

Second address to the citizens of Philadelphia, containing additional proofs of the domestic origin of the malignant bilious, or yellow fever : to which are added, observations, intended to shew that a belief in that opinion, is calculated to lessen the mortality of the disease, and to prevent its recurrence / by Benjamin Rush.

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Panderson M.D.

SECOND ADDRESS
TO THE
CITIZENS OF PHILADELPHIA,
CONTAINING
ADDITIONAL PROOFS
OF THE
DOMESTIC ORIGIN
OF THE
MALIGNANT BILIOUS, OR
YELLOW FEVER.

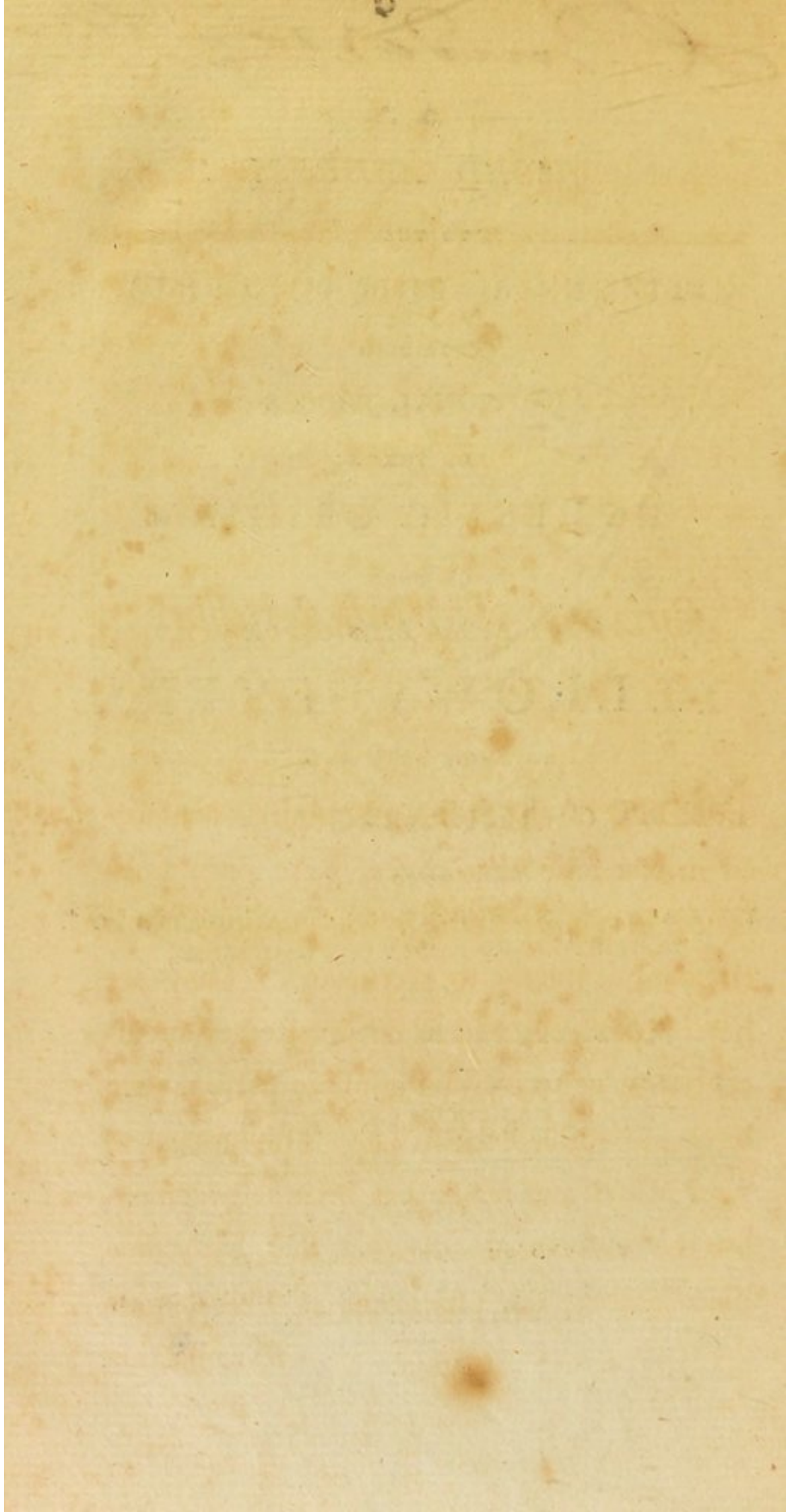
TO WHICH ARE ADDED,
OBSERVATIONS,
INTENDED TO SHEW
THAT A BELIEF IN THAT OPINION, IS CALCULATED TO
LESSEN THE MORTALITY OF THE DISEASE,
AND
TO PREVENT ITS RECURRENCE.

