Neither is it necessary that any imputation should rest on the memory of Dr. Treat. He saw the mariners after they had been long affected by the Fever and ague, and perhaps with some fever upon them at the time; and from the yellowness of the skin, common to the advanced state of that disease, especially in hot climates, might be easily induced to suppose it a remittent. This, however, is mere conjecture, and not necessary to be admitted, since the fact of the men having been sick seventeen days, previous to their embarking for our coast, is ample proof that they could not have been affected by the fever which prevailed and was

so mortal, here.—Indeed, the whole testimony in favor of the idea of importation, is too loose and slight to build any rational opinion upon. The very words of the Committee are calculated to strengthen a contrary opinion, if rightly considered; for they not only countenance the idea that the people of the ship William became sick from the unhealthiness of the place where they dwelt, but, also, that the Fever had made its appearance, in various other of the neighboring houses and streets, previous to their being seized with it. And what confirms the truth of this opinion is, that persons were taken with the distemper, about this time, in other parts of the city, who had no connection with the brig Zephyr, nor with any other vessel, and whose illness may be satisfactorily accounted for from their situation, in other respects. An instance of this kind fell under my own observation, the last of July; several similar cases have been related to me; and one, if I am not misinformed, occurred in the New-York Alms-house, where the disease was distinctly marked, before Dr. Treat's illness.—The following statement of facts, too, will convince every candid mind, that we ought to look at home, for the cause of this Fever.

The ship Connecticut came to Fitch's wharf, about the 20th of July—I think it was on the 21st: she had just arrived from some part of England, and the people were perfectly healthy. No vessel suspected of being infected, came to this wharf, during the season; though the ship William lay at the next wharf, at the distance of about two hundred feet,—and Mr. Fitch gives the most positive assurances that all the articles in his store, at this time, were in good condition. At this wharf the ship Connecticut continued till after the middle of August. The owner was employed about the ship, great part of

the day ; but ate and slept in an airy part of the town. The people of the ship either stayed on board, or at public houses near by.—On the evening of the 25th of July, the owner was seized with the fever ; I saw him the 27th ; he had good accommodations, was in a favorable part of the town, in the third story of the house, and recovered after an illness of about ten days, which was never very dangerous, though the attack was severe.—About this time, one of the mates, the steward, and two of the mariners, of the ship Connecticut, were seized in the same way, and with the same symptoms, as the owner. They continued in the ship, or its neighborhood, and all died. I did not see them, but was informed, by the owner, that the mate, in particular, *vomited large quantities of blood, and expired delirious.*

Three persons, who were in Mr. Fitch's store, were taken sick, and two died, of the Fever. One sickened on the 26th of July, one on the 6th, and the other on the 9th of August. It was common for all these persons to sit "several hours, in the morning, in the store, with empty stomachs,—inhaling "the effluvia of the night."

One of the first persons, who died of the Fever, was one "who lived at the head of the wharf, and "had been confined for several months with a rheumatic complaint."

For the facts contained in the two last paragraphs, I am indebted to a communication from Mr. Fitch to Dr. Dingley, which that gentleman has allowed me to make use of on this occasion. The account which it contains of the condition of the wharves in his neighborhood, adds new force to the other testimony in favor of the opinion that the Fever originated here ; and is too much to the purpose to be omitted. These are his words :—

“ I am positive that the disorder has originated  
 “ from local causes—because, it has appeared in this  
 “ quarter, at the same season, for several years past :  
 “ the cause why it has is, to me, mysterious ; but  
 “ what appears to me most probable is, the central  
 “ situation, and the motion of the tides. The  
 “ tide of flood sets directly into these wharves ; col-  
 “ lecting all the vapors and effluvia of the city.—  
 “ The situation of the ground, between Water and  
 “ Cherry-streets, is rendered noxious by raising  
 “ Water-street, and confining the stagnant waters.—  
 “ The emptying of tubs into the head of the docks,  
 “ instead of the end of the wharves, although not  
 “ peculiar to this part of the city, is a horrible nui-  
 “ sance ; particularly in time of sickness.—The pon-  
 “ ding of water, by running a bulk-head athwart a  
 “ dock, and leaving the vacancy for years, to be  
 “ filled up with every species of filth and putridity, is  
 “ an object worth your attention.”

A confirmation of the facts, and some of the opi-  
 nions, contained in this extract, may be found in a  
 very singular epistle from the late Dr. W<sup>m</sup>. Pitt Smith,  
 to Dr. Duffield sen. of Philadelphia, dated Septem-  
 ber 1st, 1795 ; which I presume you have seen and  
 are possessed of.

On the whole, though I am not prepared to main-  
 tain that infectious diseases, and the Yellow Fever  
 among others, may not be, and have not been, im-  
 ported, and thus spread over parts of our country,  
 yet this is the most that can be allowed to the coun-  
 tenancers of the doctrine. For, after all, the testi-  
 mony of numerous facts furnishes clear, indubitable,  
 and decisive evidence, that other and peculiar cir-  
 cumstances must concur with such importation, to

effect any general distribution, circulation, or influence of the disease. Frequent instances have occurred, nay do occur every year, of persons returning, from the West-Indies, sick with the Yellow Fever; languishing, for some time, in the houses of their parents, or friends; recovering, or dying; attended by numbers, during their illness; their very clothes, where they have died, afterwards worn by their relations; and yet no ill effects following therefrom.—While I resided at Wethersfield, in Connecticut, I had opportunity of obtaining precise information of several such cases; and it is a well-established fact, in many instances during our Fever, and especially during that of Philadelphia, in 1793.

The whole, therefore, that can be granted, or ought to be assumed by those who maintain the disease which prevailed in New-York in 1795, to have been imported is,—That infection may be brought into any place (and therefore into this city) from abroad; that, under certain circumstances of the place, where it is introduced, it becomes very active and destructive; but that, when these circumstances do not exist, however the person immediately affected,—if it be introduced by a sick person—may suffer, it is harmless, so far as the general health of that place is concerned.—If the subject were viewed in this light, as most assuredly it ought to be, the question of importation, or non-importation, would sink into it's merited insignificance; the efficient cause, the *causa sine qua non*, of such Fevers, would be clearly discerned as depending on local circumstances, capable of being wholly changed; the absolute madness of further delay, in effecting such a change, would be distinctly and deeply felt; a becoming spirit would animate the citizens; and suitable exertions speedily place us beyond the possibility of

being subjected to a misfortune, similar to that which has been already sustained. For it is inconceivable that the nature and extent of the evil should be understood, and the remedy not be applied: and a comparatively slight and temporary sacrifice of property, would render this city, in reality, what the mistaken policy, or pride, of some of its inhabitants now falsely represent it,—as healthy as any in the world; and leave nothing to fear, either from the Fevers of the Indies, or the Plague of the Levant.—But, while people continue to foster a ridiculous vanity, concerning the city in which they reside; while they fear that its reputation will be wounded, by permitting an idea to get abroad, that it is unhealthy; while those engaged in commerce cherish the error, from an apprehension that their interests would suffer from a disclosure of the truth; while men, invested with the sacred character of physicians, countenance false opinions, either through ignorance, a reprehensible timidity, or that they may gather undeserved popularity and wealth; and while the magistracy are more actuated by a mean regard for offices dependent on popular opinion, and maintained by a compliance with it, at all hazards, than by a just and enlightened zeal for the safety and happiness of their fellow-citizens; Truth may be spoken, but there is no hope that it will be attended to. Considerations of *supposed* interest, so various and so forcible, take deep root in the minds of men who look only to the present moment, and are either incapable of comprehending the whole of a subject, or unwilling to bestow on it the necessary consideration. Thus circumstanced, they strive to banish from others, and to smother in their own breasts, those convictions which irresistible evidence forces upon them: as if it were possible that truth could be noxious.—Nothing can be more melancholy than to observe this wilful blindness, this obstinate persistency in error, the consequences of which

have been so dreadful already, and threaten to be still more so hereafter.—Were it possible to impress the truth vividly on the minds of the great body of citizens; to rouse men into action; to excite a generous disregard for temporary advantages, and a lively interest for the future welfare of themselves and their posterity; a few weeks might enable us to bid defiance to death, in many of the forms in which he now assails us.

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LETTER SEVENTH.

*Was the Fever of 1795 an Epidemic? Was it Contagious?*

HAVING determined, to my own satisfaction at least, what were the remote or predisposing causes of the Fever of 1795, I might now proceed to a description of the disease itself, were it not proper to take some notice of two questions, which have been considerably agitated, viz. Whether the Fever was, as the Health Committee term it, an Epidemic?—And, as some suppose, Contagious?—On both these questions, I shall deliver my opinion, in as succinct a manner as the subject will permit.

*Was the Fever epidemic?*—A principal difficulty occurs in the very outset of this enquiry; for different writers have made use of the term Epidemic, differently; some giving it a *general*, others a more *particular* and *precise* signification. Thus Van Swieten, in his Commentary on the 1380th Aphorism of Boerhaave, places *epidemic* in contradistinction to *endemic*; while Cleghorn, a writer of deserved authority, in the Introduction to his Observations on the Diseases, &c.

of Minorca, p. 74. constitutes a class of *endemic* diseases, which he divides into *epidemic* and *sporadic*.—Examples of like dissimilarities, in the use of these words, are frequently to be met with, in authors of equal credit. And thus it may possibly happen, in the present instance, as on many former occasions, that the whole contention arises from different conceptions of the import of a particular word.—But our business is rather with facts, than with definitions; I shall state to you, therefore, what appears to me to have been the truth; and, perhaps, in the conclusion of my statement, a definition will be found.

In the first place, every person conversant with the practice of physic in New-York, knows that a Fever, generally of the remittent or continued kind, and variously denominated by medical writers, prevails in this city, to a greater or less degree, every year; perhaps I may say throughout the year—but, certainly, in every part of it, except the winter, and particularly from July to December: its greatest height being in the months of August, September and October. The violence of this disease is increased or diminished by constitutional peculiarities, and by the particular situation of the patient in respect to air, temperature, &c. &c. Its universality, likewise, may be considered as dependent, in a degree, on the same causes.—Circumstances, peculiar to some situations or individuals, occasion it to prove mortal, with high marks of malignity, in certain instances, almost every year. That an extension of these peculiarities, so as to make them common to the citizens generally, would produce the same effects on the many, as on the few, seems hardly controvertible. Now, this appears, to me, to have been the case, the last year; and I have no doubt of the identity of the Fever which then raged here, with that which has prevailed here in

former years ; and consider it only as a higher grade of the same disease.—Compare the history of Fevers, in Sheffield, with that of Fevers in New-York.—We have a Fever, every year, at a particular season, usually called the bilious-remitting Fever : in Sheffield, at the same season, a Fever prevails, called the intermitting Fever. This last evidently depends on the peculiarities of Sheffield—such as its ponds, marshes, &c.—So, in my opinion, does the former arise from the peculiarities of New-York.—The season of 1795 was a remarkable one : Was there any apparent change in the Fever of Sheffield? Yes : the symptoms were remarkably heightened ; some new appearances were observable ; and the disease astonishingly obstinate. And was not this, also, true of New-York? Who will venture to deny it?—Were either of these Fevers propagated to other, or neighboring, places? No. You have certified this of the Fever in Sheffield; and I have heard of no instance of the kind, in relation to that of New-York. Both Fevers, then, were *proper* to the places in which they prevailed ; and the inference which it would be natural to deduce from this is, that both were *endemic*, and not *epidemic* : for the term epidemic seems to include in it the capability of diffusion or propagation, without respect to the situation and constitution of the patient ; which the term endemic certainly does not. But, whichever of these titles may be regarded as most appropriate, the fact will not be varied by the use of either ; and that you will understand to be, according to my belief, as above-stated : That the Fever of 1795 was no other than a higher grade of that which prevails here, in the same season, every year ; deriving its severity entirely from the peculiarities of the season, &c. as related, at large, in the preceding letters.

*Was the Fever contagious?* Concerning the answer to be made to this, as well as to the former question, there has been some dispute; but, in this case, as in that, as much difficulty has arisen in settling the import of the phraseology, as in determining the fact.

If by the question it is meant to inquire, whether the well became affected with the Fever, in consequence of the contact of a sick person, or the cloathing of a sick person, or from the performance of the offices of friendship, charity, and meniality, to those who were sick,—I answer that no such cases have come to my knowledge; whereas numerous instances of such contact fell under my observation, and have been related to me, to which no ill effects succeeded.

A number of persons, not less than ten or twelve, removed, with the Fever on them, from New-York to Stamford, 40 miles; but no person in Stamford, beside them, ever had the disorder.

Mr. Fitch, the gentleman mentioned in the preceding letter, attended the young men who had the disease with him, and to use his own words, “lodged in the bed, warm with the effluvia of the body of the young man who died at his house”—and nevertheless, he had no Fever.

Dr. Treat, according to the account of the Health-Committee, and of his physicians, died of the very worst degree of the Fever; yet he communicated it to nobody.

A patient of Dr. Dingley’s, in Ferry-street, who was seized with the disease, without any previous communication with any sick person, and as early as the 17th of August, and who died with it, communicated it to none of his attendants. And the same is true of several other patients of the same gentleman.

The writer of some ingenious strictures on Dr. Mitchill's Pamphlet, remarks, in a note subjoined to his first paper, that he has, "in common with many of his fellow-practitioners, indulged, *without the smallest ill effect*, a much more frequent intercourse with his patients, in this disease, than usual," &c. And the Doctor himself, though he admits the possibility of such fevers becoming contagious, or being propagated by contact, &c. expressly denies the Fever of 1795 to have been so.

But there would be no end to an enumeration of similar facts; I shall only add, therefore, that I made use of no precaution whatever, in respect to such communication with patients; that I have been, for more than two hours, shut up in a small room, with a person laboring under the worst symptoms of the Fever; have watched several nights, and performed the most servile offices, with a near friend, who was sick with it; and never sustained the least inconvenience from such exposures\*.

But, perhaps the advocates for the Contagious, or Infectious, nature of the disease under consideration, do not intend to confine the meaning of the term Contagion to that substance, whatever it is, which is generated in an unhealthy body, and by application to a sound body, excites in it a similar unhealthiness. They may mean to describe, or designate, by it, that structure, constitution, or vice, of the atmosphere, which disposes to, or excites disease. If so, they are in fault—for they employ the same term to designate two different facts.—But let us not dispute

\* I might superadd to all this, the *ambiguous* testimony of another Physician, who, in proof of the uninfected nature of the Fever, affirmed that he had "had thirty patients with it, and had taken the breath of all of them."

about words. Perhaps, the following statement of my opinions, will lead us to the formation or attainment of some more accurate notions on this point.

Owing to a variety of causes, which have been enumerated in the course of these letters, I suppose the atmosphere of New-York to have become vitiated, in 1795, to an uncommon degree: that there was either an unusual absence of that principle necessary to support healthy life, or an extraordinary concentration, diffusion, or quantity, of some other, unfriendly to healthy life. From the operation of one, or other, of these states of the atmosphere, and of the causes above-mentioned, on the bodies of the residents in this city, I suppose a predisposition, greater or less, according to the situation and other circumstances of individuals, was formed, in the citizens, generally, to the Fever which prevailed here that year. With some persons, this condition of the atmosphere, of itself, might be sufficient to produce in them disease. But, ordinarily, I believe, the aid of some cause, which should disturb the regularity of the distributions, or functions, of the body, was required to bring the system into a state of febrile action. Such, for instance, as intemperance in eating or drinking, sudden fright, fatigue, or indeed, any considerable irregularity in what Systematics call the Non-Naturals.

This condition of the atmosphere, I suppose, acquired strength, daily, as the season advanced; or, in other words, the power of the atmosphere, &c. to predispose to the Fever, was increased, as the season progressed. I say to predispose,—for I suspect it seldom, of itself, produced the disease, after that had attained its height, in those who remained here con-

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stantly. Though, on persons coming into the city, from abroad, it doubtless operated with much greater force, in many cases, than on the citizens, at any time. This is easily accounted for, from the known effects of custom. For

“ The monster Custom, who doth, &c.

“ - - - - - is angel yet in this.”

The systems of those who continued here became habituated to the atmosphere; and while those who came here from the country, with ruddy faces, sunk down in death, the pale and yellow beings who stalked through our streets, derided disease, and pursued their customary occupations.—But, to return from this digression.

Not only am I convinced of the accuracy of the preceding ideas, but I have no doubt that this vice of the atmosphere was rendered still greater by exhalations from the bodies of the sick.—It is a point well-established in medicine, that the air of a room is rendered unfuitable for respiration, if a number of healthy persons are obliged to breathe it over several times, without the admission of fresh air from abroad. So injurious is such a confinement, in respect to air, to the human body, that it has, in numerous instances, produced terrible febrile diseases. And if such effects arise from the repeated breathing over the same, or nearly the same, air, by healthy persons, we should naturally conclude, as is the fact, that such repeated respiration (especially when united with the constant exhalation from their bodies) by the sick, must be still more pernicious to health.—You will pardon me for the introduction of remarks so trite and familiar, for the sake of the use I wish to make of them; which is no other than this—I have mention-

ed it as my belief that the state of the atmosphere was such, in this city, the last year, as, in conjunction with the general influence of the causes producing that state, to predispose to, and, in some instances, produce, the Fever; and that this ill-conditioned atmosphere was rendered still more noxious by means of the numbers who became sick, in the course of the season; and to this I would add, for the reasons contained in the remarks above, that I think it not improbable that some were affected with the Fever, in consequence of the further vitiation of the atmosphere by the sick, who, without that circumstance, would have remained free from disease. So, likewise, there may be persons, the balance of whose health is so tremulously sensible to every external influence, as to preponderate to the side of disease, on the slightest impulse of its causes. With such, the mere contact of a sick person, or a transitory exposure to the effluvia arising from a sick body, may be sufficient to produce Fever; and instances of this kind may have happened, in the course of the Fever in question. Such cases, however, must have been extremely rare, if there were any; and no one has ever come to my knowledge.—But, with regard to Fevers produced by such a state of the air, as above-described, even when aided by the mixture of human effluvia, arising from sick bodies,—if these are to be called Contagious diseases, and the cause which excited them Contagion, so, likewise, may all other Fevers on the same principle, continued, remitting, intermitting, Fevers,—be called Contagious, and their causes, as marsh miasmata, &c, Contagion.—Now, to such a use of terms I have not the least objection, provided the person who employs them, be uniform and explicit in his application of them.

To conclude,—If, in speaking of the Fever of 1795, the epithet Contagious is meant to express that it was communicated by contact, &c. like the Small-pox, Meazles and Plague, I must repeat it, I find no good reason for admitting this to have been the fact; but, for the reasons before alledged, I think there is just ground for a belief that the Fever was never excited in this way. But if, on the other hand, the term Contagion be meant to convey an idea of the influence of the atmosphere to predispose to, or produce, disease,—whether that influence arise from the abstraction, or addition, of a principle, or be distinct from human effluvia, or combined with them—there appears no reason for denying the Fever of 1795 to have been Contagious.—Still, as the term Contagion is not generally used in a sense so restricted, as in this second instance, but is often employed by the same writer, to express both the cause of the disease communicated by contact, &c. and of that produced by the influence of the atmosphere, there seems to be a propriety in rejecting it altogether, in the present instance, or at least in confining the use of it, to designate a single mode of producing disease; and, according as it is applied in the former or latter instance, the Fever of 1795 may be denominated Contagious, or the reverse.

I have now gone through with the consideration of all the subjects, preliminary to an account of the disease itself. In my next letter, I shall lay before you, the result of those scanty observations which I had opportunity to make.—Knowing the causes of their imperfections, you will not fail of extending your charitable indulgence to their author.

## LETTER EIGHTH.

*Some Account of the Symptoms of the Fever of 1795.*

AFTER the frequent confessions, which occur in the preceding letters, of the circumscribed sphere of my observation, it were presumptuous in me to pretend to deliver a regular history of the symptoms of the Fever of 1795. You will observe, from the account which I shall transmit to you, that the appearances it exhibited were too various to authorize such an attempt in any one who had not opportunity to examine them, in relation to numbers of the sick. It is proper, therefore, that I warn you, once more, to consider what is here delivered as the result of my own observation only—except where it is expressly mentioned to be otherwise.

The Fever of 1795 was, generally, sudden in its access; so much so, in some instances, as to resemble convulsions. In a less number of cases, it came on gradually, and after a slowly-increasing illness of several days. It began with great pain of the head, heat and redness of the face, and fullness and redness of the eyes, accompanied by a strong, full, tense, pulse, and an almost universal costiveness. Pains in the back and limbs were common; but not as much so as of the head. A great inquietude, or anxiety, of the stomach and breast, was common; approaching, sometimes, to syncope, and sometimes a vomiting, which soon ceased, or continued, at intervals, through the disorder.—The Fever which now commenced was rarely ushered in by a chill, and con-

tinued for a greater or lesser period, according to circumstances, with so many varieties and combinations of symptoms, as to render it impossible to pursue a regular description. I shall, therefore, dispose my remarks under several heads; preserving as much connection as circumstances will permit.

I. Though the *pulse* was generally full, strong, and tense, in the beginning of the Fever, it was not always so. It was sometimes weak and low, but still tense—if it be proper to use this term, to point out a condition of the pulse, as it appears to me, wholly peculiar to this Fever. I well remember that, in a youth of 12, or 13, years of age, the pulse became much fuller after a plentiful bleeding; though he was of a feeble constitution, and had been slightly affected with the Fever once before.—In two gentlemen, who were considerably affected by the Fever, for several weeks, but not to such a degree as to be confined to their beds, this peculiar pulse was very distinguishable; as much so, I think, as in any other persons whose pulse I examined.

Hemorrhages, from various parts of the body, were frequent, especially in the advanced stage of the disease, and where it had been violent from the first. These were from the nose, fauces, especially the gums, from punctures made in bloodletting, and from the stomach: I saw no other. Bleeding from the nose and fauces often occurred in the beginning of the disease, and was removable by the general remedies. Bleedings from the punctures made in bloodletting, were seen in the close of the disease, and were restrained with the greatest difficulty. I recollect to have been constantly engaged in an attempt to restrain such a hemorrhage, in company with another physician, two of the most melancholy hours I ever

experienced. Hemorrhagy from the stomach I shall mention more particularly hereafter.

II. Symptoms of pulmonic affection were not uncommon; though I do not recollect to have observed them till the last of September, or beginning of October. They sometimes rose nearly to the height of pneumonia.

Hiccough was a troublesome symptom, and often accompanied vomiting; and there was sometimes, as it appeared to me, a mingled hiccoughing and belching.

III. The marks of congestion in the brain were too numerous and unequivocal to be mistaken.—A violent pain in the head was one of the earliest, most constant, and most distressing, symptoms of this disease.—Coma was a very frequent symptom; and, as I thought, in proportion to the severity of the disorder. Towards the close, it amounted almost to total stupefaction; it being scarcely possible to rouse the patient. Some degree of delirium was common; particularly at the commencement of an exacerbation of the Fever; manifesting itself in the hurried manner in which the patient performed any action, and in the rambling manner in which he conversed. That kind of delirium which some have called *light-headedness*, was remarkably present, in one person, at the close of his disorder. He often started up, wildly, without any apparent object, then lay down, and commenced singing, in an interrupted, incoherent manner; but without any violence. And the day before his death, he continued to sing, with slight intervals, more than an hour.—At other times, he would fix on some particular words, and repeat them over and over; sometimes, with no appearance of emotion; at others,

with some glimmering of consciousness.—In another person, a patient of a physician of my acquaintance, the affection of the brain was like that in Phrenitis. A blistering-plaster applied, if I remember accurately, for 24 hours, to the head, which had been shaven, excited no vesication, and scarcely any redness, though twice the usual quantity of cantharides was incorporated, and the patient was of a delicate habit. In this case the affection of the brain took place on the third day, and the patient died on the fifth or sixth.—On examination and dissection of the contents of the cranium, all the membranes, and the very substance of the brain, were discovered to be in a remarkable and uncommon state of inflammation.—I have been the more particular in relating this case, as it seems to contradict, in a degree, the ideas of Dr. Rush, p. 50, of his History of the Philadelphia Fever: our season having been unusually *wet*.

As connected with the state of the brain, it may be proper to mention here, that the *eyes* were often suffused, the whites of them tinged with yellow, and the small vessels turgid with blood. In some patients they had an expression of singular wildness; while, in others, there was a remarkable vacuity, or absence of expression.—I saw no instance of squinting; nor observed any uncommon state of the pupil: but I ought to acknowledge that my attention was not particularly directed to the condition of the eyes, in this respect.

The state of the mind was very variable. Some were exceedingly impatient and irascible; others, astonishingly obstinate; and this particularly, when, as was often the case, there was a loss of memory, or some degree of mania. A strong appeal to their good-sense, calling them by name, seemed to effect a temporary restoration of their docility and recollection,—

which were soon lost.—Many were very confident, at first, supposing their illness not be the Fever; but gave themselves up to despair, immediately on being convinced that it was the Fever. Many were full of dreadful apprehensions, from the first; and oftentimes, exceedingly aggravated what would have been, otherwise, a slight disease. A few, were calm, collected, undaunted, throughout their sickness. And here it may not be unseasonable to remark, that these same varieties were, in a degree, observable in those who continued well. Some physicians thought they could discern a tendency, among the citizens, generally, to mania. It is certain that fear was a terrible evil, and frequently proved the exciting cause of the Fever.

IV. I have remarked that a great anxiety at the *stomach* was sometimes felt, on the patient's being first seized with the Fever. This anxiety, it may now be added, in some cases, extended through the complaint; but was most distressing when the Fever was most violent. A great sense of soreness was often complained of, when any thing was taken into the stomach, *as if it were raw*;—to use the words of one in whom it was observed. In some, the sensibility of this organ was so excessive as to make it almost impossible to administer, either food or medicine, by the mouth.

Patients were often afflicted with extreme pain in the bowels; but more resembling that in dysentery, than in cholera. A discharge, generally, afforded a present relief.

Flatulency, both of the stomach and bowels, was almost universal, and to an extraordinary degree.—The abdomen was sometimes distended with wind;

but the distension subsided after a considerable discharge of wind, downwards. This was often the case in one of my patients.

Several dissections, as I am informed by the gentleman principally concerned in them, shew the stomach to have been in a remarkable state of inflammation and excoriation. It appears to me that this disease of the stomach, or inflammation—(if it be proper to call it so) extended through the whole length of the Alimentary Canal; as it is known to do in Aphthæ and some other disorders; for one case of excoriation and partial mortification of the Rectum came within my knowlege, and I have heard of several others.

I have mentioned, above, that Costiveness was almost universal at the commencement of the Fever; but it was not always present. For though it was observable in the greater number of patients, so much so as to deserve to be ranked among the characteristic signs of the disease; and though a constant tendency to a costive state, was general in those sick with the disorder; yet, in some, the Fever was attended from the first, or for a while, by a Diarrhea; and in one instance, the whole of the Disease appeared to me to be turned upon the bowels, and to be converted into, or assume the form of a Diarrhea.

Some were seized with vomiting at the first, which was soon stopped, or ceased spontaneously, and never returned. One case of this kind, proved favorable—the patient recovering; another unfavorable, the patient dying.—In others, vomiting commenced the disease, and continued through it: while in others, again, it came on in the course, or at the

close of the disorder ; and this both in successful and unsuccessful cases.

V. The matters vomited up varied in colour and consistence, in different persons, and in different periods of the disease. The most common was of a yellowish, greenish, or a muddy green and yellow, appearance, and very fluid. Vomitings of this kind, were seen both in those who recovered, and who died ; and were both temporary and continued.—Next, in frequency, was that of a blackish appearance, commonly described as resembling coffee-grounds, but bearing a nearer resemblance to blood partly burnt, and diluted with muddy water. Several who had this vomiting recovered.—I never saw an instance of that tar-like vomit, which has been noticed by some writers. But, of all others, that which struck me as evidential of the greatest derangement of the stomach, was the vomiting up of, what appeared to be, thin blood, in which floated a flaky, filmy substance, which I suppose to have been the villous coat of the stomach.—This I saw but in a single instance, a few hours before death. This discharge was frequent, though small ; and accompanied by a large worm.

I cannot help thinking that the matters vomited up, except it be those of the yellowish or greenish cast, have all a portion of blood mingled with them ; and that their various appearances depend—aside from their mixture with the contents of the stomach—in great measure, on the quantity of blood mingled with them. It appears to me that, in this disease, the secretion of the Bile is greatly affected ; and that, in many instances, the blood itself passes into the biliary vessels, charged with the Bile, designed to have been separated, and being poured in-

to the duodenum, and discharged by stool or vomiting, communicates the blackness observed in those evacuations. Beside this, as appears from dissection, and from the case just mentioned, the coats of the stomach itself are destroyed; and the numerous little vessels, which, in a healthy state, distill into it a limpid and colourless fluid, now are preternaturally distended, receive the blood, instead of lymph, and pour it, by their numerous orifices, into this organ. This effusion of blood may be supposed to increase, as the disease increases in violence, till, at length, the tender coats of the stomach are separated, and thrown up, mingled with pure blood.—If these ideas be just, it is clear that no vomiting can be more evidential of a fatal termination of the disease, than this; none can afford a more unequivocal sign to the physician, that his attention is no longer useful\*.

The discharges from the bowels were very dark, in general, even where no preparation of mercury was used. They were, likewise, in most cases, remarkably fluid, where the bowels had been once.

\* If the ideas contained in the above paragraph are accurate, they will tend to confirm both the general notions of the disease, and of the proper mode of cure, advanced in these letters. For—

1st. The effect of Blood-letting, in stopping the *black-vomit*, may be explained on the same principle as in Hemoptoe—by weakening the circulation, and allowing time for coagulation.

2d. The reason why all stimulating substances increase the particular discharges from the stomach, is evident; and, also, why cold drinks, ice, &c. restrain them.

3d. The astonishing fluidity, or dissolution, as it is called, of the blood is accounted for, and seen fairly to correspond with the preceding circumstances: all of which—

4th. Demonstrate the nature of this disease; that it is not a disease of vascular debility:—and establish the propriety of employing evacuations, and whatever may lessen the activity of the circulations, to effect a cure.

thoroughly, opened ; and, where the purgatives were brisk, and in all severe cases, excessively offensive.— They were, sometimes, of a dark, shining appearance, somewhat like molasses, melted pitch, or black-lead. But I have seen stools of this colour, in other diseases—particularly once in the Croup—where calomel was frequently used as a purge.—I mention this, as it may sometimes happen, that physicians deceive themselves, in such cases, ascribing that to the disorder, which depends on medicines.

Some were troubled, with a retention of urine ; but, more generally, with an unusual flow ; and this in one instance, I distinctly recollect, where the quantity of fluids taken into the body, was very small.

In respect to sweating, I discovered nothing uniform. In one case, the patient always had a profuse, clammy, sweat, when he fell into a restless sleep, with a rise of fever. This was often observable, likewise, in that state of remarkable anxiety which frequently preceded an evacuation by stool.

Blood drawn in this Fever, was remarkably wanting in floridity ; and this was especially true of that which was evacuated in the close of the disease—whether by art, or spontaneous effusion. In one instance it seemed endowed with a caustic quality, and affected a lancet so as to leave a permanent inequality and discolouration of its surface.

VI. Sleep, for the most part, appeared unnatural and unrefreshing ; attended by great restlessness ; and sometimes by great mobility of the muscles, twitching of the tendons, and frequent starting up. One of my patients often raised himself up, suddenly, out of bed, with every appearance of extraordinary ter-

ror ; but with no evident or clear conscioufness of the act. In one person, I saw remarkable *subfultus tendinum*.

There was great variety in muscular power, in different persons. A man who died with the very worst symptoms of the Fever, the evening before his death, rose from his bed, ran down two flights of stairs, returned, and was only prevented from going down a second time by his nurse's having locked him in his chamber.—In another case, where the disease was mild, the patient felt perfectly easy and composed, and in full possession of mental and corporeal strength, while he lay on his bed ; but, when he rose, and attempted to walk, a sense of universal anxiety was felt, his ideas became confused, his strength seemed to desert him, a sudden faintness came over him, and twice he sunk down, unable to proceed.

An evacuation, by stool, often suddenly restored the patient, who was lifted from bed, to such a degree of strength, that he continued for some time after, to walk about the room, or sit up.

VII. I noticed no uncommon sensibility to light but in a single case ; and that was not of long duration.

Hearing, in one instance, I observed to be unusually acute ; but generally, it was much impaired ; and, sometimes, seemed to be entirely lost. Perhaps this may account for the apparent loss of memory in some persons.

The taste was either exceedingly impaired, or very fickle. The same may be said of the appetite. When the appetite began to return, and food to be relished,

the sick were very voracious, but not easily suited. They discovered no partiality for animal food. Thirst was moderate, in a few instances; but oftener excessive. I have seen Porter desired; but it was not often relished, when allowed. The same is true of coffee. Water was, universally, the most agreeable drink; and I allowed its free use. One of my patients frequently drank, in one night, when very feverish and restless, three quarts of water. The appearance of the *tongue* varied, according to the violence and duration of the disease, from white, to yellow, darkish, and black, like burnt blood; and the gums often assumed this last appearance, when there had been bleeding from them.

An astonishing insensibility to cold was nearly universal.—I remember, in one of those cold turns which we had in September, a remarkable instance of this. One of my patients occupied a chamber in the second story: the room was very large, extending the whole width of the house, and having a chimney, a large door, and two windows at either end. The bed was hard, in the middle of the room, the door and all the windows open, and he covered with a single sheet, frequently thrown off in his restlessness, yet he complained of no cold, while I was chilled through, though sheltered from the draught of air, with my usual cloaths on, and the addition of a furtout and double cloak.

VIII. Yellowness of the skin was not constantly present in this disease; at least, not in any remarkable degree. A tinge of it was common in the eyes and on the skin; but not stronger, in numerous instances, than in ordinary Fevers. Some were exceedingly yellow, even to being tawny—so that the bed and body linen were stained, both by the sweat and urine.

I saw eruptions but in a single instance. They resembled musketo bites so nearly, that, had I not been forewarned of this similarity by Dr. Rush, in his account of the Philadelphia Fever, I should have mistaken them, especially considering the numbers of these *animals*.—In this instance, the eruptions were on every part of the body; which had not been exposed to *their* ravages.

I have sometimes observed a coldness of the skin, on the body, generally, but especially of the feet, of which the patient was unconscious, while the face and breast were red and communicated a burning sensation to the touch.

IX. I have, hitherto, said nothing of the *type* of the Fever of 1795; and, in truth, it is a point on which I could wish to be silent, as, of all others, connected with the Fever, it is the one where my observation is the least satisfactory. In its mildest form, the *Fèvre* or pyrexia, appeared to me to be moderate and constant; without any evident or strongly-marked exacerbation: when severe, it fell in with Dr. Cullen's idea of a Continued Fever, as stated in his *First Lines* § 27, more than with any other: but, in both cases, I could not determine that there was any regularity in the rise, or diminution of pyrexia; on the contrary, the remission (if it be proper to term it so) was more or less protracted, and the exacerbation sooner or later, moderate or severe, in proportion as the patient preserved a regular state of body and mind, or was irregular in these respects. For example—any sudden agitation of mind, as anger, perturbation, &c. and any irregularity of body, such as eating improper food or too much food, drinking any stimulating drink, restlessness, too long detention of the fæces, &c. appeared to hurry on a return of all

the violent symptoms ; while, on the other hand, the sick never failed to get through the day with more ease to themselves, when no such excess, or irregularity, happened.

In one case which came under my care, and which various causes contributed to render the most interesting of any I attended, there were complete intermissions, during a part of the disorder ; but there was no kind of regularity, either in their commencement, or duration ; and a slight excess, in any of the particulars mentioned in the preceding paragraph, was sufficient to bring on a speedy and violent turn of Fever.

X. The period of convalescence, as well as of Fever, was variable. In the former part of the time, and before the weather began to grow cool, patients seldom died after the tenth day—as far as I can learn ; but their deaths took place on the 3d, 4th, 5th, 6th, 7th, rarely on the 8th, and still more rarely on the 9th day. After the cold weather appeared, they sometimes dropped off suddenly, and after having exhibited all the marks of convalescence, three weeks from the time of their seizure.—So, of those who recovered, some regained their health with an elastic quickness ; while others, were very slow in the acquisition of strength ; were a long time troubled with great weakness in some of their joints, and oftenest the knees ; and were afflicted by œdematous swellings of the feet, ancles, and legs.

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You have now before you the result of my observations, on the appearances of the Fever of 1795 ; and I shall conclude this letter by the simple men-

tion of two facts, which will serve to confirm the doctrine of the great Sydenham, concerning the despotic nature of the reigning sickness.

The Meazles had begun to appear, when the Fever came, and they disappeared; but no sooner was the Fever vanquished, than they returned more generally than ever, and have continued in this city ever since.\*

I cannot learn that any febrile disease was observed in the city, while the Yellow-Fever was present. I saw only one instance of Intermitting-Fever in a lady, who contracted it in the country. It was slight, and was soon cured on her coming to town, by the usual remedies. Her residence in town, likewise, was in a part to which the Yellow Fever never came. Beside this, I heard of one other instance, of a gentleman coming hither, from some other place, with the Fever and Ague; which was, also, cured by the usual means.

I shall proceed, in my next letter, to bring you acquainted with those means which were most successful in the removal of that disease which I have just described.

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LETTER NINTH.

*Method of Cure, in the Fever of 1795.*

It was obvious, to the slightest observation, that the mildness, or severity, of the Fever of 1795, depended, in no small degree, on the situation of the

\* April.

patient. That those who lived in the higher, drier, cleaner, and more airy parts of the town, were more lightly affected; and that a removal, from the other quarters, into such as were so circumstanced, was always followed by beneficial effects to the person removed. In consequence, a milder treatment, in every respect, especially a more sparing use of evacuations, was warrantable in some cases, than in others; and as some practitioners were chiefly employed among those whose favorable situations protected them from the most malignant attacks of the disease, you will readily conceive why there should prevail, in the minds of some, an opinion that very active remedies were unnecessary, and a recurrence to the lancet inexpedient, at least, if not pernicious. It is true that I did not always use it myself; but it is also true, that I never failed to regret the omission. And though I lost no patient by the neglect, yet I am convinced that, in every such case, however slight the disease might appear, the cure was protracted. But, if the remedies were not always the same, the principle on which they were administered, was uniform; and their operation the same in kind, if not in degree.—And, after the Fever became more general, and the season considerably advanced, there was but little choice left in the use of means. Positive and speedy relief was required; for to temporize, was to kill.—You will sufficiently comprehend, from these remarks, how far the practice recommended below admitted of variety in the application; and I shall detain you no longer from the consideration of the particular remedies, which are meant to be arranged nearly in the order of their comparative importance.

I. BLOOD-LETTING.—This was indicated by the severe pain, heat, and redness, of the head and countenance; by the redness, turgescence,

and heaviness, of the eyes; by the oppression, pain, and anxiety, often observable at the breast; by the fullness, hardness, tensity, or oppressedness of the pulse—and equally by that slender, wiry, vermicular feeling which it sometimes had—communicating an idea of approaching numbness to the finger which felt it.\*

The effects of bleeding were, in every instance where I had an opportunity of observing them, most salutary. The sick seldom failed of finding immediate relief from it, and of perceiving that relief increased as the blood continued to flow. It diminished the pains in the head, breast, and stomach: oppression, anxiety, faintness, and heat, were moderated: the eyes rarely failed to assume a clearer and more natural appearance: and it seemed to communicate a new energy to the system.—I remember an instance where a patient was so unable to assist himself, on the second day of the disease, that, when I wanted to bleed him, it required two persons to support him, in passing a few steps from his bed, into the open air.—There, he was seated and supported in a chair. He grew easier, in every respect, as the blood flowed.—After taking away about twenty ounces, and tying up his arm, he rose without assistance; walked several rods, to a Necessary; took care of himself; had a profuse evacuation, by which he seemed to gain additional strength; and returned to his bed, without any aid, and with a firm step.

Such were the immediate effects of bleeding early in the disease. The importance of this remedy was not diminished by the duration of the disorder, nor

\* It is scarcely possible to convey an idea, by words, of minute peculiarities in the pulse. You will recollect this, and pardon me, if I have failed in this instance.

the necessity for it lessened, while the symptoms continued which made it useful in the commencement.— On the contrary, it was oftentimes as requisite, and as beneficial, the fifth and the sixth days, as on the first. But this necessity for its use, at so late a period, did not often occur, where it had been vigorously employed, in connection with other remedies, at the first.

The following case, which I state briefly, is one among numbers, in evidence of the advantage of early, free, and repeated bleeding.

A physician was called to a young man, with all the symptoms of the disease—as it generally appeared at the first—in the evening. He bled him 16 or 18 ounces; directed purges, &c. in the manner hereafter to be mentioned; and though the weather was then cool, ordered the windows to be removed, both day and night. The symptoms were relieved; but the next morning it was thought necessary to repeat the bleeding; which was done, to an equal quantity. The purges, &c. were also continued. In the evening, a third bleeding was performed, and a like quantity of blood was taken away; and the other remedies were continued. On the ninth day, from the seizure, the man was well, and able to pursue his business; though his strength was not perfectly restored.

In one instance which came to my knowledge, bleeding removed an obstinate vomiting, of many days continuance, which threatened the life of the patient, and which had resisted all other remedies.

It seems hardly necessary to add any thing more, in favor of this remedy, after its beneficial effects have

been stated, with so much eloquence and perspicuity, by Dr. Rush, in his various publications, respecting the Yellow Fever.

II. PURGING. No case occurred, in my particular practice, where, notwithstanding the vomiting, cathartics could not be administered. When this symptom was very troublesome, they were required to be given in a solid form, at more considerable intervals, and of as small a size as possible. The activity of the purge was always to be proportioned to the violence of the symptoms; and it was important that all medicines of this kind should be given in divided doses—so as to promote a gradual and continued discharge.—The operation was often very much assisted by clysters; for which water alone was necessary.

The good effects of cathartics were not less obvious than those of venæsection. They were indicated by the constipation, so generally present; by pain in the bowels, flatulency, and tumefaction of the abdomen; by pains of the head, heat and flushings of the face, and of the whole body; and finally, by the vomitings: and all these symptoms they rarely failed to obviate, or relieve. This relief, too, was oftentimes so sudden, as to seem like enchantment.—Frequently have I seen a patient, after an hour or more of severe pain, restlessness, heat, thirst, and inquietude of every kind—feeble, exhausted, and as it were, ready to expire—rise with the greatest difficulty, and with the aid of others, to the chair, and after his evacuation, feel his pains removed, his heat and restlessness vanished, his strength renewed, and himself able to sit up, or walk about, and breathe the air with freedom: and sometimes, the discharge was followed by a refreshing sleep, and gentle perspiration.

These benefits were neither so certainly, nor so frequently, obtained, where the evacuations were violent and sudden. Indeed, it appears questionable to me, whether it be ever proper to excite such discharges, in Fevers. Patients, when much reduced, are apt to sink under such immediate and abundant evacuations.

III. COOL AIR.—It was of the utmost importance to procure a constant application of cool air to the body of the patient, from the commencement of the Fever. The advantages which resulted, were universal and wonderful.—To this end, the sick were ordered to be placed on a hard bed, with very little covering, in the middle of the room; and the doors and windows were, as much as possible, kept open day and night.—The good effects of this practice were exceedingly increased, where the application of the cool air could be made to the patient in an erect posture. For, not only was it more equable, but the head was also relieved, thereby, from that sense of fullness and oppression which was invariably experienced in a recumbent posture. The sick, therefore, were directed to sit up, in the course of the day, with the assistance of their attendants, as long as their strength would permit, without their becoming exhausted. While in this situation, their feet and legs were covered more warmly than any other part of the body: and if cloths, dipped in cold water, or vinegar, were often applied to the temples, the relief obtained was still greater.

IV. COOL DRINKS.—The great thirst, which was nearly universal in this Fever, from the first, made the drinks, of necessity, an article of early attention. It was observable that they never could be *too cold*. Pa-

tients complained of the warmth of water which had been standing but a short time; and seemed to languish for a supply of fresh water, with an anxiety which became truly painful, when the usual hour of its distribution approached.\*

The good effects of a plentiful use of cool, diluting drinks, were obvious. They tempered the preternatural heat and anxiety of the stomach; often restrained vomiting, and the faucial hemorrhage; served to dilute, and carry off, the offensive contents of the intestines; and disposed to a more equable and aqueous sweat.—Of all other drinks, Water was most relished—and on many accounts, was the most proper. A pleasant and suitable drink was made, by pouring warm water on fresh apples, and suffering it to cool; and likewise, by the addition of a piece of toasted bread to water. Milk, much diluted with water, was relished by some; some were fond of butter-milk; and as all these possessed bland and nutritious, qualities, they were advantageously used, where a variety of drinks was required by the capricious taste of the patient.

I had no opportunity of trying the efficacy of ICE, but the testimony of a Physician, in whose judgement and veracity I place great confidence, is strongly in its favor, and inclines me to believe that it may be used with high expectations of advantage. Under his direction, it answered, better than any thing else, in relieving heat and fever; restraining hemorrhagy;

\* The water which is used for drinking, in this city, is mostly drawn from a single pump, called the Tea-Water Pump; and it is distributed, by means of large casks, which are carted to every part of the town; once a day, in winter; and every morning and afternoon, in summer.

and obviating, partially, or entirely, the vomiting—even the *black vomiting*.

V. CLEANLINESS.—This is of the utmost importance, and, in a measure, indispensable.—The bed and body linen should be often changed; the cloaths necessary about the bed, well aired, several times a day: there should be two beds, one of which may be aired, while the other is in use: all unnecessary furniture—particularly woollen, silk and cotton—every thing which may absorb and retain effluvia and moisture—should be removed: all utensils employed about the patient, frequently changed and rinsed: the room should be often sprinkled and dusted: the face, mouth, eyes whole head, hands—and, where it can be done, body of the patient, washed with *cool* water, several times in the day. The more exactly—other circumstances being regarded—these directions can be put in execution, the better for the patient; and, as my own experience convinces me, the more certain and speedy will be his recovery.—You will observe that I say *cool* water; for I cannot believe that the shock which would follow from the application of cold water to the body, would be beneficial.—It is not here, as in the use of air; for water is so much more perfect a conductor of heat, that the abstraction would be universal and sudden, were it applied cold. And, beside, as much is effected perhaps, by the ablution, as by the coldness, consequent upon bathing.

It was not in my power, in any case, to carry this practice to the extent I wished; but, *cæteris paribus*, the relief of the patient was proportioned to the degree in which it was pursued.

VI. BLISTERS.—The advantages usually derived from the use of blisters, were not evident. It was sometimes doubtful whether they were any way serviceable. Yet there were instances in which they afforded relief; though mostly temporarily.—I have seen them, applied to the breast, relieve the oppression at the lungs; and applied to the back of the neck, relieve the head: in both cases, when the disease had been of some days continuance. A physician, to whom I mentioned these remarks, informed me that his experience justified them, except when, as was often observed by him, a hemorrhage ensued from the vesication, and continued for some days. Perhaps it was necessary to the efficacy of blisters, that they should have been, always, preceded by copious blood-letting.

VII. The *Tinctura Sacra*, given in small quantities, at intervals, in water, was found by one Physician, to have the happiest effects, in relieving nausea, and obviating the tendency to vomit, in all cases where a destruction of the coats of the stomach had not taken place. The same gentleman derived much advantage over the disease, where, from long-continued vomiting and effort to vomit, the stomach appeared to have sustained considerable injury, or abrasion, from the use of *Ol. Oliv. vel amygdal. dulc.*—The oil covered the inflamed, or abraded, part, and protected it from mechanical stimulus, while it allayed the soreness and irritation produced by the action of the diseased fluids it contained.

VIII. FOOD.—I have before remarked that the sick shewed no preference for animal food; on the contrary, they very generally refused it. Some, who requested it to be prepared for them, found themselves

unable to eat it, when presented to them.—Fruits, milk, biscuit boiled in milk or water, sago, salep, hafty-pudding, and vegetable food, generally, were most relished by them, both during their illness and their convalescence.—This was peculiarly fortunate, as any indulgence in a contrary course, was sure to be followed by distressing effects. The more rigidly attentive patients were to preserving a simplicity of diet, the more certain and pleasant was their recovery. And, in all cases that I had opportunity to observe, their convalescence was always extended or shortened, tedious or satisfactory, in proportion as they returned suddenly to the use of meats and stimulating drinks, or adhered to vegetable food and water.

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I have now, my dear friend, made you acquainted with that course which I generally pursued, in regard to those who came under my care. The number was not great, nor the success always complete—for I had not always the liberty of employing the means I wished to, as fully and freely as was necessary to complete success. But, I can truly say, that I never saw them do injury; and that they appeared to me to do good, in every case, where they were employed, and in the proportion of their trial and application.—More than this no man can truly declare; more than this ought never to be expected from any remedies. The most able practitioners are destined to see their patients frequently expire, in spite of all their care, through the obstinacy of the patients themselves, and the prejudices of their friends, the carelessness of attendants, or the intervention of unforeseen and unavoidable accidents. The consciousness of having done their duty, of having acquitted themselves, under cir-

cumstances so distressful and embarrassing, to the best of their knowledge, and with purity of intention, will prove a never-failing consolation, though the execrations of ignorance, and the calumnies of hatred, may pursue and persecute them.—Happy,—at least in this respect,—are those, “*the peaceful tenor of whose way,*” while it excites neither opposition nor malice, and neither elevates to opulence nor fame, secures them from misrepresentation and injustice.

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LETTER TENTH.

*Miscellaneous remarks on Medicines used as Remedies in the Fever, and general conclusions.*

You wish to obtain every possible information, respecting the Fever of 1795; you are not satisfied with knowing what remedies I employed, nor which were most successful; but you would learn all that were used; the success, or failure of each. I applaud your curiosity, my friend, for I am not ignorant of the benevolent motives which excite it; but I fear that there is little with which it is in my power further to gratify it. The practice which I saw, was that which I have recommended: other remedies I know were used; but, not having had opportunity, but in few instances, to mark their effects, I ought not, from my own convictions, how well-founded soever they may appear to me, precipitately to condemn either the prescriptions, or their authors. In the variety of cases, constitutions, and circumstances, it might happen that some of those very things, which

appeared pernicious when I saw them used, were sometimes proper and salutary. It would be presumptuous, therefore, in me, to decide without more information; but I may be allowed an opinion; and that opinion need not be withheld from a friend.—I confess, then, that from the success which attended the antiphlogistic plan of cure, I am persuaded that no other can be salutary, or safe; and the few instances in which the effects of a different mode of treating the Fever were observed by me, strengthened my previous convictions of its inutility and danger.

The medicines chiefly trusted to, by those who pursued a different course from that laid down in the preceding letter, were, as I am informed, Calomel, to promote, or effect a Salivation,—Bark—Laudanum—Wine, and other stimulating drinks—with an Animal diet.

Of the effects of Salivation, not having seen it take place, by nature nor art, in the Fever of 1795, I can say nothing. Dr. Rush countenances the practice, in his Treatise on the Fever of Philadelphia, and adds the testimony of many respectable authorities to his own.—As a Cathartic, Calomel, combined with other purgative substances, was unquestionably useful. Some, I know, thought otherwise; and that other purgatives might be more safely and efficaciously employed; and, I confess, I saw some cases in which it appeared to affect the stomach very painfully. But a Physician on whose judgment I have great reliance, informs me, that he saw reason to reject a similar opinion, which he had hastily adopted; repeated observation having convinced him, that all the symptoms of gastric affection were worse in those

who had not been purged with Calomel, than in those who had been evacuated by its assistance.

I gave Bark, in no form, but in three cases. Two were in the early part of the reign of the Fever, the two first patients that I had; and I am convinced it retarded the cure in both. In the other instance, it was administered after the Fever had left the Patient, and he was convalescent. Here it was given as any other Bitter, and as much in compliance with his opinions, as from any expectation of its doing good; and, as far as I can judge, with very little effect of any kind.—In the following case, its exhibition was not so harmless.

A medical friend was called to visit the patient of another Physician, who had quitted town, on account of his health. The sick man was oppressed by the most alarming symptoms; of the number of which, were hemorrhagy and the black vomit. The stimulating system had been steadily pursued, and was continued, under the direction of a pupil of the physician first employed. In particular, large quantities of Bark were exhibited, throughout the day.—On the entrance of the second physician, the Bark and all other medicines of the kind, were laid aside; cool air was freely admitted; and the antiphlogistic plan of cure strictly adhered to. The consequence was, that all the symptoms were relieved, and a prospect opened on the patient of a recovery. The vomiting and hemorrhagy had totally ceased. In this situation, and while the Physician was attending to some persons whose condition was more alarming, the person who had the immediate charge of the sick man, began, again, to administer the Bark.—The next day—or the very same, at night—all the bad symptoms

recurred; the Bark was, nevertheless, persisted in; and the man died.

Several similar cases have been reported to me; but none so minutely as to authorize an attempt to state them to you.

The extreme restlessness of a patient, in whom I had the strongest interest, and for whose fate the deepest anxiety, induced me, in violation of my more sober judgement, to administer Laudanum.—This I did not do, till he had spent three nearly sleepless nights.—In every instance, it undoubtedly, increased the restlessness, clammy sweats, thirst and Fever. I was obliged to discontinue it.

Wine, brandy and water, and especially porter, when taken by any of my patients, had the most pernicious effects. I had occasion to see an access of Fever, repeatedly brought on by the one, and a relapse by the other; where they were used without my knowledge, and contrary to my direction.

Of the effects of Animal Diet, I have already spoken, and have nothing new to add.

On the whole, it appears incontestible to me, that what is called the antiphlogistic treatment is to be adopted in Fevers like that which prevailed in New-York, in 1795, in all its strictness, and adhered to with pertinacious resolution. Both the symptoms of the disease, and the success attendant on the practice recommended, concur in establishing the propriety of employing it.—It is also to be remembered that, in this disease, not a moment is to be lost: a day, an hour, nay almost an instant of delay, may sometimes be fatal; and the means practised must be powerful in proportion to the violence of the symptoms. Nei-

ther must we be deceived by the apparent mildness of the seizure—for a few hours may entirely change the face of things, and we may be left to lament that credulity which led us to temporize, and prevented the use of those remedies, which delay alone rendered ineffectual.

But, while the Physician strenuously directs his efforts to the removal of the symptoms of this disease, let him not overlook a passion which never fails to aggravate them. *Fear*, the exciting cause, in many instances, of the Fever; the fomentor of all its evils; and sometimes, as it were, the sole disease; is a frequent and dreadful calamity, and one of the direst adversaries with which medicine has to contend.—In numerous instances, during the continuance of the Fever of 1795, apprehension touched upon insanity; destroying all confidence in the Physician and in remedies, or exciting an absurd and enthusiastic reliance on pretenders and madmen: and utterly disqualifying the patient for a proper attention to himself.—In the well, the evil was scarcely less. The name, alone, of Yellow Fever, seemed sufficient to induce disease, to banish discretion, to sever the bonds of social connection, rend asunder the ties of parental, filial, and conjugal affection, and put reason to flight.—It was in vain to point out the folly of this terror; to declare the disease not infectious, and easy of prevention; to offer mathematical demonstration that other disorders were often more mortal, without exciting any alarm; it was still the Yellow Fever, and that was an irresistible reply to every argument.—The city of New-Haven, summer before last, lost about 50 of its inhabitants, with the Yellow Fever. Universal consternation prevailed throughout the place; all business was at an end; and most of the principal inhabitants fled.—Last summer, the Dyfentery raged there: more

than 70 persons died of it; but nobody fled; nobody was frightened; and the Magistrates, very gravely, put a stop to all communication with New-York, for fear of the Yellow Fever; made vessels ride quarantine, and confined stage-coach passengers, that no contagion might be diffused, through the city, from their trunks and their garments.—But, it is time to put an end to this series of letters; and seek, by novelty, to give new interest to our correspondence. I shall take my leave of the present subject, with an enumeration of the inferences I have drawn from having viewed it, in the light here exhibited to you.

1. The Fever of 1795 was Endemic:—i. e. generated by local causes, producing a Fever every year, in this city.

2. The peculiar ferocity of the Endemic of New-York, in 1795, is ascribable to the peculiarity of the season, together with a greater accumulation, than usual, of the ordinary causes.

3. It was not Contagious: i. e. communicated by contact of diseased persons, by cloaths, nor by visiting the sick, &c.

4. As it originated here, its prevention will depend on a change of the local and individual circumstances which promote it.

5. The Fever in 1795, exhibited such appearances as characterize what are customarily denominated Inflammatory Diseases.

6. It is cured by the remedies suited to remove Inflammatory Diseases.

7. The same causes which converted the ordinary Fever of New-York into the Yellow Fever, would change the Fever which prevails around our Western Lakes into the Yellow Fever; and, as certainly, the Intermitting Fever of Sheffield: while the establishment of a free ventilation, the filling up of all pools, yards, &c. and a scrupulous attention to cleanliness and simple diet, would reduce our Fever to a simple Remittent or Intermittent, or remove it altogether; as the filling up and cultivation of your ponds and marshes, would forever banish all Fevers of the kind—as general diseases—from Sheffield.

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I have now, my dear friend, performed the task demanded of me, in the best manner I am able consistent with my leisure, and my duty towards others. I cannot conclude without once more soliciting your indulgence, and requesting you to recollect with what expectations and confessions I entered on the composition of these letters.—I have taken the words of Cicero for my motto—

“ *Rationem, quò ea me cumque ducet sequar—*”

And if I have erred in my conceptions of what is reason, and what *was* fact, let my intentions prove my apology.

E. H. Smith.

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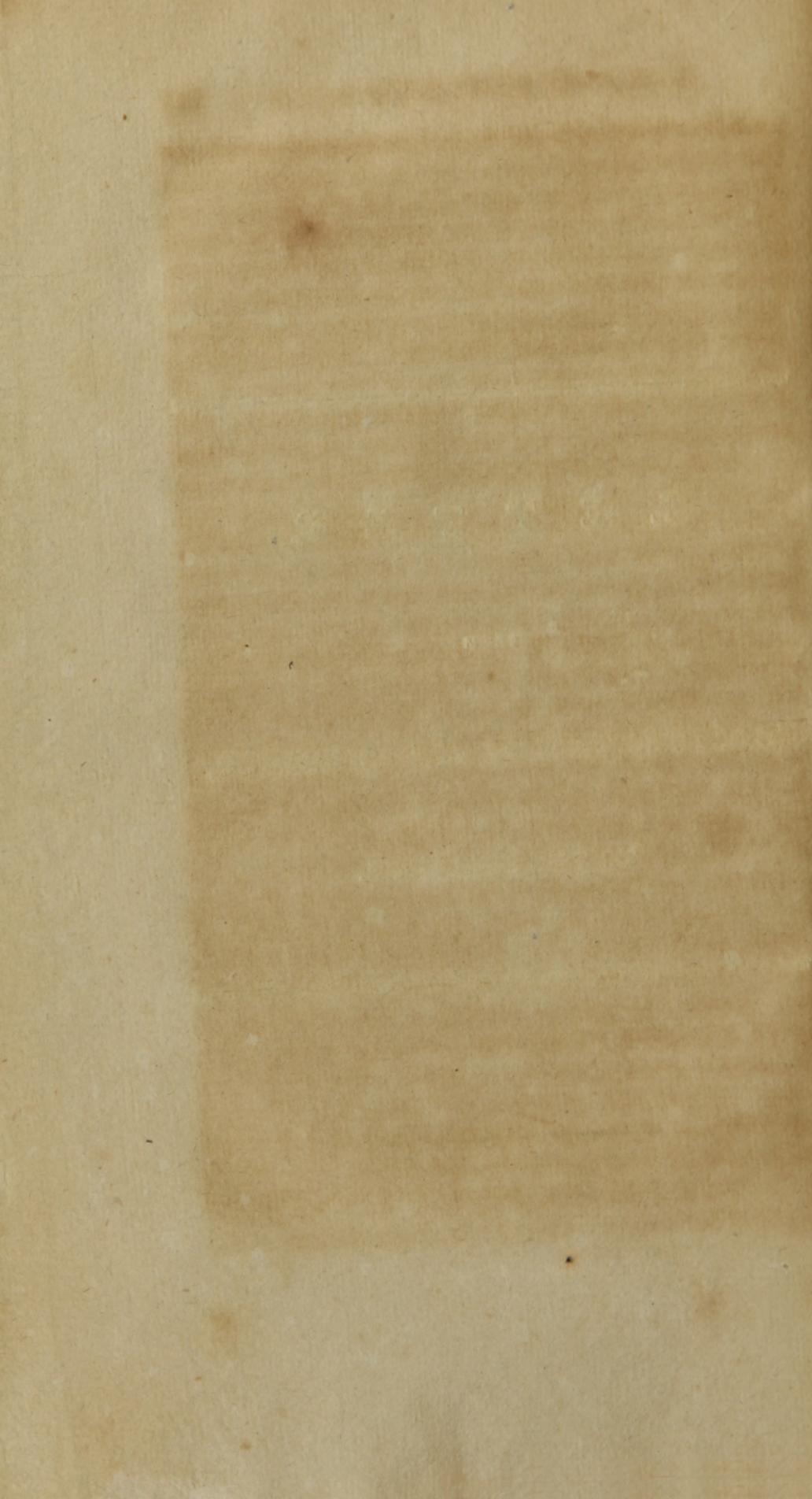
L E T T E R

FROM

DOCTORS TAYLOR AND HANSFORD,

TO THE PUBLISHER.

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L E T T E R

FROM

DOCTORS TAYLOR AND HANSFORD.

TO THE PUBLISHER.

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NORFOLK, VIRGINIA, DECEMBER, 1795

SIR,

IF, in our attempts to add to your information respecting the fever, which prevailed here in August last, we should draw upon us the illiberal sarcasms, which we have observed to attend all who endeavor to serve their fellow creatures in this way; we must leave it to you to justify our intentions, at least, being ourselves unprepared to answer any thing which may be objected to what we shall advance. We mean to state facts, or what we believe to be such, and willing to admit that there are several ways of curing the same disease. It will not be understood, that we reprobate the practice of others who follow a different mode of treatment. Our observations have been drawn from thirty years experience, with the advantage of records relating to similar diseases for a much longer period. We do not know of a more regular mode of treating the subject than by answering your inquiries in the order they occur, which will perhaps comprehend every thing required at present.

The Fever we believe has its origin in the season, and exists every year in various grades, beginning generally in the month of August, and disappearing about the middle of October.

The precise time of its commencement and termination, and its degree of malignancy, depending upon contingent causes. We have been accustomed to call it a Bilious Remittent, with a tendency to putrefaction; whenever it proves uncommonly fatal, it is aggravated, according to the best of our observation, by the prevalence of some unusual weather for a long time together—Thus we have seen this disease equally malignant after a dry hot season, and after a very rainy period. The approach of frosty weather being uniformly the cure for the effects of either.—The Fever of the last autumnal season, appeared first on the river, then on the streets adjoining; was soon after diffused through the town and suburbs, and finally the neighboring country; though in this last not generally: as usual it declined on the approach of cold weather.—The month of June had been very cool, and at the change of the moon, or a little before, it began to rain in torrents, and so continued to do, with short intervals of close sultry weather, till August, when a violent hurricane, attended with a flood of rain, laid waste the whole vegetable kingdom—afterwards the weather was as before, sultry and moist, with profuse showers till the end of September.—The first appearance of the Fever was about the 10th of August; it increased in violence and in extension during all that month; it was perceived then to abate, and continued to do so till the last day of September, when a few frosty nights supervening, it disappeared almost suddenly and entirely.

There were perhaps more deaths, than for many years before; but whether greater in number to the proportion of the sick, than is usual from autumnal diseases, which prove as universal as that in question, we cannot undertake to determine. The same mode of treatment generally succeeded—as in other seasons. Our method was plentiful depletion in the beginning, not by bleeding, but by purging with Jalap, Calomel, Scammony, Aloes, or by the milder purges, the Neutral Salts—Sennæ, Rhubarb, Manna, &c. as the age, sex and constitution of the patient pointed out,—taking care that the evacuation of the first passages was complete, by whatever means procured. As soon as we judged that to be sufficient—which we always endeavored to make so with as little delay as possible—the bark was administered in all and every form that it could be made to remain, without regard to quantity, or to the period, or height of the fever, with wine, porter, and even brandy, if wine was rejected by the inclination, habit, or stomach of the patient. We can assure you, we have no reason to alter our mode of practice in future. In a multitude of instances, some will occur in all diseases, when a change, and sometimes a material change of remedies may be necessary—such cases we found, and in those we used Blisters, Emetics, Camphor, Opium, and often ventured upon Cupping—but never upon venæsection.—This last, a long course of practice has taught us to be at least, not advantageous. In different climates, and under other circumstances—when the disease may have appeared in other grades than those we have experienced—that operation is perhaps found useful. We wish not to impose our opinion, as a rule for any person; sensible of the fallability of all human judgment. We ever thought it our duty to give up our own theories, when contradicted by events. We only mean to recommend that plan,

which long experience has taught us to be most successful. There is no proof that this disease possessed any specific infection. It was rarely fatal to the native inhabitants or the old settlers, speaking of the town only; but we have been told that many of the traders from the Rivers and distant part of the State, died immediately after leaving the port. The terror which pervaded all parts of the country, and deprived those victims of the common attentions of humanity, will easily account for this without applying to the malignancy of the disease. All, or most of those born in, or who had been accustomed to a southern climate, escaped death, and when attacked, had the disease in its milder form.

A large number of the inhabitants enjoyed uninterrupted health; most of the deaths happened in confined streets and buildings, and in those nearest the river.—Those who were accustomed to live well, (as it is termed) did not suffer so much as the poorer class—But the intemperate of every description became victims when attacked—The small pox immediately preceded this fever. We did not observe that those who had been the subjects of it were particularly sufferers.—There had been no malignant complaint in the preceding winter.

A particular description of the fever, and its symptoms, does not seem to be here necessary, because, it differed from the ordinary Bilious Remittent, only in the rapidity with which it passed through the several stages, and in its malignancy.—This last circumstance we are of opinion was occasioned by the long continued and universal heat and moisture of the atmosphere.—The air was evidently impregnated with putrid effluvia, arising from decayed substances of every sort, brought down upon the creeks and rivers by the

floods of rain, and thence into the basin immediately before the town, where the stream being wider, is less rapid than either above or below, and where of course such decayed substances, together with the filth, &c. thrown from the shipping and docks, became for a certain time stationary.—This may in some measure account for the disease appearing first in the harbour.—The same fever, with all its malignant and uncontrollable symptoms, occurs every year in scattered instances, and about the season.—In the preceding summer and autumn, several died with it. A number of ships and vessels, which occasionally put into this port from James's River, and from North-Carolina, lost many of their people with a fever of this sort, which they brought with them from the fresh and brackish waters. In the present year (1795) on board a ship from Liverpool, which did not approach nearer than five miles to the town, and with the crew of which the captain assured us—No communication had been from the shore, except by the health boat, almost every individual was attacked with the disease, in ten days after her arrival, and one of them (a European) died, and this at a period when the disease had almost disappeared in the town. We have before observed that the exhalations from the river, and the putrid substances carried down its stream, might have some agency in producing or aggravating the Fever. The French ships to which you allude\*, arrived so long before the disease appeared, that it would be absurd to suppose even a possi-

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\* The French corvettes, part of the squadron, three of which were taken by the *Thetis*, Captain Cochran, arrived and anchored in Hampton Roads, May 18. The Fever did not appear in Norfolk till August. Capt. Cochran's crew, however, took the Fever from the French prisoners, and twelve of them died before the *Thetis* arrived at Halifax.—*Editor.*

bility of its being derived from them. We are of opinion, that there is not the most distant reason to believe the Fever was imported at all.

How far in towns like ours, the customary diet and general mode of living, may operate in producing putrid diseases, remains for future observation to determine.

It has been noticed by several medical writers, that fresh meats, and particularly beef in southern climates, apparently generate fluxes and other malignant diseases;—upon the latter kind of food, and on fresh fish (both of them *frequently not of the best quality*) the poorer class of inhabitants subsist during the summers. Those whose circumstances permit them to purchase the best kind of meats and fish, certainly experience no inconvenience from these kinds of food.

It has gone forth that the town of Norfolk is unhealthy and subject to malignant diseases in a greater degree than others. We may venture to assert and trust can prove, that there are as few deaths in Norfolk in the average of three years, as in any town of the same size—not only in America, but in any part of Europe, Asia or Africa, and with regard to its natural population, a view of the streets will prove that there are as many children raised in it, as in any town whatsoever. It should be remembered that the place has arisen from its ashes, in the course of a few years—that most of the new settlers have been Europeans, a people from northern climes. That there are always a thousand or more sailors, and strangers who are subject to the diseases of new comers—that almost all who die, are carried for interment through the principal street. Hence, those who are unac-

quainted with the town, may naturally suppose, that deaths are more frequent, because nearly all that happen, are actually brought into the view of every passenger.

Thus far we have attempted to lay before you as well as our leisure will permit, the best information in our power. We have not presumed to enlarge upon speculative opinions, but if our endeavours shall meet the approbation of those who may peruse these sheets, and you shall think our correspondence worthy of further sollicitation; we will be ready to communicate whatever we know, or may hereafter learn, on a subject so interesting to the American community.

*Taylor & Hansford.*

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E X T R A C T

OF DR. RAMSAY'S (OF NORFOLK, VIRGINIA) LETTER  
TO MR. MITCHILL ;—CONCERNING THE PES-  
TILENTIAL SICKNESS IN NORFOLK, IN  
THE SUMMER AND AUTUMN  
OF 1795.

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YOUR papers afforded a testimony of esteem, which will be a pleasant renewal of our intimacy in Europe. The little comprehensive pamphlet on contagion, as you required, I have read often; upon that I intend now to address you, without entering upon a theoretical question.—Names and terms have fettered much medical science in its progress to that degree of perfection, the present state of the human mind can attain to. I shall send, with little comment, a statement of a Fever which prevailed with great mortality here, in August and September 1795. Confining myself to my own observations and the sentiments of Dr. Taylor, a veteran of 25 or 30 years practice; and Hansford, his co-partner, of 14. You remember when it began. The season very warm; uncommonly so—(as the winter has been)—frequent showers of rain—of very short duration, often profuse—Site of the town low, on a perfect level with drains on the sides of the walks; not over ten or twelve feet from the windows; those obstructed—Animal and vegetable matter, and dirty linen often in them—Town most rapidly enlarging—Houses chiefly of wood—A great part where death made his sweep, and dreadful was the haul—In a part where the

buildings stood upon large log frames, filled in with smaller wood of pine (chiefly the whole) that soon decays; this made Terra Firma by mud—Salt mud—Many of those large log pens, over which stand tene-ments, now even are not filled in, but actually serve as a receptacle for the offals of large and poor families, so great a majority, as nearly to constitute the whole inhabitants of that part of the town. Being foreigners, they dealt lavishly in beef, fish, and all kinds of fresh food—observe, this beef was driven perhaps from one to two hundred miles before killed, then exposed in a hot market to vend; that by one o'clock, their dining hour, I always did, and do believe, it must have been tainted—Observe, the fish all dead by break of day, and brought by land from twenty down to twelve miles—hard drinkers of spirits, mostly. The first person who died, was Dr. Williams, a fat man, with very lax fibres, a very free liver, a grog drinker: he was taken with the usual symptoms of what an old writer upon the diseases of the West-Indies, calls a Bilious Remittent; he vomited vast quantities of bile; evacuated freely, as appeared to me below, but had always a prodigious sense of weight in the region of his stomach. Belched wonderful quantities of wind; this relieved him for a time. The most suffusion of bile in his eyes, nay all over the body I ever saw, which increased as he vomited, and continued until petechiæ came on, with a vomiting of black offensive matter, which continued 24 hours, when a fit or two terminated his career.—How he was treated, I never inquired, though he was my friend. One or two more natural born citizens, were the whole, out of upwards of two hundred and twenty, who in the space of six weeks, fell a victim to this disease. The symptoms were the same in all, except an obstinate costiveness—The natives live chiefly on salted meats and fowls, or other kinds of

poultry, which are killed but a little time before dressing, and the better sort have the greatest variety of vegetables, are in more airy situations, and not crowded together; and upon my word, far more healthy this year than I have seen them before. We need not extend our views across the Atlantic for sources of diseases; there are too many among ourselves as you remark, and whether the principle takes Cullen's, Rush's, or your own name, putrid animal vegetable matter, united or mixed in water, by the heat of the sun, produces something noxious to life.

The object then deserves the attention of the police, and when medical aid is needed, my plan is to allay the irritability of the stomach; to exhibit injections; to increase the action of the alimentary canal downwards, which gives me an opportunity of throwing in a cathartic to evacuate the whole tract; this I sometimes repeat, if the distension of the stomach returns. Often when the vomiting inclined me to believe there would be a difficulty in my intention of evacuating as above; I have used with success, copious draughts of luke warm water, sometimes grog—the patient puked easier, and generally more bile, and the spirits acted as a moderate stimulus. An infusion of *Serpent. Rad.* in every stage of the disease after the foregoing practice, which appeared to claim a preference to the cortex peruv. it often bringing on a return of the nausea and puking, two of the most dangerous symptoms. The Bark, Columbo and Madeira wine, whenever it could be received with quietude to the symptom, were our sheet anchors.—By this mode I have succeeded well.

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## S U M M A R Y V I E W

OF DR. MITCHILL'S OPINION CONCERNING THE  
CAUSES OF EPIDEMIC DISTEMPERS.

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HE begins by examining the constituent parts of the atmosphere, and agrees with the modern philosophers, that it consists of a little more than a fourth part of oxigene gas or respirable air, and somewhat less than three-fourths of mephitic air or azotic gas. These exist together in the form of a *mechanical* mixture, but not in a state of *chemical* combination; and thus the volume of atmospherical air, whose two sorts of particles, move freely to and among each other, in common circumstances, contributes to the support of fire and animation.

But though the ingredients of the atmosphere exist in a distinct and separate form in *ordinary* cases, yet this is not *universally* the fact. *Oxigene*, the basis of vital air, and *azote*, the base of foul air, though frequently disjoined, do however possess attractive powers, strong enough to make them oftentimes combine. The chief impediment to their union, is the closer affinity which they, in their gaseous or aerial forms, possess for the caloric or matter of heat connected with them, and from which they derive their properties as elastic fluids. Whenever, therefore, oxigene and azote can come together without assuming the intervening form of gas or air, then they will unite according to the law of chemical affinities, and constitute by their junction, a body or compound,

possessing qualities very different from either of the constituent elements.

It is known from experiment, that both these elements enter into the composition of animal and vegetable substances. When oxigene unites with mere caloric, as in Fontana's experiments on insects, and Ingenhousse's trials upon plants, then vital air will be the miasma proceeding therefrom. When azote escapes in connection with caloric only, as in Mr. Mitchill's own experiments, upon the lean and muscular parts of animals, and upon the air collected in the tumid bellies of animals, drowned or strangled, the effluvium is atmospherical mephitic. When the two substances enter into combination with each other directly and immediately, without first taking upon themselves the aerial form, as in *Massej's* experiments, the product is an acid, which, on addition of pot-ash to it, forms nitre or salt-petre.

Here, then, during the decomposition or putrefaction of organised bodies, as in Thouvenel's experiments, in a range of heat equal to that which the surface of the earth acquires on the American continent, in the summer time, is an acid compound, formed by chemical agency, from the same materials which constitute in their separate state, atmospherical air; and capable as in *Lavoisier's* experiment, of being resolved into it by analysis. This acid, which is thus afforded during the decay or resolution of organic matter, consists of the like ingredients as the air we live in, and differs from it but in two respects, to wit, the chemical connection of the materials and their different proportion. And the analogy between the atmosphere, plants and animals, and the acid of salt-petre, as to their formation and constitution, must be thus very apparent.

These points being determined, professor Mitchill criticises the preceding chymists for their mistake in classing this acid among the *mineral* substances, contends upon the authority of their own concessions, that it is generally the result of *animal* putrefaction; and professes a reform of the French Nomenclature, that the language of science may truly correspond to facts. He accordingly derives the name of the radical term, from the Greek word, *sepo*, to putrefy, and calls the azote of the French academicians *septon*, the *putrid principle* or *principle of putrefaction*. He calls *azotic air* by the name of *septous gas*, *dephlogisticated nitrous air*, *gaseous oxyd of septon*, *nitrous air*, *septic gas*, *nitrous acid*, *septous acid*, *nitric acid*, *septic acid*, &c. &c. and thereby, in the very phraseology, the origin and formation of the productions, are invariably suggested to the mind.

Having in this way reformed the language of Chymistry, the professor goes on to inquire, what is the evidence of nitrous or septous acid existing in the atmosphere, or in any of its modifications, assuming a volatile or aerial form. That there is something unwholesome and noxious in the exhalation from corrupting bodies, both of the vegetable and animal kind, has been long miserably experienced, though the precise nature of this has scarcely been imagined, but has rather been considered as lying beyond the reach of human research. He finds with *Margraaf* that this very acid exists in rain water, and concludes with *Watson*, that snow-water is not free from a tincture of it. He agrees with *Chalmers* in ascribing to its operation, the speedy rusting of metals in hot latitudes, where the presence of an acid is

manifest in the atmosphere. But he does not stop here; for on considering that the plaister and wall of old buildings, has become impregnated with the septic or nitrous acid in the course of time, especially if the inhabitants have lived in an unclean manner, and the houses have stood in the neighborhood of foul and corrupt vapours, he thinks the conclusion undeniable that this acid must have existed in a gaseous or vaporific form, before it was attracted by the clay or lime of the mortar. While in countries where saltpetre is found spontaneously formed and strewed over the surface of the ground, the unhealthiness of such regions is to be ascribed to the agency of that very gas, which united in a more concentrated state with potash, constitutes afterwards the nitre of the soil.—The tarnishing of metallic substances, highly colored silks, the human skin and countenance, he considers as caused in a great degree by the operation of the same deleterious fluid, extricated from putrefying bodies.

Such a gaseous exhalation being now proved to exist, the professor endeavors to show that epidemic diseases must be occasioned by it, and not by any other known species of aerial fluid. This mischievous matter cannot be *carbonic acid* or *fixed air*, because its effects upon animal bodies are entirely of a different kind, from those manifested by infectious ailments. Nor can it be *inflammable air* or *hydrogene gas*, whose extreme levity soon elevates it high into the atmosphere, or whose inflammability or odorous nature would directly make its presence evident to the senses. Still less can it be *alkaline air* or *ammoniacal gas*, which though commonly esteemed one of the results of putrefaction, is seldom or ever afforded but by force of artificial fire, and if it was spontaneously evolved in low temperatures, would instantly lose its

properties by combination with fixed air, or exhibit them to the nostrils by mingling with water. And nobody has ever imagined it was *azotic* or *septous* gas.

It being thus *negatively* established, that contagious air can be neither of the fluids now enumerated, Mr. M. inquires whether that very curious and wonderful modification of septous acid, called by PRIESTLY, *dephlogisticated nitrous air*, and by TROOSTWYCK and DEIMANN, *the gaseous oxyd of azote* is not in most cases the very causes of endemic maladies? This opinion he adopts, with this latitude and extent however, *that the septous acid, as well in any other volatile form, as in that of the oxyd, may be, and is productive of extensive and dreadful sickness. It is very abundantly produced in the operations of nature, and may not only be considered as evaporating from putrefying substances, but as formed in the atmosphere, by the instrumentality of lightning, after the manner of its production by electrical explosions in Cavendish's experiment.*

The reasons why this plentiful production has generally been hitherto overlooked, are, 1st. That as it has ever been considered a mineral substance, because of its being usually procured by the decomposition of nitre, no one has thought of investigating its history, as an animal production: and 2ndly. Though it is fatal to breathing animals, yet it possesses at the same time a power to support combustion, and has few obviously sensible qualities, so that persons who have lived half their lives in an air more or less infected with it, never once imagined the existence of such a thing.

To these products of putrefaction, all of which Mr. M. has made the subjects of public experiments, are

the phenomena ascribed to human and marsh miasmata, to be referred. The copious extrication of such gases, their local origin, their limited diffusion, their deleterious effects, all point to some modification of the nitrous acid as their cause. And upon the prevalence and action of this kind of fluid in the atmosphere, does he account for the frequency and universality of endemic and epidemic disorders; rejecting altogether the pretended distinction between contagion and miasma, concluding with *Gardiner, Bingle and Carhuri*, that they are but varieties of the same thing, and differ from each other but in degree.

The exhalation from graves mentioned by *Faucroix*, and from dissecting rooms described by *St. John*, as well as the *Harmattan* breezes of Guinea noticed by *Lind*, and the *Simaom* blasts of Arabia, witnessed by *Bruce*; he thinks are, in all probability, modifications of a similar aerial production. And this may serve to give an idea of the extent and scope of his reasoning on the occasional production of a gas, which while it continues to surround and invest the inhabitants of particular spots or countries; often destroys their lives, or at least impairs their health. The effect of this being manifested upon the skin and lungs only, appears in the form of intermitting and remitting fits, and in those peculiar cases of anxious and suffocating fever, of which some extreme and exquisite relations have been made by *Lind, Chisholm* and *Jackson*.

The same reasoning by which Mr. M. became convinced of the existence and agency of those various compounds of the septous principles, in *cities, swamps, and marshes*, led him to examine whether

they were not sometimes produced within the *Human stomach*. The worst distempers we hear of in hot climates, occur less among the Natives, than among the Europeans, who for the purposes of commerce or warfare, visit the torrid zone. They adapt their *dress* to the climate, but rarely make any alteration in their *gross and northern diet*. In hot countries, the digestive powers are very apt to fail. The aliment, particularly among the Anglo-Americans and English, who love to eat their meat half raw, soon runs into a putrefactive mass, and the corrosive acid formed in the sceptic process, excites that sad and shocking train of symptoms, which constitute and characterize the *Yellow-Fever*. This malady, the very name of which strikes the citizens of the United States with terror, is so particularly inherent in the stomach and bowels, that *Richter, Wade*, and other well-informed practisers, have boldly termed distempers of this type, *Intestinal, or Gastric, or Dysenteric Fevers*.

That the food of most persons who suffer by these complaints is in a considerable proportion, animal, and putrifies in the stomach and intestines, no body has ever doubted. In a range of heat, not much greater than occurs in the subjacent earth, or surrounding air, the products of putrefaction must be nearly the same, *in the stomach, as out of it*; and the septous principle, in some or other of its modifications, be the result. The greenness of the bilious discharges, is evidence enough in many cases of the existence of an acid in the alimentary canal; and was there not too much of it produced to be neutralized by that alkaline liquor, the bile, far less mischief would be done by it. And while *flesh-eaters* are miserably afflicted, he observes that the Arabians, Gentoos, Chinese and Negroes, who, though inhabitants

of sultry climates, subsist chiefly on *vegetable fare*, are very little affected by this kind of sickness—Most vegetable substances being either less prone to corrupt, or if they putrefy, affording little or none of that *peculiar azotic product* which renders animal rotteness so foul and destructive.

Thus, upon the idea of septic acids and vapours, vitiating the pulmonic functions, and thereby impeding breathing, or interrupting the digestive process, and eroding and inflaming the stomach and intestines, Mr. Mitchill, thinks the phenomena of most febrile ailments, whether of the endemic, epidemic, or dysenteric; contagious, infectious or gastric, intermittent, remittent or continued forms, may fully and fairly be explained.

Having by this mode of experimental inquiry ascertained the proximate cause of fever, the professor proceeds to give a *theory of it*; and after the manner of *Cullen*, takes a single paroxysm of an intermittent as an instance. Judging from its effects, he considers contagious air as always in some degree stimulant; though from its non-respirable property, operating upon the lungs in breathing, in such a way as by subducting heat and oxygene from the body, to diminish action and energy, and thus induces a state of *direct debility*. This debilitating process may be carried suddenly to a fatal extreme, as when the concentrated pestilential air, inhaled, kills upon the spot; or when in a less noxious form, it may not extinguish life immediately, but cause an anomalous disease of three days continuance, without remission, or in which there are five or six hot and cold fits, in twenty-four hours, eventually terminating in death. In a form yet more dilute and mild, epidemic air may occasion common remittent and intermittent distempers.

The cold stage of fever, Mr. Mitchill considers as depending upon *impeded respiration*, and the impeded respiration as depending upon *the vitiated quality of the air* taken into the lungs; or in some slighter cases, where the *stomach* is originally thrown into a disordered condition, the lungs *by association with that organ*, are thrown into a disorder too, and for a time perform their functions imperfectly.

Thus he presumes it is, that the impeded state of respiration, is attended with a smaller evolution of heat and oxygene in the lungs, and consequently with more or less diminution of the circulation of the blood, and a proportional degree of chilliness or coldness throughout the body. The duration and degree of the cold fit will correspond to the continuance and power of the causes disturbing the pulmonic organs, either by acting upon them *directly or indirectly* through the medium of the stomach.

From the small quantity of *heat* and *oxigene*, communicated to the blood in the lungs, and its consequent slow and feeble circulation, can the shrinking, paleness, tremors, coldness, debility and other symptoms, be sufficiently explained, as the constitution is now deprived of its *two chief stimulants*. But, why, it may be asked, does not the continued operation of the vitiated air upon the lungs, or the associated condition of the lungs with the stomach, go on in an increasing series even unto death? It is a fact that sundry poisonous substances grow by degrees *habitual* to the human constitution, and by *custom* lose their *primary* operation. This disposition to become *familiarized* to contagious air, is particularly evident, as respects the inhabitants of Guinea and the West-Indies. The constitutions of these people are so *seasoned* to the air and climaté they live in, that in ordinary

cases, it excites in them no disturbance at all. Now, common paroxysms of intermitting fever, are instances of *temporary seasonings*, which the constitution experiences, of a kind quite analogous to what is *perpetual* with the Africans and Creoles.

The cold fit does sometimes terminate in death; and this happens when the constitution *cannot* acquire the *habit* of enduring the noxious cause with impunity. In the generality of cases, however, the infectious gas loses its power of operation, before the constitution is debilitated to death, and as soon as it becomes for this time so much *accustomed* to the contagious fluid; as no longer to be disturbed by its presence, the cold fit ends. The length and violence of the cold fit will thus be, other circumstances being equal, in a compound ratio, of the impediment given to the respiration by the infectious gas, and the facility wherewith the constitution *accommodates* itself to its action. If three persons then inhabit one house, it is possible that one of them may become so quickly *accustomed* to the air, as to have no distemper; a second may have a moderate disease of a few fits; while the third, possessed of a constitution not easily moulded to a *new habit*, may be incommoded by a violent and obstinate disease.

In every paroxysm of an intermittent, the infection *thus wears itself out*; but this is only a *temporary reconcilement* of the body to its action. When after a repetition of fits, the disorder becomes milder and milder, and after a while wholly ceases, this is a case of *lasting reconcilement*. And in this way, may a large proportion of small intermittents *cure themselves*, while the credit of it is given to the bark! This *power of habit* daily does wonders, and labors more effec-

tually for the good of the sick than bark, opium and antimony put together.

The attack of contagion being thus *for a time* overcome, respiration grows free, full and frequent; the lungs cease to be molested by it; more vital air is decomposed there, and more stimulus is applied to the heart and arteries, by means of the increased *heat* and *oxygene* now in the blood. The stimuli operate more powerfully on account of the *accumulated excitability* of the body; and a degree of excitement is thence produced, which sometimes ends in death, sometimes causes delirium, and in almost every case exceeds the healthy range of heat. Persons therefore who die in the hot fit, die of the *indirect debility* induced by the increased heat and oxygene, acting upon the *increased susceptibility of the system*.

The duration and violence of the hot stage will be, other things being alike, in a compound ratio of the *excitability accumulated* in the cold stage, and the heat and oxygene evolved in the hot one. When the excitability is exhausted by the operation of the stimuli, the violence of action will cease, and the body grow cool.

The sweating stage follows of course, as in other cases of the subsidence of violent action. For after the exhausted excitability of the constitution allows excessive action to go on no longer, the respiration grows more moderate and easy, the heart beats with less frequency and force, and the arterial contractions are more regular and health-like; and as these alterations go on, the hydrogene and oxygene of the blood, now run together in the extreme vessels of the skin, and forms the moisture which bedews the sur-

face, and this afterwards flying off by evaporation, cools by degrees the whole body down to its ordinary temperature. And as the arterial extremities of the rest of the body, assume their ordinary condition by the subsidence of excitement, the other secretions which had generally been suspended during the fit, now return as before. After this, the constitution, so far *accustomed* to the contagious poison, regains its former vigour and functions, as far as the exercise endured, and the functions injured during the several stages, will allow.

His doctrine of fever in short, is concisely this:— The contagious fluid, by interfering with pulmonic action, brings on the *cold stage*, and would continue the same until its termination in death, did not the constitution in the mean time, acquire such a *habit* as to gain a *temporary insensibility* to its action. This habit being induced, the cold stage abates by reason of the state of *direct debility* into which the body had been brought; respiration becomes consequently quicker; heat and oxygene are let loose in the lungs, and becoming incorporated with the blood now warm, stimulate every part with more than usual power, and occasion the phenomena of the *hot stage*, which terminates as soon as the accumulated excitability of the system is sufficiently exhausted.— The *sweating stage* next ensues, which after what has been said, hardly requires any further explanation.

The interval between one fit and the succeeding one, will be proportionate *to the strength and duration of the habit acquired*, Some persons thus experience but *one fit*, and the disease vanishes; for under the *same* circumstances, they are never invaded by a *second*. Others suffer *two* fits, or a *succession* of fits, and after a while become so *accustomed* to the stimulus,

that if always applied in *the same degree of strength*, its effect is no longer felt upon the body. In other instances again, so *hard* is it for the constitution to be moulded to a *settled habit of opposition*, that after enduring a great number of invasions, it becomes so enervated and worn down, as at length to die exhausted.

The species of fevers whether quotidian, tertian, quartan, or of whatever type, will be determined by the readiness or tardiness wherewith the contagion gains a *new ascendancy* over the body, or *breaks the habit*. And to this mobility of the animal frame, or ease with which the habit is broken, is to be ascribed, as well the frequency of the returns, as the length and severity of the paraxyoms.

The *anomalous* cases of fevers, which have puzzled Physicians to explain and nosologists to arrange, are as Mr. M. thinks, thus very naturally accounted for; since according to the *variation* of the cause (since the contagious atmosphere may be more or less dense or concentrated, and may be more or less charged with carbonic acid, hydrogen gas, and other non-respirable airs) will be the variety in the effect produced; and as there may be infinite gradations in the noxious cause, so there may be endless variations in the morbid effect, which it would be impossible to describe in words, and useless if it could be accomplished.

Hence he explains why a *succession of fits long continued*, may dispose the constitution to a repetition of fits, even when the morbid cause is away. For though there may be a *habit produced* of insensibility to contagion, yet a habit may in the mean time be established in the bodily motions, of falling periodically into *trains of action*, even when the original

cause is withheld or removed. Here then there will be produced a *habit of having paroxysms* after the manner of *temporary seasonings*, while at the same time there may be a habit formed of resisting contagion altogether, or of obtaining a *permanent seasoning as to that*.

And to *this principle* of the animal frame, he thinks may be referred all the febrile ailments from the most trifling intermittent to the more serious remittent, and to the solemn forms of continued fevers; without calling in the aid, even mentioning the names of *spasm, vis medicatrix, or reaction of the system*: always wishing to be understood as comprehending within the present theory, the animal movements referable to the before-mentioned causes solely, and not extending it to embrace common catarrh, quinsy, pleurisy, peripneumony, rheumatism and other diseases of the pyrexious type, which Mr. Mitchell supposes to proceed from another and a very different cause.

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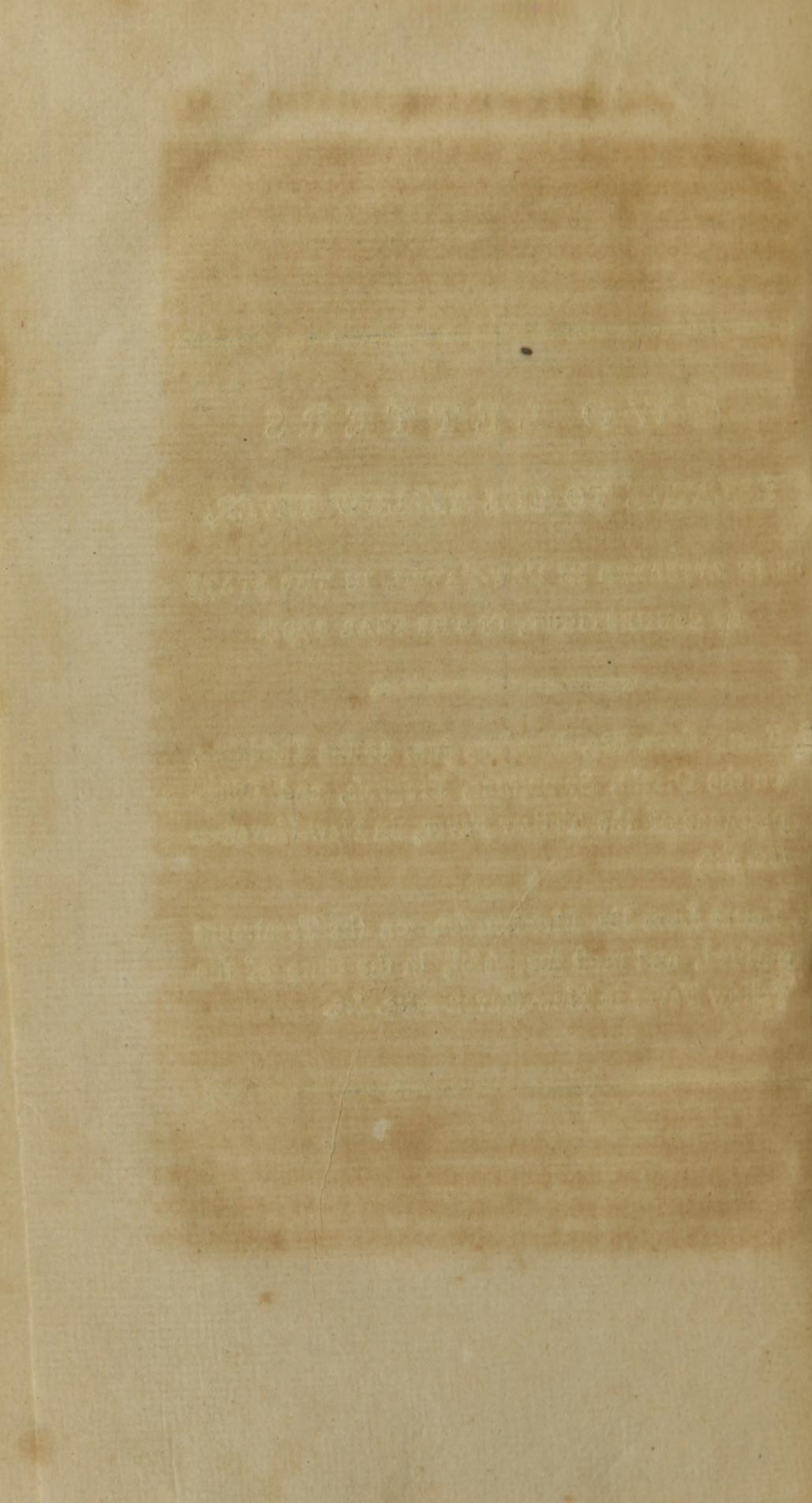
# TWO LETTERS

RELATIVE TO THE YELLOW FEVER,

AS IT APPEARED IN NEW-HAVEN, IN THE STATE  
OF CONNECTICUT, IN THE YEAR 1794.

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- I. Letter from Dr. Monson, jun. to the Publisher,  
on the Origin, Symptoms, Progress, and Disap-  
pearance of the Yellow Fever, in New-Haven—  
&c. &c.
  - II. Letter from Dr. Monson, sen. on the Treatment  
pursued, and most successful, in the Cure of the  
Yellow Fever in New-Haven—&c. &c.
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# TWO LETTERS

RELATIVE TO THE YELLOW FEVER,

AS IT APPEARED IN NEW-HAVEN, IN THE STATE OF  
CONNECTICUT, IN THE YEAR 1794.

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LETTER FIRST. *J*

*On the Origin, Symptoms, &c. of the Yellow Fever, in  
New-Haven.*

*E.*

DR. MONSON, JUN. TO THE PUBLISHER.

SIR,

IN giving a history of the origin of the Yellow, or Pestilential Fever, as it appeared in this City, in the year 1794, it will be necessary to premise some account of those diseases which prevailed here, immediately before; that the Public may be enabled to judge whether there is any analogy between them and the Fever in question.

Sometime in 1792 and 1793, the Scarlet Fever, or Ulcerous Sore Throat, made its appearance in Litchfield, Water-town, and the towns in the vicinity of New-Haven; and raged with great mortality.

In September and October 1793, many of the Inhabitants of this town were affected with a slight Influenza; stinging pains in their jaws and limbs, soreness in the muscles of the neck, with a light Fe-

ver.—In November and December following, several children were affected with the Ulcerous Sore Throat. The symptoms were not alarming; and in every instance it terminated favorably.—In January 1794, the disease assumed a more malignant appearance. In February, March, April, May, June and July, it was highly putrid; and many fell victims to its malignity.

On the 10th of June 1794, the Pestilential, or Yellow Fever, appeared here.—Doctor Hotchkiss visited Isaac Gorham's wife, on the *Long-Wharf*.—She complained of a violent pain in her head, back and limbs; her eyes were dull, and slightly inflamed; she had nausea at stomach, was obstinately costive, with a moderate degree of Fever. No marks of inflammation were discoverable, by inspection, in the throat.—The distressful symptoms, above-mentioned, continued till the fourteenth; when her pain and distress suddenly subsided; and she was elated with the prospect of a speedy recovery. In the evening, she vomited matter resembling coffee-grounds; and died on the 15th.—The Physician, who attended her, was ignorant of her complaint till he saw what she vomited. He then declared her disease to be the Yellow Fever.

On the 15th of June, I visited Elias Gorham's daughter, a child of 8 years of age, in Chapel-street, three quarters of a mile from Isaac Gorham's house. She had been sick three days; her countenance was flushed with a deep red colour; her eyes were dull, and highly inflamed; she had violent pain in her head, back, and limbs; nausea, and frequent vomiting; obstinate costiveness; a quick, full, hard, throbbing pulse; her skin was hot and dry; and her tongue covered with a thick white fur. On the

16th, her pain and distress suddenly abated; in a few hours, she vomited up matter resembling coffee-grounds; and died the next day.—I inspected her throat, during her illness, and could discover no marks of inflammation.

I was surprised at the singular appearance of the disease, and hearing of the death of Mrs. Gorham (Isaac Gorham's wife) inquired of the mother if her daughter had been on the *wharf*. She informed me that the child had lived with her aunt (Isaac Gorham's wife) nearly a week.

The 23d of June, I visited the child's mother. She complained of violent pain in her head, back, and limbs; nausea; frequent vomiting; obstinate costiveness; with a considerable degree of fever. These symptoms continued five or six days; then gradually abated; and soon after she recovered her usual health.

On the 20th of June, Mr. Elijah Austin died in New-York; and his clerk, Henry Hubbard, died in Derby. They complained within three or four hours of each other; and Mr. Hubbard vomited matter resembling coffee-grounds.

The inhabitants of this town were alarmed at these sudden deaths, and requested the *Select-Men* to make diligent inquiry into the origin of this disease.

On examination, it appeared—That, in the beginning of June, Capt. Truman arrived from Martinico, in a sloop that was infected with the contagion of the Yellow Fever: that this vessel lay at the *wharf*, within a few rods of Isaac Gorham's house: that she

had on board a *chest of clothes*, which had belonged to a mariner, who died of the Yellow Fever, in Martinico; and that his chest was carried into Mr. Austin's store, and opened in the presence of Capt. Truman, Mr. Austin, Henry Hubbard, and Polly Gorham; the three last mentioned of whom, died, in a short time after their exposure to the contents of the chest.—Hence it is highly probable that Mrs. Gorham caught the disease from the infected sloop, or clothing. Mr. Austin's store stands within three or four rods of Isaac Gorham's house; and no person in town was known to have the Yellow Fever previous to Capt. Truman's arrival.

June 26th, Isaac Gorham lost an infant child with the Yellow Fever; and soon after his son and daughter were affected with it:—the former died.—Solomon Mudge died on the 30th; Jacob Thomson's negro woman, on the 1st of July; Archibald M'Neil on the 9th; Polly Brown on the 3d of August; John Storer, jun. and John Hide, on the 8th: and widow Thomson, on the 10th.—Jacob Thomson's negro woman, Solomon Mudge, John Storer, jun. and John Hide, had visited Mr. Gorham's house, a few days before their illness; Polly Brown and Mrs. Thomson, nursed in Mr. Gorham's family; and Archibald M'Neil nursed Solomon Mudge.—Elias Gill, died on the 12th of August; and Samuel Grifwold's wife, on the 7th: the former, visited Mr. Gorham's house; the latter nursed in his family.

There were a number of persons who caught the disease at Mr. Gorham's house, and recovered.

Mrs. Thomson, on the first day of her illness, was moved half a mile from Mr. Gorham's, into George-street. Luther Fitch caught the disease from Mrs.

Thomson, and communicated it to his servant maid. Both recovered.—Mr. Fitch lives in College-street, nearly three quarters of a mile distant from Mr. Gorham's house.—I could trace the disease throughout the town. No person had the Yellow Fever, unless in consequence of attending the sick, or of being exposed by nurses, infected houses, clothing, or furniture.

I have inquired of several aged persons in this town, relative to the Yellow Fever, whether they knew of its having ever been here, previous to June 1794, and there is but a single instance; the facts relating to which are these:—In the year 1743, a transient person, by the name of Nevins, who came from the West-Indies, lodged at the house of Nathaniel Brown, an inn-keeper, in this city. The man was taken very sick, in the night; and died shortly afterwards; and his body was very yellow, after death.—Mr. Brown's wife sickened in a short time, and died, of the same complaint; which was, at that time, supposed to be the Yellow Fever.

I am credibly informed that several persons, at Mill-River, in Fairfield county, and also at New-London, died with the Yellow Fever, in August and September 1795. It was propagated there by infected persons from New-York.

Capt. John Smith died in this town, the 20th of August 1795. He caught the disease in New-York, and communicated it to one of his negro servants.

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The following is an account of the number who died, with the Yellow Fever, in New-Haven, in the different months of the year 1794.

June . . . . .	6
July . . . . .	3
August . . . . .	16
September . . . . .	26
October . . . . .	12
November . . . . .	1
	—
Total,	64
	—

Of this number, forty-eight vomited matter resembling coffee-grounds, or port wine.—There were about a hundred and sixty persons who had the Yellow Fever.—Three persons recovered who vomited matter like coffee-grounds; but none recovered, that I remember, who vomited matter resembling port wine.—Some vomited a viscid, tough mucus, similar to the white of an egg; others, matter like chocolate; which were as fatal as the black vomit.

The Yellow-Fever was attended with specific contagion in every instance, and proved equally mortal in every part of the town, in proportion to the number that were sick. No age, nor sex, were exempted from it's ravages. All descriptions of people were alike susceptible of receiving the contagion.

In the month of September, when the Yellow Fever raged with the greatest violence, the inhabitants, in general, were almost entirely free from every other complaint. It was remarked by the

citizens, that they never knew it so healthy, at that season of the year—excepting the Yellow Fever.

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The following is an accurate register of the number who died of the Scarlet-Fever, or Ulcerous Sore Throat, in 1794.

February . . . . .	3	July . . . . .	7
March . . . . .	5	August . . . . .	3
April . . . . .	5	September . . . . .	2
May . . . . .	10	October . . . . .	2
June . . . . .	15		—
	—		14
	38		38
			—
		Total,	52
			—

It was computed that 750 persons had the Scarlet Fever.—This disease appeared in almost every family in town, indiscriminately; and was evidently, an Epidemical disease, which originated in the constitution of the air,—while the Yellow Fever was propagated only by contagion.

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The symptoms of the Yellow Fever, generally, were as follow:—Languor; lassitude; rigors; a dull, heavy, inflamed eye, with a dilated pupil; the countenance flushed, with a deep red color; violent pain, in the head, back, and limbs; nausea; frequent vomiting of matter highly bilious; bitter taste in the mouth; tongue covered with a thick, whitish or yellow fur; a very quick, full, hard, throbbing pulse; skin hot and dry; thirst very inconsiderable; obsti-

nate costiveness—and when stools were procured, they were of a bottle-green color, or resembled tar, or molasses:—These were the general characteristics of the disease; when it appeared highly inflammatory.—In some instances, the pulse was very slow—diminished in frequency below the healthy standard—and very feeble; there was great oppression about the precordia; faintness; disposition to coma; a silly look of the eye; exquisite irritability of the stomach; constant vomiting; faltering in the speech; the countenance of a tawny, or copper color; tongue moist, without any fur, and of a bluish or coal black appearance.—In some I observed a tort, quick, small pulse, and sometimes slow, which would rise on bleeding, and become quicker and fuller.

Where the disease raged with great violence, and was highly malignant, the remissions of Fever were scarcely perceptible to the most attentive observer.

The pulse would continue hard and full, till within a few hours before death; when the pain, distress, and fever, would suddenly abate, and the pulse return to its healthy standard. Soon after, the sick were affected with a vomiting of matter, resembling coffee-grounds, or port-wine; or with a coldness of the extremities, which gradually increased, till death closed the scene.

When the disease terminated favorably, there was a gradual remission of the fever, pain, distress, nausea, and vomiting.

Some were affected, on the third or fourth day, with hemorrhage, from the nose and gums; and sometimes, these symptoms would occur at a later period.

Others were affected with petechiæ, carbuncles, and livid spots, on the face and breast, as large as a dollar. One patient had a number of livid blotches, as large as a damson; some of which discharged a dark-colored, bloody matter. This patient recovered, on the 27th day of the disease.

A young woman had the black vomit, on the third day of her illness. On the sixth, she had a large abscess form, on the superior part of the right thigh, near the head of the Os Femoris; and a large carbuncle, on her loins, of the bigness of a common sized bread cake, and of a livid color. It suppurated on the tenth day; the mortified parts sloughed off, and denuded the spine. On the same day, she had a deep abscess form on the left thigh, nearly opposite to the one on her right. These abscesses produc'd deep, sinuous ulcers, which did not heal till the fourth month of her sickness. On the fifth month, she was able to walk, with the assistance of crutches; and soon after regained her health.

Capt. David Phipps's wife, on the ninth day of her illness, was affected with the hiccoughs, and died on the eighteenth. On the seventeenth, she expectorated matter of an orange green colour, and extremely fetid.—I have mentioned this circumstance as a rare occurrence; very few being affected with hiccoughing, or subsultus tendinum.

The Yellow Fever generally proved fatal on the third, fourth, fifth, and sixth days. There were three or four instances of its terminating fatally in thirty-six hours. If the patient survived the seventh day, he almost always recovered. At this period the fever frequently appeared to make a complete crisis. On the eighth day, it assumed the type of a double re-

mittent: two distinct remissions were evident in the course of twenty-four hours, accompanied by profuse and intolerably fetid sweats, and often with white and read miliary eruptions. This fever seldom made any regular crisis. It often continued till the twenty third or twenty fourth day, and abated gradually.— In the course of the disease, they often vomited a large quantity of green bile,—resembling the expressed juice of red pepper leaves. This evacuation seemed to relieve the disagreeable nausea which most of them were affected with.—The discharge of bile was commonly the effort of nature; gentle emetics, seldom or never, procuring a discharge of bile.

I saw two instances of reinfection.

The effects of the contagion were, generally, obvious on the third, fourth, or fifth day, after exposure. In one instance they did not appear till the thirteenth.

The bodies, of those who died of the Yellow Fever, were either of a tawny, or copper color: Some were of a deep yellow; and one almost of an orange green. Three appeared as if they were sprinkled with ink.

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In respect to the origin and nature of the disease under consideration, I esteem it justifiable to reason from facts alone. I am fully of opinion that the Yellow Fever is seldom, or never, generated in this country, and that it is always imported from abroad. An objection to the idea of its being generated in this country is, that it was never known in the interior of this state, or of the United States; so far as I can

learn. Had it ever appeared in Connecticut, before the year 1743, and June 1794, we should, undoubtedly, have had some record of the fact. There is no such record, and no person remembers to have heard of such a disease, but at these periods, prevailing in any part of the state. There are numbers of aged persons in New-Haven, who remember the Putrid Ulcerous Sore Throat, Small-pox, Meazles, Dysentery, &c. raging here, with great mortality; but have no recollection of any Yellow Fever. Hence we may rationally conclude that it never did appear, in this state, but in the years 1743, and 1794.

It is evident, from facts before-mentioned, in this letter, that the Yellow Fever was propagated in no other way than by contagion; and that this is a *specific contagion*, and no more diversified, in its operation on the human system, than that of the Small-pox and Meazles.

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If the citizens of large commercial cities were attentive in tracing the origin of the Yellow Fever, on its first appearing among them, they would often find that the disease was imported. In some instances it would be extremely difficult to discover the origin.—But the mischief lies in this—that the inhabitants of such cities, whenever a contagious disease makes its appearance among them, endeavor to suppress all rumor of it, from an apprehension of alarming the country, and injuring their commerce: unwilling to believe that there is evil in the city, till the disease spreads in every direction. Then, indeed, when it is too late, they are solicitous in the use of means to arrest its progress. As it extends itself slowly, at first,

seasonable exertion might both detect its source, and prevent its increase; but when it is diffused through a city, it spreads with rapidity, and it is no longer possible to discover where it began.—But as, whenever the Yellow Fever has appeared in the United States, it has always been in sea-port towns, and originated near wharves, docks, and warehouses, there seems to be high probability that the disease is imported.

With sincere esteem,

I am yours, &c.

ELIJAH MONSON.

NEW-HAVEN, *April 24, 1796.*

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LETTER SECOND. P

*On the Treatment most successful in the Cure of the Yellow Fever, in New-Haven, in 1794, &c. &c.*

DR. MONSON, SEN. TO THE PUBLISHER.

DEAR SIR,

THE communication which accompanies this, from my Son, contains an account, sufficiently minute, of the origin, symptoms, fatality, &c. of the Yellow Fever, as it appeared in New-Haven, in 1794, together with his reasons for believing it to be a disease of foreign derivation, and of specific contagion.—I have reserved to myself the task of conveying to you some information respecting the plan of cure generally adopted; on the *juvantia* and *cedentia*; and relative to sporadic cases with similar symptoms.

In June 1794, when the pestilential or Yellow Fever, made its first appearance here, the Scarlatina Anginosa was rife, with great malignancy. It did not, at all, admit of the use of the lancet; but, on the contrary, we found the bark, mineral acids, and high stimulating cordials, most successful in promoting the cure. This Fever exhibited considerable variety of symptoms, in different circumstances and habits. Sometimes, the soreness of the throat preceded the scarlatinous efflorescence; at others, the cuticular eruption appeared previous to the difficulty of swallowing and soreness of the throat: and in others, again, there was no eruption on the skin, from first to last, and only a temporary complaint in the throat, but a gangrenous affection of the Tonsils, which was soon communicated to the habit, and proved suddenly fatal. The Scarlatina Anginosa being thus the constitutional Epidemic, and ushered in with many of the same symptoms with the supervening Pestilential Fever, it will not appear very extraordinary that, on its first appearance, the one should be mistaken for the other. This was the case, in respect to a number of those first seized with the Yellow Fever; who being treated with bark and cordials, without much previous evacuation, rarely recovered. Indeed, of seventeen, or eighteen, who were earliest affected, fourteen died. But, whether this should be ascribed to the treatment, at this period, solely, or to the nature and virulence of the infection, I am not satisfied. For I am confident that the Fever assumed a more malignant aspect in those who received the infection from the *Fomites* of the disease (which was mostly the case at first) than where it was derived immediately from the bodies of the sick: which observation, if just, confirms the opinion of Dr. Cullen, respecting contagion.

This extraordinary mortality having convinced us of the impropriety of trusting to, or using, cordials, bark, &c. we, with one accord, had recourse to the lancet; endeavoring, at the same time, early to cleanse the first passages with strong purges, composed of Jalap, Calomel, and Aloes: for the sick were obstinately costive, in general, and required much physic to move them, and frequent repetitions to keep the bowels open. These evacuations were very evidently attended with the most speedy relief of head-ach, nausea, and oppression; the stools procured, by the purges, were commonly of a greenish, or dark bilious tinge; and, where the bile was brought off copiously, it was not usual to see that yellowish suffusion of the eyes, and surface of the skin, throughout the course of the disease, which was formerly accounted a principal diagnostic, and has given name to the Fever.

The repetition of the lancet was necessary, to third or fourth day, in some habits, as were the mercurial purges.

There was little dependence to be placed on diaporetics, by reason of the extreme irritability of the stomach.

Baths and fomentations, in some cases, were highly palliative.

The fermenting mixture, sometimes restrained the vomiting. This effect was, likewise, produced by blisters, applied to the region of the stomach. When applied just above the knees, they appeared to be attended by decided advantage, in diminishing the frequency of vomiting, relieving the head, palliating nervous affections, removing coma, and encouraging diaphoresis.

Clysters, often thrown up into the bowels, were peculiarly serviceable, not only to assist in effecting the more easy and thorough transit of the Physic, but to cool the bowels, attenuate the viscid colluvies, and dispose to perspiration.

The Bark, in the decline of the Fever, answered a good purpose, where it could be retained; but there were but very few who could bear it in substance, and not many in any form.

Opium, whether administered to relieve pain, or stay the vomiting, was observed to have the most pernicious effects; especially in the early stage of the disease. A man and his wife, who had been accustomed to the use of Laudanum, on former occasions, when seized with the distressing symptoms of this Fever, had recourse (in the beginning of their illness, and previous to any medical advice) to the liberal use of that medicine, for the relief of their pains; and both died in about thirty six-hours.

A free, cool, well-ventilated apartment was of the greatest importance.

The passions of the mind had a very sensible effect on the sick.—The passion of fear, in particular, was not only highly predisposing to the reception of the contagion, but a very fatal concomitant. Hence the pusillanimous and fearful, when exposed to the cause of the disease, rarely escaped; and hence the fatal consequences which, in sundry instances, followed from funeral knells, which were, in general, manifestly detrimental.

On the 6th of September, I was myself seized with the common symptoms of the Fever. My habit being slender, and as I had been worn down with

fatigue and much exposed to the night air, I was cautious of using the physic in the quantity I had been wont to give it to my patients; at the same time fearful I should not be able to retain it on my stomach. I found, by the gradual introduction of it, I had, by the third day, considerably affected my habit with the mercury. I no sooner perceived my gums and fauces touched, than I found that almost intolerable oppression about the precordia yeilding and subsiding.—Upon reflection, I recollected a circumstance which before I had not attended to—That, where the mercury, in the purging pills generally used, had so far insinuated itself into the habit as to produce any soreness of the mouth and gums, the patients had universally recovered. I mentioned this circumstance to my brethren of the faculty, who, on recollection, assured me that their uniform experience confirmed the fact: none of them having lost a patient, where the mercury had produced ptyalism.

Thenceforward our main object, after cleansing the first passages, was to introduce mercury into the system, as fast as possible, both by the stomach and by friction.—This appeared to be a more eligible and successful treatment, than to repeat the mercurial purges through the course of the Fever.

Notwithstanding the evident symptoms of inflammation, in this Fever, I cannot say but that, in sundry instances, large and repeated bleedings appeared to sink the patient, and proved detrimental; and purging, also, was sometimes, carried to excess. Yet, in no instance, was bleeding pushed to near that extremity, as was often practised in Philadelphia.—I would not, however, be understood, in any measure, to censure the practice of the faculty in Philadelphia; for it is well known that diseases of the same name

and type, at different times and places, require different treatment. The Yellow Fever, too, when it prevailed among us, may be supposed to partake, in some degree, of the nature of the constitutional epidemic then existing;—I mean the Scarlatina Anginosa, in which nothing was more fatal than the lancet: for, whatever inflammatory symptoms appeared in the beginning, there was almost universally, a sudden transition, from the inflammatory, to the putrid diathesis, which called for the early use of tonics, and highly stimulating cordials. And the Yellow Fever, though ushered in with strong inflammatory symptoms, yet terminated, when fatal, with those of an opposite nature.

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There were no dissections made in this town; but, from all the symptoms attending, I could not have entertained a doubt of finding a morbid affection of the liver, had not gentlemen of the faculty, and eminent in their profession, in Philadelphia, and in other places where this Fever has prevailed, decided to the contrary. But there has never been, I believe, any uniform appearance of this Viscus discovered on the dissection of those who have fallen a sacrifice to this disease.—But if the liver be not primarily affected, may it not be a question whether the remarkable yellowness, noted in the eye, and over the whole surface of the body, be any thing more than a consequence of that colic, torpid state of the intestines, in the early stage of the disease, which, by retaining the bile, now constantly pouring into them in its usual, or perhaps increased quantity (as may be supposed from increased excitement of Fever) allows an absorption by the Caeteals to take place, and thus produce this phenomenon—according to the suggestion of M. Portal?

Many circumstances seem to favor the idea that the liver is affected primarily : such is the pain, either dull or acute, so universally perceptible on pressure with the hand on the region of that viscus, and which increases with the disease;—(and I have known it to that degree, that half the weight of one's hand would produce swooning)—and such, also, is that tenity and distention of the integuments.—Both Warren and Hillary supposed the liver to be the seat of the Fever ; and Dr. Broag, who performed many dissections in this Fever, and in the *Dysentery of hot climates*, observes that the liver was almost always found diseased. And Dr. Hunter remarks, that a diseased state of the liver and spleen has an intimate connection with the diseases of hot climates.

But whether the disease of the stomach and intestines precede that of the liver, or the reverse, they must all be more or less affected, in the progress of the Fever. For it cannot be supposed that so violent and long-continued a derangement of the alimentary canal, as is evident in the Yellow Fever, could take place, without extending its disorder to the functions of the liver, if not to its very substance.—But perhaps a decision on this point can make little alteration in the method of cure ; a local inflammation in any of the *Viscera* being, doubtless, to be submitted to the same general plan of treatment.

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There is nothing in the histories of the Yellow Fever, which I have seen, more extraordinary than that gentlemen, clearly eminent in the profession, should so decidedly give it as their opinion that the disease is not infectious. Dr. Hunter remarks that, in no instance, did the Yellow Fever prove more in-

fectious than the Remittent; and that it was to him matter of consolation to be able to declare it not to be an infectious disease. And Dr. Mosely, if I am not mistaken, is of the like sentiment.—Now, with us, the contrary of this is demonstrated by the most obvious facts.

In a climate where the disease is not epidemical, and where it is not generated, we are under advantages to decide, with much more certainty, in respect to its infectious nature, than we should be in a hot climate; where the long-continued heat, in conjunction with a number of other causes, is productive of the disorder, and where it would, therefore, be very difficult to determine when the Fever was constitutional, and when propagated by contagion.

We have never, in this part of the country (except in a single instance in the year 1743, mentioned in the preceding letter) been acquainted with a Fever altogether similar to the one in question. True, some chronic complaints in the viscera, as well as acute sporadic fevers, ending in sphacelation, have been attended with the vomiting of a fluid, putting on the appearance of coffee-grounds, and terminated in a black vomit. We have often seen continual endemic fevers, intermittent, and remittent bilious fevers, originating from the putrid gases of animals and vegetables commixed,—as from draining of ponds and stagnant waters:—but no disease from these sources, or any in our climate, I conceive, ever compared with what is generally known by the name of the Yellow Fever—no disease attended with so great rapidity, or characterized by that deep-shaded, universal yellowness, and vomiting of black-colored matter—oozing from the surface of the stomach.

Dr. Ferrier observes, that pestilential disorders are not to be ascribed to animal putridity. Instances have been adduced in which thousands of dead bodies, have been left to putrify on fields of battle, without producing pestilential fever; nor have fevers been observed to originate, or to rage more severely, in houses surrounding Church-yards; though the stench is often insufferably offensive. And, says the same author, it is a question whether the dead body of a person who perished with the plague or fever, be capable of communicating infection.—I conclude, then, that the contagion of the Yellow Fever is a *specific* contagion; and that, in this climate, it is propagated by animal poison, in a gaseous form, proceeding from a living human body diseased—and in no other way—and suppose it to act immediately on the nervous system.

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In hot climates, where the Yellow Fever is generated, there is a combination of causes that do not exist here. There is, Dr. Blane tells us, something peculiarly noxious in the land air.—The most pernicious practice, to Europeans, when newly arrived in hot climates, is exercise in the heat of the sun. This, joined to intemperance, renders such climates so fatal to foreigners.—Besides the obvious effects of bad air, depending on heat and moisture; the Dr. mentions several instances of the singular quality of air in particular places—which, though its influence cannot be accounted for, has yet certainly the effect of producing the diseases peculiar to such places.

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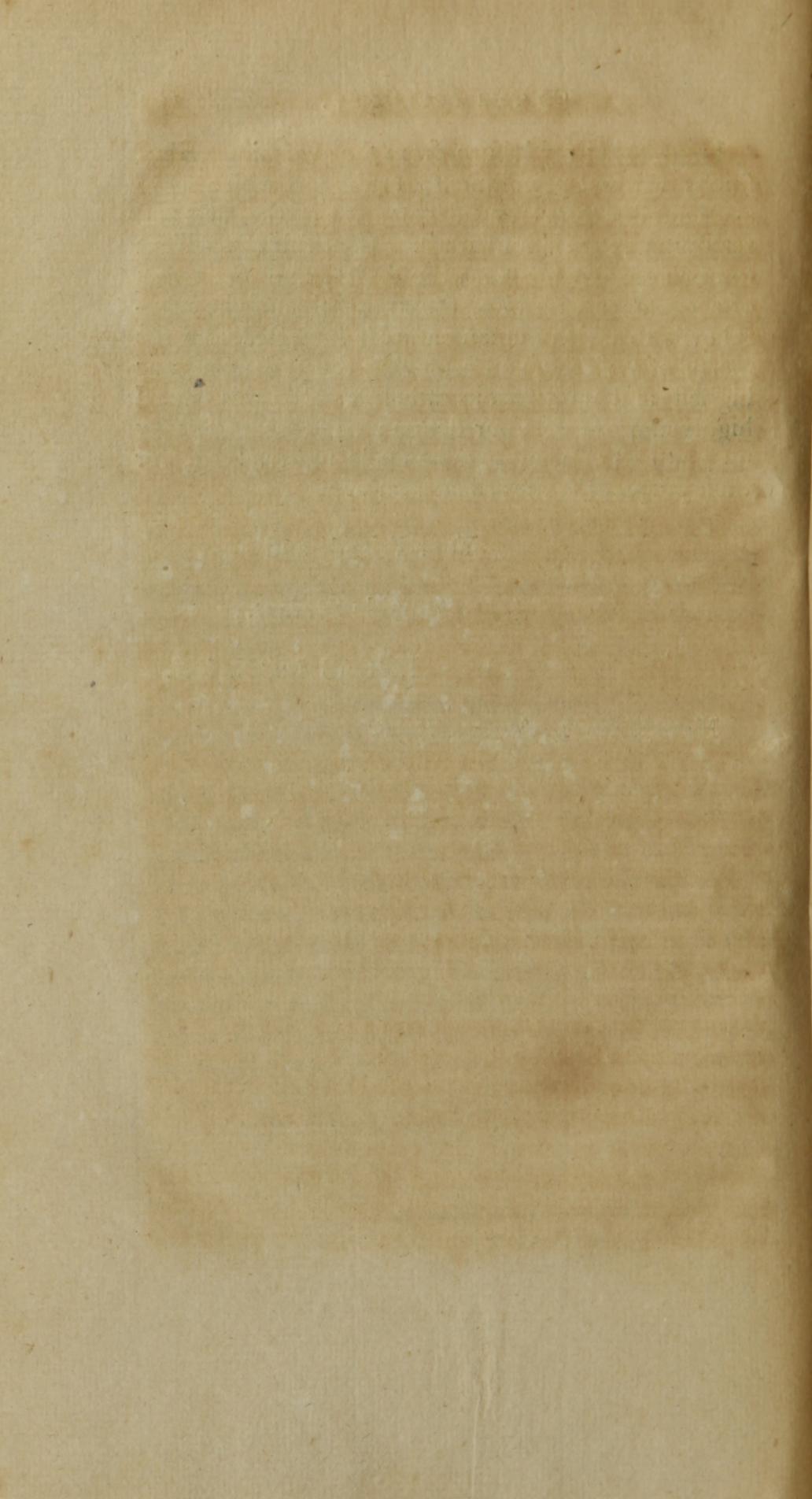
I regret that my leisure, from the avocations of business, will not permit me to furnish you with a more ample and better arranged statement of the facts and reasonings, in relation to the present subject.—Next to our acquaintance with the Deity, and the terms of acceptance with him, the knowledge of the natural evils to which human nature is subjected, and the means of avoiding, and removing them, demand our highest and most serious attention.—To this end, I highly approve of your design; and that prosperity may attend you, in your laudable undertaking, for these purposes, is the ardent wish of

Your Friend, and

Humble Servant.

ENEAS MONSON.

NEW-HAVEN, APRIL, 1796.



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L E T T E R,

OF DR. REYNOLDS, TO THE PUBLISHER.

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SIR,

I AM happy to hear that you purpose collecting a history of the Epidemic Bilious Fever that has of late made such ravage in several places in America. By thus placing within so small a compass, the practical experience of those who have had an opportunity of treating and being acquainted with that disease, much useful knowledge of the subject may be disseminated, and the general good of mankind promoted.

To aid this undertaking, I send you the following, which if you think worthy of notice, will find a place in your collection.

For the fall and winter of the year 1792, and in the summer following, an Epidemic Bilious Fever, appeared with much violence in the town of New-Galway.

In general the first attack was not severe—for one or two of the first days, the patient might rather be said to be unwell, than sick.—But this state continued not long—soon a violent fever, with severe pains in various parts of the body, commenced—very frequently a nausea and vomiting, and sometimes a violent purging, were early companions of this disease. In patients of a delicate constitution, the pulse was

small and quick from the beginning; but in others of a more robust habit, the pulse was full and in some cases very regular, although the other symptoms were much aggravated.—They seldom complained of much thirst after four or five days, although the mouth and tongue were dry and foul.—Most of those cases that proved fatal continued till after the twelfth day, and many till the twentieth from the onset of the disorder.

In some few cases at the beginning of the disease, bleeding appeared to give some relief. But in most of the instances where I had an opportunity of observing its effect, it was evidently hurtful.—The same I can testify with respect to frequent purging.

My general mode of treating this disease, I published in the Albany Register (a copy of which I send inclosed)—And I have since frequently had the satisfaction to hear from gentlemen of the faculty, that my mercurial method had proved remarkably beneficial within their experience.—'Tis not within my power to trace the origin of this disease, in this place, to any known cause. The country has been improved about ten years, and previous to this, and since, has been remarkably healthy, except a small number of cases of the Maligna Angina, which not only occurred in this, but in all the neighboring towns, where nothing of the Bilious Fever followed. It began late in the summer, and continued till the the next spring. It was expected that the winter would check its malignancy; but on the contrary, many of the worst cases happened in December.

In the summer following, a very extraordinary case happened. Upon the border of a marshy piece of land, a horse died, and was suffered to remain above

ground and putrify. A young woman who lived near the place having frequent occasion to pass near the carcase, was seized with a violent pain in her head and sickness at the stomach. On the second day from the attack, a physician was called, who let blood from the arm; but her fever increased, and she soon became delirious. On the third day when I first saw her, every symptom appeared fatal. Upon her feet and hands, fingers and toes, a number of blisters, surrounded by inflammation, appeared—and a real mortification had already begun upon the ends of some of her toes—The blisters and places of mortification continued to increase till the morning of the fourth day, when she died.

The fatality attending this case, will shew the necessity of burying all animals that may die in the summer season near any habitation. A precaution little attended to in the country.

STEPHEN REYNOLDS.

*Montgomery County, State of New-York,  
December 27th, 1795.*

*The following is the Paper mentioned in the foregoing Letter.*

FOR THE ALBANY REGISTER.

THE method recommended by Dr. Rush of treating the contagious Fever now so prevalent in Philadelphia, is by some physicians objected to, be-treating the Contagious Fever now so prevalent in cause so simple; by others, from an idea that mercury can never be advantageously used in fevers, especially in those of a putrid kind. Fully convinced that those objections are made either from prejudice or mistaken theory, I view it an obligation incumbent on me to bear this public testimony in favor of this new mode of treating putrid fevers.

In the neighborhood of New-Galway, for several months past, an Epidemic Fever, attended with the same symptoms as that in Philadelphia, has raged to an alarming degree, and many have fallen victims to its fury.—To a number of those cases I have been called, and have treated them in the following manner, with the happiest success.

In the first or inflammatory stage of the disease, I gave calomel from 20 to 30 grains, sufficient to prove cathartic, with a moderate opiate after the operation. The next day, and during the continuance of the fever, gave 2 grains of calomel, morning, noon, and night, and opiates occasionally—giving frequently an infusion of Rad. Serpent. Virg. in water; at the same time ordering that wine or lemonade be mixed in all their drinks. This method pursued in the early stage of the disorder, a copious sweat will ensue, and the patient soon recover. If this happy time for relief is neglected, the fever puts on the highest symptoms of putrefaction, and often terminates in death.—I ought to mention that the symptoms attending those

eases that I have seen, have not been so violent or suddenly fatal as it is said of that in Philadelphia—owing, probably, to a difference in the climate.

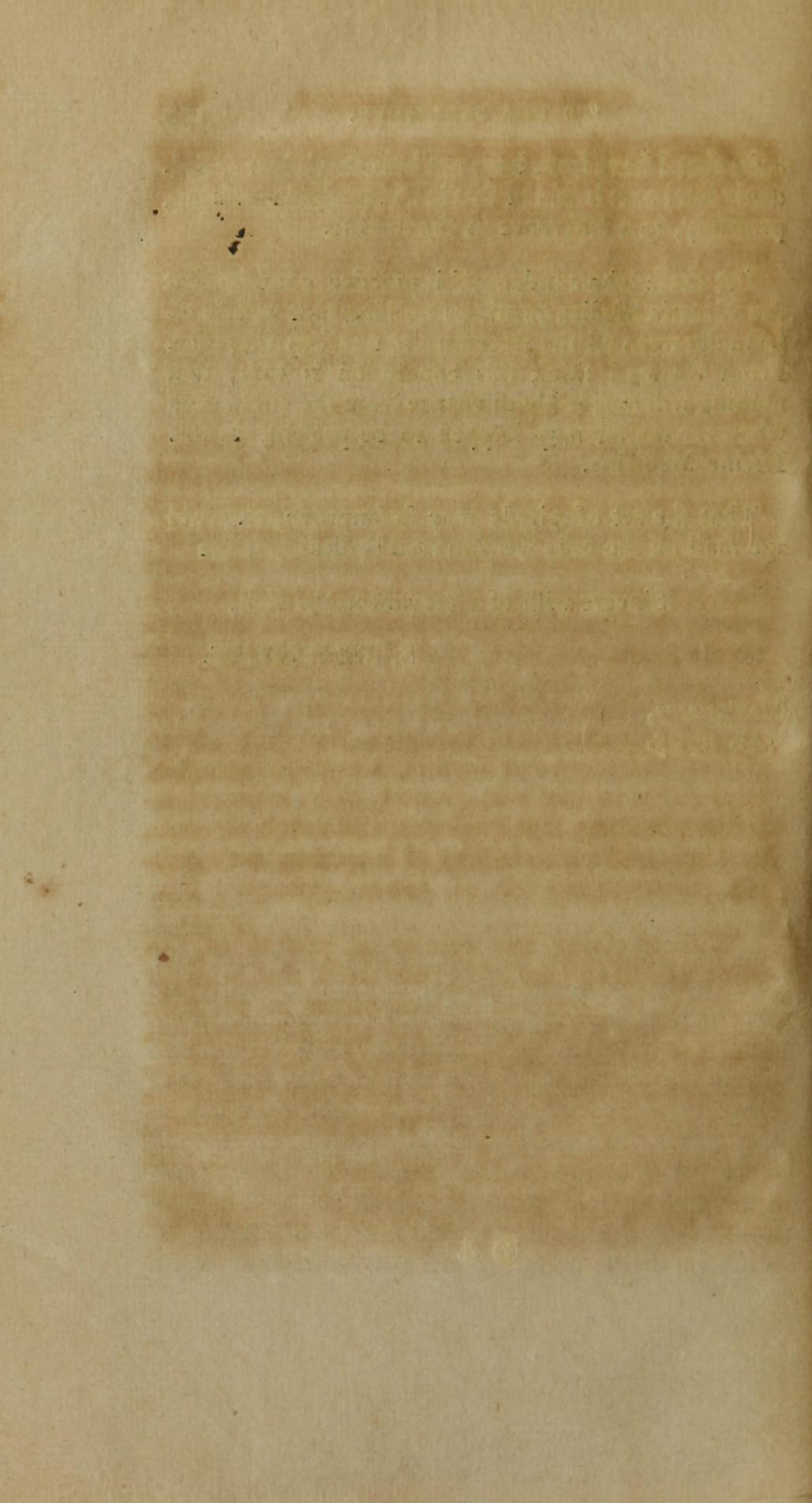
Let those who condemn this practice, consider that the *Materia Medica* furnishes nothing that will so effectually open all the secretions at once, as Mercury. From thence I think this conclusion is easy, that nothing will so speedily discharge from the circulation whatever matter may happen to be present, as this Divine Medicine.

That the art of physic may so improve, that old age shall be the only weapon used by death, is the

Sincere wish of a Servant to the Sick,

S. REYNOLDS.

*Montgomery,*  
*Oct. 1795.*



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## R E M A R K S

ON CERTAIN CAUSES OF DISEASE IN LARGE CITIES,  
AND THE MEANS OF PREVENTING THEM.

WRITTEN IN DECEMBER, 1795.

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**T**HE prevalence of the bilious remitting Yellow Fever, in this and the neighboring States, for a few years past, and its fatal effects, in many of the large towns, render an investigation into the causes that have produced it, highly interesting to the citizens of the United States, and especially of the mercantile towns.

The question whether the Epidemic, which has proved destructive in Philadelphia, New-York, New-Haven, Baltimore and Norfolk, was the offspring of local causes in our own country, or of imported infection, has been much agitated, and to this moment, well-informed men are divided in opinion on the subject.

Without giving any opinion at present on this point, one thing may safely be averred, that, whether imported, or generated by local causes in our own country, the epidemic influence and destructive effects of this malignant bilious fever, are greatly increased by local causes, which are wholly within the command of human power. It can be demonstrated to the satisfaction of all rational, candid men, that whatever be the origin of the disease, a great proportion of its deleterious effects, is to be fairly ascribed to the

negligence of men. This point must be admitted; for it can be proved by a series of decisive facts in this city; and I am informed also, by facts in Philadelphia, Baltimore, Norfolk and New-Haven. This circumstance lessens very much the importance of deciding the question, whether imported or not; for if imported, it does not spread, unless its progress is favored by unwholesome air in this country.

My main design is to persuade my fellow-citizens, that the general health of this metropolis depends greatly on their own exertions; and that although human power cannot guard against every instance of disease, yet it may prevent, in all cases, a disease propagated by contagion, from spreading so as to become a general calamity in a populous city. To enforce a conviction of this kind, I shall produce only the evidence of incontestible facts or acknowledged truths, and the conclusions fairly deducible from them.

Diseases, for my purpose, shall be divided in the following kinds.

I. Those which are neither contagious nor epidemic, but generated in particular persons by local and temporary causes, as the peripneumony and pleurisy.

II. Those which are propagated solely by contagion, as the small-pox.

III. Those which are epidemic and are not ordinarily communicated by infection, as common colds, and the intermittent fever.

IV. Those which may be both epidemic and contagious; as the Dysentery, Scarlet Fever, Yellow Fever, &c.

The first class, depending mostly on accident, or the negligence or vices of individuals, are not the objects of my present inquiries.

The second are for the most part easily avoided by preventing a communication with the diseased. Some remarks that will hereafter occur may be applicable to cases of this kind.

The third class are for the most part out of the reach of public regulations. Individual precaution may do much to prevent or mitigate epidemics; but this is foreign to my present subject.

The fourth class of diseases are more or less under the controul of human regulations, according as they depend more or less for propagation on an epidemic imperceptible influence, or on contagion by means of a communication with the sick. The influenza which appeared in 1789 and 1790, was said to be contagious; but if this was true, the disease could not have spread by communication with the diseased; for hundreds and thousands of persons were seized in a day, without any intercourse with each other.—Its propagation therefore must have been by means of invisible causes existing in the atmosphere.

What then are the causes of epidemic diseases of the pestilential kind?

It is evident there are two principal sources of disease.—The first is the air we breathe—The second, our food and drink. These causes may, and often do, act separately; and not unfrequently they act jointly in producing disease.

Irregularities in diet and the use of improper food are things that depend mostly on the will of indivi-

duals ; and if they produce less disease at one time than another, it is because the season is more or less favorable. The object of my present inquiries, is principally to explain the other great source of pestilential diseases, *impure air* ; to demonstrate how much it is in our power to prevent its existence or lessen its effects, especially in populous cities ; and hence to enforce the necessity of a total and thorough reform in our police.

It is a fact that is evident to all the world, that the natural state of air, unmixed with any substances exhaled from our earth, is the most fit for respiration and perfectly salubrious. Atmospheric air, even in its purest state, is found to be a compound fluid.—The parts, when separated by chymical process, are unfit for respiration, and a portion may be extracted from the purest air, which is instantly fatal to the life of animals. Chymists suppose they have ascertained the proportion of the parts of good and bad air, which exists in the natural state of the atmosphere\*. This is not material to my purpose. It is sufficient for the purposes of common utility, to know that air is salubrious when it is pure ; that is, in its natural state, unmixed with effluvia from the surface of the earth—and on the other hand, that the air is unwholesome and unfavorable to life, in proportion as it is impregnated with morbid exhalations from the earth.

The morbid exhalations which affect the air, proceed mostly from fermenting animal and vegetable substances. In what proportion these substances

\* See an ingenious little treatise on Contagion, lately published by Dr. S. L. Mitchill ; in which, notwithstanding the technical terms employed, a common reader may find much instruction.

produce such noxious effluvia, is not material; as it is a given point that both may produce them. That state of animal and vegetable substance which seems to generate the poisonous air in greatest quantities and with most rapidity, is the state of *putrefaction*; which is the natural process by which such substances are decomposed and resolved into their original component parts.

Putrefaction is carried on by air, heat and moisture. Without air, all action ceases in the animal and vegetable world; and the greater the heat and moisture to which such substances are exposed, the more rapid will be the process of putrefaction.

As all animal and vegetable substances contain a quantity of noxious matter; and as they must be continually decaying and putrefying, in greater or less quantities, on the surface of the earth; and as they necessarily discharge, during this process, a poisonous effluvia into the atmosphere; it becomes a serious question, especially for the inhabitants of large towns, and in the neighborhood of extensive marshes, by what means they can avoid the inconveniences and fatal effects of such an atmosphere. Let us then attend to the following considerations.

The exhalations of a deleterious kind, like the effluvia of all other kinds, proceed from certain objects as from the centre of a circle; and if not forced from their direction by winds, probably diverge in straight lines. Near the objects from which they proceed, they are in their most dense or concentrated state; and as the objects usually lye on or near the earth, the air near the earth must be impregnated with the greatest quantity of this morbid matter. Perhaps also the specific gravity of this foul air may be

greater, than of pure air. But it is probable that it is capable of rising and diffusing itself in the atmosphere; and that it becomes attenuated by occupying a larger space in the common air, until it is thoroughly incorporated. In this manner, it is most dangerous, because most concentrated near the earth; and at a distance, is more harmless.

The means of avoiding the injurious effects of these exhalations are various.

I. By removing the animal or vegetable substances, which generate noxious air. This is an article of infinite consequence to cities.

II. When the sources of poison cannot be removed, as with respect to large marshes which cannot be drained, the obvious method of avoiding the ill effects, is to avoid, as much as possible, breathing the air in the neighborhood. Farmers would do well to set their houses as far as is possibly consistent with their business, from such low grounds.

III. When people necessarily live in places where large quantities of morbid effluvia usually impregnate the atmosphere, ventilation of their streets and houses is among the most effectual means of preventing the concentration of the poison and its fatal consequences.

So far as regards the police of a city, the whole doctrine of preventing or mitigating the injurious effects of bad air, is comprehended in the following articles—to remove the sources of the poison, or to dissipate it as much as possible.

To remove the sources of the evil, infinite care should be taken in building cities, to leave no low

grounds or hollow places among the buildings, as receptacles of water and filth. The back yards should, in every case, be raised above the pavement of the streets, and the streets should be so raised, as to give a considerable descent into the adjoining river or sea. No trouble or expense will justify a neglect of this regulation. The health and the lives of citizens absolutely depend on this precaution. If the land in the rear of the building lots is naturally lower than in front, it should be raised by carting in earth. It should be an article of the police of every city, that no man should erect a house, without at the same time, raising the back yard, to give a descent into the street. The yard should also be paved, if among other buildings in a compact part of the city; and no filthy water from the house should be suffered to lodge in back yards. People should learn that it is not large piles of animal or vegetable substances alone, that generate foul air; but every small substance, and all the water that has been used in a family, add to the sources of this evil. Water itself may be absorbed in the earth or evaporate; but any filthy substance it may contain, lodges on the surface of the earth, exposed to the action of the sun, and furnishes a portion of poisonous effluvia. Hence in cities, smooth pavements, though they may augment the heat of the air in some small degree, contribute not a little to preserve a pure air, by facilitating cleanliness. And it is a remarkable fact that the inhabitants of the suburbs or skirts of many of the large towns in America, who live beyond the pavements, are much more subject to the common autumnal complaints, than those who reside within the pavements.

Water is perhaps the best purifier of the houses and streets of cities, as well as of infected clothes.—

The use of water cannot be too liberal; but care should be taken that none of it remains to stagnate about or near buildings. Water imbibes the poison of foul substances, and therefore when houses, back yards and streets are washed, the water should be enabled, by suitable channels, to run off into the sewers or adjoining river. If the natural surface of the earth is too level for this, no pains should be spared to remedy this inconvenience by artificial elevations. It is no excuse for neglecting these things, to say they are *expensive*; because they cannot be so expensive as *epidemic diseases*. The loss of business for one season, in such a city as Philadelphia or New-York, would build all the streets in this city, where the fever has been most fatal\*. But when we take into consideration the loss of life, the tears, the distresses of bereaved parents, and of helpless widows and orphans—the idea of *expense*, for the purpose of preventing such calamities, loses all its terror.—Labor and perseverance will conquer all difficulties of this kind; and if all possible means of rendering cities healthy are not used, why are they built at all? Why should cities be erected, if they are to be only the tombs of men? A frequent recurrence of malignant and fatal epidemics will besides lessen the business of a town, and this sinks the value of real estate. It is therefore the proprietor's *interest* as well as his *duty* to attend to every circumstance that can insure the health of his tenants.

But as among a multitude of people, the artificial causes of disease must be numerous, and much dirt and filth will be found, to produce impure air, whatever pains are taken to preserve cleanliness; it be-

\* Half a million of dollars is probably a low estimate of the loss incurred by New-York the last season.

comes a serious inquiry how streets and buildings may be best constructed for ventilation. As water absorbs the poison of filth or washes it away; so wind dissipates the morbid effluvia, and renders it altogether harmless: or at least diffuses it so as to lessen its action upon the system. If we examine the progress of the late fever in this city, we shall find its ravages in a direct proportion to the want of cleanliness and ventilation in the several streets and houses.

To know how much depends on a free air in the cure of fevers, most persons need only to attend to the facts within their observation. But this is a circumstance of so much importance to a city, that it deserves particular consideration.

Air, as well as water, is a fluid, which, by the laws of nature, is kept in almost continual agitation. Its natural state, as before observed, is perfectly salubrious; that is, fitted for the purpose of preserving life and health. Whatever poisonous qualities it may contain, it receives them from substances within the human body, or on the surface of the earth. But it is a law of fluids to purify themselves by motion. Thus whatever impure qualities the air may receive from putrifying substances, and which may be raised by heat and float in a stagnant air, may, by violent agitation, either be so attenuated or diffused, or so intimately combined with other parts of the air, as to be rendered totally harmless. Whatever therefore tends to obstruct the motion of the air near the earth; that region of air which men constantly breathe; restrains, in a greater or less degree, the natural tendency of the air to purify itself. Hence the infinite importance of attending to the means of giving a free current of air through houses and the streets of a populous city.

The streets of a city should, if possible, be strait.— The stale notion of censuring uniformity in a city, is worthy only of weak minds. Crooked or winding streets tend to break the force of the wind; as with a stream of water, which is retarded at every bend. This article however is not of the first consequence.

It has been doubted whether wide streets in a large town are very beneficial; as the action of the sun on the pavement is violent, and the heat is increased, and as the quantity of shade is less in proportion in wide streets than in narrow ones. But wide streets, if kept clean, are doubtless the most healthy, as they admit a larger quantity of pure air, and a more free circulation.

Another article in the laying out of streets for healthiness, is, a suitable elevation of the parts distant from the sewers or river, to give a descent for the water to run off with some force and rapidity. A moderate elevation is not sufficient; for though, in such a case, the water itself may drain off slowly, yet it leaves most of the filth behind, which is the source of poison to the inhabitants. In this particular, Front-street and Water-street, in this city, are very ill constructed. The natural position of those streets, which are made along the shore of the East River, is nearly on a level. It was the business of the police to remedy this, in the mode of paving.

Two obvious modes of preventing the inconveniences of level ground, suggest themselves. First to raise the middle of the street, then to give the whole a more round or spherical form, than is necessary on a declivity. Where a considerable declivity occurs, the water will run off with force, whatever be the form of the pavement. But on a level, some artificial elevation must be contrived. On a declivity, the

form of the pavement should be the section of a large circle—on level ground, the section of a small circle, is a better form.

The second improvement in making streets on level ground, is to raise the land in the centre, between two gutters or sewers. Thus for instance Water-street, between Pine-street and the Fly-market, should be raised much higher than at present, in the central point between the two streets. The inconvenience of an elevation of two or three feet in such a distance, is trifling, when put in competition with cleanliness.

Perhaps also smooth gutters along the sides of the streets, next the foot walk, might be made of hewn stone, and so laid as to be durable. This would amazingly facilitate the cleaning of streets which are nearly level.

Another article in constructing a city for health, is, that as few streets as possible should terminate within the city; that is, inclosed, at the ends as well as sides, by ranges of buildings. Wherever a street terminates by a block of houses, the circulation of air is obstructed. Violent winds indeed penetrate into every place; but most of our summer winds are light, and in the sultry season, when ventilation is most wanted, because the exhalations of a noxious quality are most considerable, there is very little wind in the open country; and in the confined streets of a city, none at all.

Lumber-street, is an example of a street terminated by three story buildings in Liberty-street. There are many others of the same kind, and some with no direct opening to either river, as Garden-street and Batavia-street. This circumstance makes no small

difference in the free circulation, and consequently in the purity of the air\*.

In the construction of dwelling houses, equal attention is required to the form and position, in order to promote ventilation. Under ground stories for the habitation of families, it would be well to prohibit altogether. As work-shops they are less pernicious; but are generally unfavorable to health. In some cases, rooms partly below ground are so situated, as to admit a current of air through them. In such cases, they may be occupied with more safety.

The circumstance of admitting fresh air through rooms by opposite corresponding windows or doors, is one that ought never to be neglected, in low situations and crowded places. The difference in the circulation of air, is immense, when the air can pass through a room in a direct line. Side doors and windows do not effectually answer the purpose; and when there is no opening into a room, but on one side, there can be very little circulation. It might be well worth the attention of people who build houses, to consider whether it would not favor health

\* Let a dam be erected five feet high, across a stream of ten feet depth. This dam would check the current near the bottom of the river, for a considerable distance. The same is true of air, in a less degree.

Every person has observed the effect of friction in retarding the current of a river. The current near the sides and bottom is slower than in the middle; by means of the friction of the water against the earth. A remarkable proof of this is, that the tide in rivers flows and raises the water 6 or 8 inches, before the ebb current has done running on the surface of the water. The flood tide meets with less resistance from the slow under current, than from the rapid current above—it checks the under current first, and thus raises the water, while the ebb current on the surface is yet running.

materially, to construct doors or windows between the front and back rooms of their houses, in such a manner, that they might be used in summer, but closed and concealed in winter. In many situations, this arrangement would prove highly agreeable, and contribute greatly to health.

If the foregoing principles are just, it is worthy of our attention to compare the actual situation of New-York, as it relates to the means of preserving health, *cleanliness* and *ventilation*.

The natural situation of a great part of this city, is as well calculated for salubrity of air, as it is possible to conceive one to be. The form of the Island is adapted for cleanliness in a remarkable manner; the land gradually rising from each river, the filth is, by every rain, washed down the declivity on each side towards the river, and where it is not obstructed in its passage, by some artificial means, is carried into the water and swept away by the tides. The city is open on the south west point to refreshing breezes from the bay; and the restriction which prevents the corporation or citizens from ever converting the walk at what is called the *battery*, into streets and house lots to be inclosed and covered with buildings, has insured the lives and health of thousands of citizens. Fresh air enters Broad-way, Greenwich-street, Broad-street, &c. and penetrates freely into the city; ventilating those spacious streets and dissipating the noxious air necessarily generated in a large town. On the west, the streets which cross the Island, are open to fresh air, from the Hudson, and the straight direction and the breadth of those streets, conspire with the declivity of the ground, to give all that part of the city, the advantage of ventilation and cleanliness.

On the east side of the Island, the declivity of the ground is favorable to cleanliness, from the height of the land to Pearl-street, the last street erected on the natural earth. Water-street and Front-street are built on *made land*—the water every tide penetrates, by subterraneous passages, to the cellars in Water-street, and what is perhaps worse, the streets are so level, that not only the filth made on them, but great part of what is brought down from the higher land in John-street, Maiden-lane, Pine-street and Wall-street, lodges upon the pavements or in the sewers. In paving and building on this *made land*, no effectual provision was adopted to carry off the water and filth; and the inhabitants severely feel the consequences of that neglect.

Here then we find, if not in all cases the sources, yet the peculiar region, of fatal maladies. Here diseases of a malignant kind in hot weather first appear, and from some point, take their departure and spread desolation.

If we proceed further northward, we shall find, in what was called the Swamp, a still more fatal neglect of the means of preserving health. The ground now covered by Roosevelt-street, James-street and Catherine-street, extending from the East River towards the Tea-water Pump, was a few years ago covered with a pond of water. The ground is artificial; and not only so, when the streets, a few years ago, were paved, they were raised from two to four feet above the foundation of the original houses. The back yards are few of them paved, and being lower than the streets, they are the reservoirs of every species of filth.

So far as regards salubrity, this part of the city is most unfortunate; indeed it is scarcely possible to conceive of a situation worse calculated for preserving the lives of the inhabitants.

The *natural* situation of this quarter of the city is not favorable for cleanliness and ventilation. A straight line from the Battery to Corlaer's hook would pass by Beekman's-slip, Peck-slip, New-slip, &c. at several hundred feet distance; the shore being a curve. By this means, the part of the city forming this curve, is shielded from the direct course of the westerly winds, the most salubrious that blow on this continent and which prevail nine months in the year. On the north west, the higher ground and buildings prevent the direct access of the wind; so that that part of the city, which is the oldest, best-settled, and where filth is most apt to collect, has the least advantage of free air. The direct course of the wind being broken by the higher ground on the north west and the southern point of the island, the pure air from those points seldom blows with violence along the eastern shore, and the light breezes of summer, instead of sweeping currents, afford little more than gentle eddies that are insufficient to purify the atmosphere which the citizens breathe.

The high ground in the rear of the ship-yards and above George-street are very injurious, in preventing ventilation. The land is nearly on a level with the chimnies of the houses from George-street to Roosevelt-street. This breaks the current of air in almost every direction; for it has been before observed, that the under current of air is checked by objects to the height of those objects.

Those natural disadvantages of situation are not remedied by the mode of building and paving the streets below. The streets are nearly level; the back yards are unpaved and receive every species of filth, which accumulates the whole year, and in summer must supply a prodigious quantity of foul exhalations. It is impossible for the inhabitants of such streets to be healthy in a hot season.

The eastern part of Water-street is in a similar state. The pavement is raised above the first floors of the buildings and above the ground between that street and Cherry-street. Of course water and filth collect in the rear of the buildings and in the cellars. The wharfing is equally bad; some of the wharfs only half finished admit the tide; but prevent the filth received from the streets and houses, from being swept away. This is the case about the place where the fever appeared the summer past. The wharfs should be made solid and complete and well paved—solid to admit of the least possible subterranean filth and stagnant water, and well paved to carry off what is formed on the surface.

Such are the facts relative to the situation of this city, as adapted to cleanliness and ventilation. A great portion of the city is high, cleanly and well ventilated—but some parts are low, level, and dirty, and covered from westerly winds. The former has invariably escaped the ravages of epidemic bilious fevers, and the latter has repeatedly suffered by their fatal effects. Let any candid man walk over the city, and examine the situation of each street, and he will find that the epidemic has been fatal, in a very exact proportion to the causes of disease which have been described.

Before I conclude this subject, I would make some remarks on the manner of constructing the common sewers, as also the wharves and docks.

The principal sewers in the city, such as those in Broad-street, Fly-market and Burling-slip, are built on ground, subject to a flux and reflux of tide. If the tide penetrates through them, it carries back the filth which is received from the streets, and prevents it being swept into the sea, for 6 hours every flood. If any part of the sewer is above high water, a great portion of the filth will be met by the tide, and lodged; and, what is worse, if the sewers are wholly above high water, and not washed by the tides, and if they are nearly in a horizontal position, great quantities of filthy putrefying substances will always be collected in them. In all these cases, a fetid air is generated and emitted from these reservoirs of impure matter.

These considerations suggest the impropriety of all sewers under ground, unless in places where tides or running water constantly wash them clean. If all the water of a city is drained off on the surface of the earth, any collection of filth, by means of sudden showers or other causes, is visible, and may be easily removed.

Never was a greater mistake than constructing an arched sewer under ground, in Fly-market. The land in Maiden-lane is so high, that it would have been very easy to conduct the water above ground into the dock; and nothing could have been more cleanly and salutary, than to have had the market washed by the copious streams of water which are collected, every shower, from William-street and Liberty-street, and united just above the market. It seems as if nature had contrived a situation in the

spot, for a clean wholesome market, and that all the ingenuity of the corporation had been formerly exercised, to defeat her beneficent intentions. So well adapted for this purpose have been the means used, that the water is directed under ground, at the very point where it is most wanted above ground. As all the water is thus carried off, and as the street is nearly level, all the filth of the dirtiest place in the city, is left as a nuisance to annoy half the inhabitants of the city, who are obliged to resort to that market.

As if this was not enough, a floor is made to the market, and so loosely put together, as to suffer filth and offal to get beneath the boards, where it is out of the reach of any slight attempts to sweep the market. This is an inexcusable fault—because the expense of removing the floor, and laying a smooth brick pavement, which is easily washed and always firm, is too inconsiderable to be noticed. The cleanliness of the Philadelphia market, which is thus paved, should have suggested this improvement, long before this time\*.

Equally ill-constructed are the wharves. Docks, in which all manner of filth is collected, are left dry at low water, which never ought to be the case. For although the water of the sea, and pure earth covered with it, are not unwholesome, yet when mixed with other substances, the compound may prove highly noxious. It appears to me that the docks should be filled out so far as that the earth should, at low water, be entirely covered. The wharves should be made as solid as possible, to prevent water from penetrating and stagnating in them, or conveying into the interior structure of them, ve-

\* Since writing the above, this market is undergoing a material alteration,

getable and animal substances which may lodge and putrefy. They should also be so constructed on the top as to be easily kept clean. The deep holes and miry places about our wharves in rainy weather, are as unhealthy in hot weather, as they are inconvenient at all times. They are in many places so narrow, as to endanger the legs and lives of men among the carts, hogsheds and bowsprits, and in the hurrying season of autumn, it is not too much to calculate that ten per cent. of the labor of men employed on them is lost by their interfering with each other.

What complete remedy can be suggested for these evils, I will not undertake to decide. It is a common concern, and among the citizens who are interested in a general and thorough correction, some will be found to point out the principles.

It seems obvious however, that a total stop should be put to extending the made-ground into the rivers. This artificial earth is always porous; it admits and retains water; of course all cellars in such ground are damp and unwholesome. Perhaps it might be well to fill up the docks, and give the front of the solid wharves a strait direction—leaving no ground bare at low water; so that every substance, washed or swept into the water, should be floated away.—The wharfing might be extended to any convenient distance into the rivers, by erecting piers, connected by bridges. It appears, however, proper, that all the wharves should be permitted to extend only equal distances—the same of the stores on the wharves—they should present a uniform front. This would render them all more airy and healthy; and no man could obstruct his neighbor's air or view; a matter of no small consequence, as it regards pleasure and health.

It is a fact clearly ascertained, that the process of vegetation contributes to the salubrity of the air.— The more trees, grass-plots and flowers can be cultivated in a city, the more healthy. All broad streets, will admit the growth of Trees, and these are as ornamental as they are useful. The objection to them in cities on account of their obstructing the use of engines in fires, is not of much weight. A case of this kind can rarely happen; and when it does, an ax or two will level the tree almost in a moment. Besides, the objection is more than balanced by the security they afford one half the year against fire. A tree, when full of green leaves, may break the force of a fire and save a house.

An instance like this happened in Boston, where a thick coat of creepers on the side of a house next the approaching fire, so far broke the flames, as to be a principal means of saving the building. It is useful therefore to encourage the planting of trees in this city, in every situation, where commanding reasons do not prohibit it.

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*The following Remarks are judged worthy of a place in this Collection.*

From the French and American Gazette.

### MEDICAL OBSERVATIONS.

THE inhabitants of New-York, as justly alarmed as the Philadelphians were two years ago, at the havoc of disease, saw, if not with a jealous, at least with an amazed eye, a Frenchman dwelling under the same roof with himself, enjoy the purest health, whilst he fell, as it were, struck with a thunder bolt, without

being able to experience any relief from medical skill ; we, ourselves, surpris'd at this singularity, have scrutiniz'd into the wonderful secrets of nature, as far as can be allowed to an human, and of course a weak eye ; and we attributed the difference to the manner of living, customary to both nations, and their treating themselves.

The more we examine the modes of living of an American and Frenchman, whether indispos'd or in good health, the more we persist in our system, and in the idea that the American cannot totally preserve himself free from this raging fever, which commonly breaks out in hot weather, but by following another regimen directly opposite to that which he has till now us'd.

Although the American seems commonly to enjoy the best health, though his high color announces the strongest constitution, yet we are much inclin'd to think that he would not run so many risks in the summer time, were he to live more soberly during the other seasons ; were he to live upon more wholesome food ; were he less fond of strong liquors, tea, and green fruits, and would he make a frequent use of baths and lotions ; which are as wholesome for the intestines, as necessary for exterior cleanliness.

We will not follow the Americans through the paths of private life ; but we shall say that, in general, temperance is not observable among them, nor that moderation of which the French daily reap the advantage ; the latter relish Burgundy and old Bourdeaux wine, and seldom allow themselves to drink spirituous liquors ; while the former disapprove of Claret, as too weak, and prefer Madeira, Sherry, Port, Rum, and Gin, which must, of course, inflame

and throw the blood into a fermentation. Notwithstanding this, we see Americans, who say they have been advised to use them, especially during the disorder, in order to give tone to the stomach.

The French never drink any tea, unless they feel their stomach uneasy. In the morning and in the evening, the Americans seem to *swim in tea*, which is so strong, that an English tea pot would make as many as twenty, according to the French fashion. Should what has been said by skilful and learned Doctors be true, that tea is one of the most corrosive vegetables, the juice or essence of it must of course make a slow but strong impression on the nerves, and occasion the dissolution of the blood. It is likewise customary to eat with their tea, heavy cakes of all kinds, and toasts which are not reckoned to be good unless they are thickly covered with butter; which increases the bilious mass of humour.

We shall not repeat the observations which we have heretofore made, upon the averseness the Americans feel for soup and restorative broths, on their eating their meat running with blood, with scarcely any bread, and plenty of heavy potatoes, the only vegetables which are seen on their tables; whilst the French always give the preference to vegetables, and especially to those which are light and wholesome. But we cannot help observing, that in the months of May, June and July, the streets and markets were seen in the morning furnished with an immense quantity of fruits, the most part of which are either green or unripe. In the evening all those fruits have disappeared and have been eaten; hence, bloody fluxes, dysenteries and bad chyles, which unwholesome food must undoubtedly produce.

As to baths, baths of cleanness, injections, &c. there are few French, in the least careful of their health, who do not make use of them.

The Americans, far from practising those useful and wholesome tokens, look upon them as ridiculous and unbecoming.

It is no longer surprizing that Americans, heedless of their health, living on unwholesome foods and drinking heating liquors, should prove so little disposed to resist the impression of scorching hot weather, which opens the pores, and occasions, if we may be allowed the expression, a continual *depredation* on the vital principles, through a thousand issues, always open. It is not to be wondered that heat and dampness, which on this continent more rapidly succeed each other than in any other climate, should soon bring into a state of fermentation, humors impregnated with so many principles of putridity. Will any one wonder at seeing the unfortunate seized with the fever, fall so suddenly victims to it, when they are seen to swallow remedies which, far from keeping down and cooling the fermentation, increase it; when they are seen undergoing copious bleedings, storing in emetics, bark, Madeira, and other spirits called tonical, producing in the body the same effects as oil or fire? Finally, we see when these unfortunate people are left by themselves, deserted, and given up by their nearest relation, whom a panic keeps as far from them as from persons infected with the plague, sorrow and despair, much more than the most violent remedies with which they are treated, hurries them to an unavoidable death.

For these two years, the French have been noticing these salutary observations to the Americans,

who listen to them with coolness, although many of them perceive the justness of these hints, but habit is a second nature. As soon as the epidemic seems to abate, as soon as the coolness of the weather brings back the hope of seeing it disappear, they will hastily return to their homes, go on with their old habits, their usual way of living, and on the smallest indisposition send for their dear doctor, who exclusively is master of their confidence. We are acquainted with French physicians, who at Philadelphia treated with success two hundred persons taken with the disorder, and those very same persons have not afterwards vouchsafed to send for those to whom they were indebted for their lives, even to be bled by them.

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*The following Observations from the Manchester Mercury, contain useful hints, and cannot be inapplicable to many situations in the United States.*

MANCHESTER MERCURY, FEB. 2.

MR. HARROP,

AFTER having endeavored, for the last four years, to call the public attention to the dangerous situation of the poor in this town and neighborhood; it gives me the highest satisfaction that a number of the most respectable inhabitants have been induced to adopt the ideas which I had suggested, respecting the regulation of Cotton Mills, and the erection of Fever Wards. As it is of great importance, that a knowledge of the facts, and reasoning, on which their determination has been founded, should be extensively communicated, you will oblige me by inserting the following extracts from a Memoir, which I drew up at the desire of the original meeting.

I am, Sir, your very obedient servant,

*Dawson-street,* }  
*Jan. 18, 1796.* }

J. FERRIAR.

TO THE GENTLEMEN MEETING AT THE  
BRIDGEWATER ARMS.

GENTLEMEN,

AT the request of some of your number, who originally proposed this meeting, I submit to your consideration a few remarks towards the formation of a Board, or Committee for superintending the health of the manufacturing poor in Manchester and Salford. A principal object of this Committee, must be that of diminishing the frequency of the Epidemic Fever, which has so often alarmed us in this place, which is now very prevalent in some parts of the town, and has spread itself to a very unusual extent in some of the neighboring towns. The circumstances which produce and propagate this disease, seem to require more immediately the interference of a public body, and these once remedied, the general health of the poor must be greatly improved. Having already published my sentiments pretty full on this subject; I shall remark, without entering into any reasoning, that the principal sources of fever among our poor, are lodging-houses, cellars, cotton-mills, and the incautious intercourse of the poor with each other, in places infected.

1. Respecting lodging-houses, I have observed elsewhere, that the most desirable means of prevention, would be to subject them to licenses, which would bring them under the controul of the magistrates.— At present, as the town is much less crowded than it was in 1792, the mischief arising from these houses is less; and until the Committee can acquire the proper powers; it would perhaps be sufficient to be at the expense of white-washing such as shall be reported to be infected and dirty, or where they are

found to be over-crowded, to prevail on some of the lodgers to remove, which may be readily done.

2. The number of damp, and very ill-ventilated cellars, inhabited in many parts of the town, is a more extensive and permanent evil. It may be necessary to explain to gentlemen who have not visited such places; that they each consist of two rooms under ground, the front apartment of which, used as a kitchen, though frequently noxious by its dampness and closeness, is greatly preferable to the back room; the latter has only one small window, which though on a level with the outer ground, is near the roof of the cellar; it is often patched with boards or paper; and, in its best state, is so much covered with mud, as to admit very little either of air or light. In this cell, the beds of the whole family, sometimes consisting of seven or eight, are placed. The floor of this room is often unpaved; the beds are fixed on the damp earth. But the floor, even when paved, is always damp. In such places, where a candle is required even at noon-day to examine the patient, I have seen the sick without bedsteads, lying on rags; they can seldom afford straw.

This deplorable state of misery becomes frequently the origin, and certainly supports in a great degree the progress of infectious fevers. I have been able in many instances to trace the infection from cellar to cellar, and to say where it might have been stopped by prudent management on the part of the infected family. But it is likewise very difficult to eradicate the fever, when it seizes a family thus situated. It generally attacks them all in succession, and the convalescents, from their confinement in the midst of infection, have frequent relapses, attended with increasing danger, so that the disease conti-

nues in the same spot for several months together.— The recovery even of those who do not relapse, is also tedious and imperfect, beyond the conception of any who have not experienced cases of this nature. The want of proper nurses must be added as none of the least evils attending this unfortunate class of people. I have no hesitation in asserting that many lives are annually lost, from this cause alone. It is extremely difficult at present to procure a nurse of good character upon any terms; and it is often necessary to employ persons on whom little dependence can be placed, that the sick may not be entirely destitute of assistance.

Great advantages would therefore be derived from removing the infected, and in some instances, perhaps, the whole family, from such dreadful habitations as I have described, into a clean, airy house, which should be provided by the Committee, till their own cellars could be white-washed, and sweetened by slacking quick-lime on the floors. It is a question for the decision of the Committee, whether they would prefer renting a house, or building a fever-ward for this purpose. I confess, that I should incline to the latter, for these reasons :

1. In the erection of a fever-ward, situation, air, and convenience would be better consulted; in renting a house, some of these very important objects might be unavoidably superseded.

2. Upon such a permanent establishment, one or more women of decent character might be induced to undertake the office of nurses.

3. By thus bringing the worst and most neglected cases under one roof, the chance of spreading infec-

tion would be diminished, while attention to the patients on the part of the nurses would be better secured, than if the patients were dispersed in different houses, as, in reality, it would be very difficult to obtain a complete house, upon any rent, for such a purpose.

To explain this observation, I must beg leave to repeat a circumstance which I have stated in my last volume of Medical Essays. Previous to the building of our dispensary, when a patient happened to be seized with an infectious fever in the Infirmary, the disease was apt to spread to an alarming degree, so as to require a general dismissal of the patients. But since a few rooms have been added to the Dispensary, for the purpose of secluding persons thus attacked, from the rest of the patients, though bad fevers have been accidentally introduced, yet by removing the patients on the first attack into the fever-ward, the disease has always been prevented from extending, without the necessity of dismissing a single patient. In like manner, I conceive, that by building a fever-ward in each of the Infirmary districts, and removing into them the worst cases, from the worst houses, the progress of infection would be materially checked, and a great quantity of disease and mortality would annually be prevented. This plan would also give additional success to the Infirmary Physicians. It would add the chances arising from cleanliness, free ventilation, and careful nursing, to the efficacy of medicines.

4. In a separate building, the access of unnecessary visitors would be better prevented. It may give the Committee a clearer idea of the extent of this danger, to mention, that an elderly woman, just recovering from the fever, informed me, that she had fifteen

children, all settled in the town, and all of whom had undergone the fever within these two months.

At present, perhaps, it would be most expedient for the Committee to try the effect of a single fever-ward, in some part of the town where infection more frequently prevails. In a town like this, such buildings can never become entirely useless, even if the plans of the Committee should extend to the length at which I have hinted. The want of proper sewers in several of the streets, and the offal of slaughter-houses, left to putrefy before the doors in several places, are nuisances which deserve the serious attention of the Committee.

5. On the subject of the propagation of infection in Cotton Mills, it may be necessary to observe, that although it has been supposed that fever may be imported in the Cotton, and though this opinion does not seem improbable in itself, yet no direct proof of fevers originating from this source has ever been obtained. On the appearance of the present Epidemic at Ashton, an alarm of this kind was spread, because the fever broke out in the picker's room of a manufactory there; but I am informed, from very respectable authority, that the infection was actually carried thither from Manchester, by a girl who went to be employed as a picker at Ashton. I apprehend that the mischief arising from some Cotton Mills, as they are at present managed, results from

- I. The custom of working all night.
- II. Negligence in washing the floors and frames.
- III. Negligence respecting the personal cleanliness of the work-people, and especially of the children.

IV. Imprudence in permitting convalescents, or persons coming from infected houses, to resume their work, with their clothes saturated with infection.

V. Want of proper ventilation, particularly during the night labor, when the air of the room is rendered additionally impure by the candles.

With regard to the three first articles, I am uncertain how far the Committee could with propriety interfere. If the proprietors and overseers of manufactories could be interested in the views of the Committee, very advantageous regulations might be formed.

The custom of working all night totally frustrates every attempt to ventilate the mills thoroughly, while the dirtiness of the persons employed renders them more disposed to receive the infection of fever. This custom should, if possible, be discontinued.

The other circumstances might be easily regulated by the overseers, who would perhaps be induced to pay more attention to them, if premiums were held out, to overseers who preserved a given degree of health among the persons under their care.

The remonstrance of so respectable a body as a Committee of this nature, may also be expected to have a proper influence, when they call the attention of the proprietors of manufactories, to practices evidently destructive of health and life.

The great difference in the healthiness of different cotton mills, which it would be invidious to point out here, but which may be easily learnt from the lists of home-patients kept at the Infirmary, for the last five years, sufficiently proves the benefits of care

respecting the circumstances I have mentioned, and the danger of inattention.

The readmission of convalescents into manufactories, while they are in a state capable of infecting others, is an obvious cause of increasing and perpetuating fevers. To prevent this, it would be proper to retain patients in the fever-wards, till their clothes and persons should be sufficiently purified, and to caution the overseers of manufactories against the reception of irregular patients, who might return to their employment without leave from their physician.

A similar hazard, which arises from incautious visits to the sick, may be most effectually counteracted by regulations in the fever-wards. It would be cruelty to refuse access to near relations, in dangerous cases; but they might be taught to lessen the danger of receiving infection, by placing themselves between the patient's bed and the window—by averting the face while the patient speaks—and by carefully avoiding to sit down upon the bed.

All linen belonging to the patients should be washed in the fever-wards, for the same reason.

I have the honor to be, Gentlemen,

Your very obedient Servant,

J. FERRIAR.

## PREVENTION AND SUPPRESSION OF FEVER.

*Extracts of a letter from Dr. Haygarth, of Chester, to Dr. Percival, dated January 6th, 1796.*

“ You may remember that in the Chester Infirmary, we have, for the last twelve years, received all infectious fever patients that require our assistance, into the Fever-wards, one for each sex, appropriated to this purpose.—During this period, it never was *suspected*, that infection has been communicated to a single patient in other parts of the house.—In the present war, Chester has been unusually exposed to the danger of infectious putrid Fevers. Many new raised regiments, coming from Ireland, with numerous recruits taken out of jails, remained in Chester for a few weeks after their voyage. Great numbers of these soldiers and their women were ill of putrid fevers, and were immediately received into the Fever wards of our Infirmary. If such contagious patients had been distributed in the small ale-houses and poor lodging-houses through the city, the consequences to many of our inhabitants must have been dreadful.

By taking out of a house the first person who sickens of a Fever, we preserve the rest of the family from infection, together with indefinite number of their neighbors, who would otherwise catch the infection. At this very time, when the inhabitants of Manchester and many other places, are afflicted with a fatal contagious Epidemic, only two patients are now in our Fever-wards, and both convalescent: And the Apothecary to the Infirmary, who attends the Out-poor of the whole city, informs me that he has now not a single fever patient under his care. Sometimes, but very seldom, our two Fever-wards

have been somewhat crowded with patients. I should judge that about four, or six spacious Wards might be sufficient for Manchester, though the inhabitants are much more numerous, and perhaps more liable to fevers from their unhealthy dwellings, occupations, &c.—I am confident that our two Fever wards do ten times more real good in the prevention of misery, than all the other parts of the Infirmary.

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### CONCLUDING OBSERVATIONS.

From the preceding papers, in union with other accounts of the Yellow Fever, already public, it appears that the following points are well established.

I. That the Yellow Fever, so called, is only the most malignant degree of ordinary bilious fever.

II. That this Fever *may* be, and often *is* generated in the United States, especially in the more filthy parts of populous towns.

III. That it is not ordinarily infectious, that is, attended with specific contagion; but may be rendered so, by peculiar circumstances, that conspire to increase its malignancy.

It seems to be proved that in New-Haven, the disease was introduced and propagated by infection. In Philadelphia, it is admitted to have been, to a considerable degree, contagious. In New-York and Norfolk, it is equally clear, the disease was *not* introduced nor generally propagated by infection. Our best accounts from Baltimore state, that the disease there was not infectious.

IV. It is demonstrated, beyond all controversy, that bilious fevers are ordinarily produced by the impure air generated by the putrefaction of vegetable and animal substances. To this effect there must concur the following causes—vegetable or animal matter, heat and water. Heat and water acting on vegetables, or heat alone on animal matter. Withdraw any one of these causes, and the effects cease. Hence, this important lesson is deducible.

High and dry situations, in the country, and remote from stagnant water, should be selected for healthiness—and similar positions for cities; but with this additional caution—to keep them *clean*. The people of a city make filth enough every week, to generate pestilence, in the hot season, and it will produce sickness, more or less every season, unless the streets and yards are constantly, not only swept, but *washed*. Washing the streets and back-yards should be as much a business of police from June to November, as lighting lamps or regulating weights and measures. It should also be an object of police to calculate the mode of paving and draining streets, for cleanliness, and to direct individuals to do the same on their back yards. A vigilant police will inspect every article of building, and see that no *sources of pestilence and death* are lurking behind houses and stores.

V. Another important conclusion results from the facts stated; this is, that country people have not the smallest reason for alarm, on account of the spreading of the Yellow Fever. It is indeed certain that people from the country, during the existence of this fever in town, are more exposed (if they visit the town and breathe the air of it) than the inhabitants. But it is demonstrated by experience that this fever

will not spread in a *pure air*. It did not spread even in New-York, over the western and well-ventilated part of the city. Hence when the sick remove from town into the country, or when citizens are taken ill with the fever, after leaving the city, the people in the country have no occasion to avoid the sick, or neglect to administer to them all possible comfort and relief; for there is little danger of taking it in a free wholesome air. Place the sick in an open airy room and keep it clean, and the attendants are in little danger of receiving it.

The panic that seized the whole continent, when the disease appeared in Philadelphia, is now found to have been needless and without just cause; and it is presumed that such inhuman caution and barbarous measures as were adopted on that occasion, will never again disgrace our country. Instead of shutting doors against the flying citizens, let every one open his house and give them an hospitable reception.

VI. The last remark on this occasion is that though the immediate causes of epidemics may be well understood in most cases; yet there appears to be a necessity, in other cases, to resort to a general predisposing influence in the atmosphere.

Sometimes it happens that very malignant diseases will not spread in a country, even when introduced from abroad. At other times, a small spark will enkindle a flame that cannot be resisted.

In one year, the putrid fore throat spreads its ravages in one town—the next year, in a bordering town. This year the dysentery attacks one town, or perhaps a single street, with fatal malignity—the next that town is free from it, and the adjacent town

is attacked. These facts are within every man's remark.

But there has been for 6 or 7 years past, an extraordinary *run* (to use a vulgar phrase) of malignant diseases and epidemics. The *Influenza*, in the summer of 1789, first made its appearance at the southward. It travelled regularly northward, and reached Boston the first week in November. The next spring, it began in our frontier settlements, in March, and travelling southward, reached the Atlantic towns in May. Of this fact, I was a witness.

The scarlet fever succeeded. It appeared in 1789, or '90, in the state of New-York, and has passed slowly through the eastern states, reaching Boston and Portsmouth the last year, and it has not yet disappeared in that quarter.

To these succeeded the Yellow Fever, in various places, which has also had its run.

During the autumnal seasons, a few years past, dysenteries have also proved uncommonly mortal, in various parts of the country.

During the same seasons, the Yellow Fever has been unusually frequent and fatal, on the coast of Africa, and in the West-Indies.

To what cause shall we attribute this general prevalence of malignant diseases in various quarters of the globe, at the same time? Specific contagion cannot be the cause; it will not even account for the rapid progress of the *Influenza* in Europe, and in this country, for whole towns were seized with it in a day. The *Scarletina Anginosa* is highly infectious; but it was not propagated generally nor principally by

infection. On the other hand, children were seized with it in various parts of the country, remote from the diseased, and without having the least connection with them.

Nay more, I can witness that when the disease was fatal to multitudes in New-York in 1791, and the year before in its worst forms in Connecticut, the same disease, with slighter symptoms, was even epidemic in Hartford. The mild form in which it appeared, seemed to be but a prelude to the disease which in the two succeeding years proved so fatal. I was witness to it, in this mild form in my own family: a severe catarrhal affection, accompanied with high fever, and a partial efflorescence of the skin about the throat and breast.

This fact would seem to prove, not only a general predisposing cause in the atmosphere, but a *progressive state* of that cause.

Another fact would seem to justify this remark. It is well known that foreigners, coming from other climates, are very easily affected with the diseases prevalent at the time of their arrival, and more easily take such disorders than natives.—Now it is a fact within my observation, that foreigners arriving from Europe at New-York in 1794, were seized with the scarlet fever, after it had ceased to affect native citizens. The result of this observation is, that the decrease of the predisposing influence of the atmosphere, is *progressive*, and that it was sufficient to affect foreigners, for some time, after it ceased to affect persons accustomed to breathe the air of our climate.

Indeed something of the same kind is true, with respect to the Yellow Fever, in New-York. The same disease had appeared, in a few instances, for two or three seasons preceding the year 1795. Several cases occurred in 1794. These cases seemed to be harbingers of the more general mortality of the last season.

I do not know that this disease appeared in Philadelphia, in the last season preceding the fatal autumn of 1793; but several cases have occurred the two last years. A friend of mine who lost two clerks in the fatal season of 1793, lost two others in 1794, and one in 1795; all from the same counting house.

In these cases, there is no pretence of infection.—The disease must have sprung from local causes, or the predisposing influence of the air inhaled by these unfortunate people.

I am therefore inclined to believe that independent of local causes, the atmosphere may be and is often affected by some general invisible causes, which, at particular seasons, dispose the human body to particular diseases. Whether this disposition in the air proceeds from the prevalence of particular winds—of rains—of heat—or of frost; or whether the aspects of the planets, or the various action of that all-powerful elementary fluid, *electric fire*, which seems to be the most energetic principle in the system, may not vary the combination of substances composing vital air, are questions for the investigation of the philosopher. The facts which are within common observation are sufficient to point to the proximate causes of disease, and that when these are known, most of the evils of sickness, are brought within the influence of human management—many of them may be obviated—all of them, mitigated.

If it is clearly ascertained, that the gas generated by the decomposition of animal and vegetable substances, in putrefaction, is fatal to healthy life; then it becomes a *duty* to deposit such substances in places where they cannot annoy us. It is as much the *duty* of the citizens of populous towns, to cleanse their streets, and their back yards, wash their houses and bathe their persons, as it is to provide a Hospital for the indigent sick, or a grave for the dead.

Thus in the country, people should choose dry situations for their houses, remote from marshy grounds. They should particularly guard against the noxious effects of the heat on land just drained of water. While land is covered with water, even if stagnant, no very pernicious effects are to be apprehended; but terrible are the effects of a hot sun on the putrid substances that line the bottoms of ponds, when they are suddenly exposed, by the draining off of the water.

Thus, also, settlers on new lands are to guard against the first effects of clearing moist land. While vegetable substances are covered with water, they are harmless; and while marshy grounds are shaded by thick forests, they produce no disease. The heat is not sufficient in the deep shade of a forest, to extricate the noxious Gas\*. But on opening those marshy grounds to the action of the sun, all the latent seeds of disease are set in motion and impregnate the surrounding atmosphere. Then the inhabitants become sickly, and continue, more or less, to be so in hot weather, till the surface of the earth is effectually dried or cleansed by ploughing and cultivation.

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\* It is said that a degree of heat equal to 80° by Fahrenheit's scale, is necessary to extricate the deleterious gas from vegetable substances—a degree never felt in the recesses of a shady forest.

## ADDITIONAL REMARKS.

SINCE the preceding observations were composed, the Editor has received the following remarks, from a friend, with liberty to make them public. And as they appear to him of sufficient importance to justify an insertion in this place, he presumes no apology is necessary for so doing; although they are, in part, a repetition of his own. A subject so important to the welfare of the citizens of the United States, can hardly be exhibited in too many points of view.

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THE means of prevention, not only of Yellow Fevers, but of all other fevers, in any degree of the same nature, are principally two: and this is equally true in respect to individuals and communities. These two means are *temperance* and *cleanliness*.

I. TEMPERANCE. No truth is more certain, or more easily demonstrable by numerous and important facts, than that different climates require different modes of living. It is from inattention to this simple truth that a large share of all the physical evils of men arise.—Thus, many kinds of food and various liquors, are harmless, and even necessary in cold countries, which are absolutely pernicious in hot climates. Thus, exercise in the open air, is highly advantageous and healthful, at all hours in the day, in temperate regions; while in many parts of the world, beneath the torrid zone more especially, an exposure to the fogs of the morning, the heats of the noon-tide, or the dews of the night, are certainly destructive.—Considerations of this nature are very little thought of, and still less attended to, among people at

large: and indeed the mass of population, in the greater part of the earth, are incapable of appreciating the consequences of the observance or neglect.—In all their changes of place, they carry with them the same customs; and it is by long experience only that they are taught the necessity of adapting their habits to their new situations.

By far the largest portion of the United States has been peopled by emigrants from the northern countries of Europe. Wherever they have settled they have continued, with very trifling deviations, to pursue their accustomed occupations and modes of living. Meats and stimulating liquors are more used in northern climates, than in southern, and with less disadvantage. Our ancestors continued to consume them after their settlement in this country, in the same manner as before; the consequences have been unfortunate; of late, by connection with other circumstances, they have become still more destructive, and we are beginning to be alarmed.—A numerous train of facts; the example of almost all Asia, Africa, and the south of Europe; demonstrate the advantages of temperance, both in foods and drinks, and the fatal effects of a departure therefrom. Rice, and other grains, fruits, and water, form nearly the sole articles of consumption, among the inhabitants of these countries, during the sultry season. It is only on their sea-coasts, where commerce has collected foreigners from all parts, and especially from Europe, and where every species of riot and intemperance is common, that the pestilential Fevers, of which we hear so much, prevail.—In the south of Europe, in Italy, for instance, even in the maritime cities, where the people either from necessity or choice, abstain from meats, wines and

other intoxicating liquors, during great part of the year, general and pestilential diseases rarely appear: particularly, among those nations who are attentive to cleanliness.

The city of Naples contains about four hundred thousand inhabitants; of whom thirty or forty thousand are said to belong to the class of beggars.—In that climate the rains prevail, with little intermission, for three months—from February to May. From May to September, a drouth, equally severe, and scarcely allayed, in many years, by a single plentiful rain, renders the heat almost intolerable. The wages of a laborer not exceeding eight pence this currency, a day, and meat being rarely had in their markets for less than four pence the pound, and vinous liquors in the same proportion,—the mass of population is excluded from any share of these luxuries; of consequence they support themselves on vegetables, roots, fallads, fruits, &c.—and dilute their food, and animate their spirits, with water and lemonade.—Yet this city has, for a great number of years, known no general disease. And for ten years, no febrile disease, of any sort, was common among them.—They, also, pay great attention to personal cleanliness. Facts of this sort are very important, and form the best comment on the discordant opinions of our physicians.

II. CLEANLINESS. It is to the rigid observance which the eastern nations pay to ablution, that, in connection with their habitual temperance, we are to ascribe their superior health and longevity; and to the neglect of the inhabitants of the southern parts of America, in respect of both these particulars, their

sickness and mortality.—It is impossible to press this matter too forcibly upon nations, communities, families, and individuals. All are concerned in it.—The people of the United States, as a people, are noted for household cleanliness. They are far below the Dutch in respect to the salubrity and purity of their towns; and below the French, Italians, and even Swedes and Russians, in regard to personal cleanliness.

In many parts of Italy, public baths are more numerous than coffee-houses and taverns. In France, machines and utensils for bathing, form an essential part of the household furniture of every well-regulated family; and a woman would as soon think of going into company, with unwashed hands and uncombed hair, as without having made use of the bath. In Sweden and Russia, the poorest and most abject of both sexes, would hold themselves unworthy to appear before the Deity in his temple, on the Sabbath, if they had not devoted some part of the preceding day to personal ablution. This is not the case in England; and the consequences of these national customs may be traced in the history of our own country. Who does not recollect the mortality which prevailed among the early English colonists in Virginia? Who has not read, or heard, of the *long fevers*, as they were called, of the New-England states?—But did ever any person learn that these misfortunes afflicted Pennsylvania and New-Jersey while they were called New-Sweden?—Philadelphia and the neighboring parts of New-Jersey, were originally settled by Swedes. These people were neither more robust, nor more circumspect, in the generality of things, than the English settlers; but they brought with them their habits of personal cleanliness, and

they were rarely visited by diseases.—Even so late as when Professor Kalm visited this country, the practice of universal weekly bathing, was still preserved, among the remnant of the Swedish inhabitants.

In former ages, and among the celebrated nations of antiquity, personal, as well as general cleanliness, was consecrated by numerous rites, and incorporated into every religion. Among a barbarous and ignorant people, this was, perhaps, the only means of securing a proper observance of this duty. It were fortunate for the United States if the old dispensation were revived, in this particular. The laws of Moses, in relation to the virtue of cleanliness, bear impressed on their front, the characters of a wisdom nothing short of divine.—The days of prophets and of miracles are past; but surely, in a matter of such essential importance to the well-being of our country, the care of legislation should be extended to supply the neglect of the moralist. Those rulers but partially consult the durable felicity of the people they govern, who through ignorance, indolence, or a spirit of parsimony, miscalled economy, overlook, or fail to remedy, a defect so interesting to private and public happiness, to individual and general tranquility and virtue.

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IN addition to the preceding observations, one remark further may be addressed to the people of the United States, generally, but more particularly to the settlers on the new lands.—Great and sudden alterations in the face of a country, rarely fail of being followed by changes in the state of the inhabitants of

that country, proportionably rapid and considerable. The opening of new land and water communications, the draining of marshes and destruction of forests, have a most extensive, and often unfortunate influence, for a time, on the country in which they take place. As one of the surest means of preventing bad consequences, the attention of the people engaged in undertakings of this kind, should be turned to the inducing as rapid and luxuriant a vegetation, on all such clearings up, as possible. It behoves them, likewise, to pay a double regard to the duties of order, temperance, and cleanliness. The most fatal effects follow from neglect in these particulars; and especially from that free use of spirituous liquors, which from erroneous notions of their utility, is so commonly resorted to.



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