By BENJAMIN RUSH.

✓ PHILADELPHIA:

PRINTED BY BUDD AND BARTRAM,
FOR THOMAS DOBSON, AT THE STONE HOUSE, N^o 41,
SOUTH SECOND STREET.

1799.



T O T H E

Citizens of Philadelphia.

MOST of the facts and opinions contained in the following pages, have been published in a form which has confined their circulation chiefly to physicians. They are herein abridged, and so far divested of medical terms, as to be intelligible to persons who have not studied medicine. This appeal to your senses and reason has become necessary, by the unfortunate division that has taken place among the physicians of Philadelphia
respecting

respecting the origin of your annual calamity. You are amply competent to understand, and determine the controversy; for it would be a denial of goodness to the Supreme Being to suppose, he had not endued the common faculties of man, with the means of discovering, and obviating the common physical evils of his life. To act properly, upon the important subject before you, it will only be necessary for you to examine, and think for yourselves.

THE AUTHOR.

November 18th, 1799.

A S E C O N D

A D D R E S S , &c.

THE partial change, which the events connected with the late epidemic have made in the minds of the citizens of Philadelphia respecting its origin, has encouraged me to attempt, by a second address, to produce a more general conviction of truth upon this interesting subject.

Two opinions chiefly divide our physicians and citizens. The one consists in a belief that it is derived from a peculiar, or what is called a specific contagion; that it was imported from Siam in the East Indies nearly sixty years ago into the West Indies, where it has prevailed ever since, and that it has been imported from thence from time to time into this city and other sea-ports of the United States. Those who deny this opinion, believe it to be the common bilious fever of warm seasons

seasons and climates—that it is generated from putrid matters by the heat of our summer and autumnal months, and that its late malignity is occasioned by the atmosphere having acquired, what has long been known among physicians by the name of an inflammatory constitution.

If it be derived from the first source that has been mentioned, the condition of our city is hopeless. *It can never be eradicated.* Our beds, clothing, and even the timbers of our houses will retain it till the end of time. The sooner therefore we destroy our capital, and consign the spot upon which it stands, to pasture grounds, the better.

But our epidemic is not the Siam fever. The condition of our city is not hopeless. The return of our disease may be prevented. Its seeds cannot be retained in our beds or houses from year to year, much less can they be imported. As well might a coal of fire be brought from one of the West India islands to this country, or a lump of ice be conveyed from this country to one of the West India islands, in the open air, as the yellow fever be imported from thence so as to become *general* in our city.

The rare appearance of pestilential diseases in Europe during the present century, has unfortunately

nately obliterated much of the knowledge which was formerly collected concerning them. The writers of the last century speak constantly of the connection between putrid exhalations, an inflammatory constitution of the air, and malignant fevers. The animal and vegetable creation bear witness that such a state has existed in the United States since the year 1791.—This inflammatory constitution of the air is sometimes local, but it more frequently pervades whole countries, and sometimes the whole globe. The yellow fever has seldom appeared in one part of America without appearing at the same time, or soon afterwards in other parts. It was epidemic in Charleston and Philadelphia in 1699. And again in the same cities in 1799. It was sickly in the *country* as well as in the city of Philadelphia in the year 1747. Of this fact the following extract of a letter from David Palmer to the late Edward Pennington, then in Barbadoes, politely put into my hands by his son Edward, contains a satisfactory document. The letter is dated the 29th of 6th month 1747. “ People are exceeding sickly in *many parts of the country*, and especially in the city, where upwards of 20 are frequently buried in a day; the yellow fever being very brief, carrying off healthy people in two or three days.”

It has been remarked in many publications upon this subject, that the inflammatory constitution of the air had often been noticed by Hippocrates and Dr. Sydenham. I once believed the knowledge of this elementary fact in the science of medicine, to be general, but the publications of several American physicians upon the yellow fever, have convinced me that this is not the case. From numerous testimonies of a belief in the influence of a change in the insensible qualities of the air, altering the character of epidemics, I shall select the following.

“ It is certain (says Dr. Moseley) that diseases undergo changes and revolutions. Some continue for a succession of years, and vanish when they have exhausted the temporary but secret cause which produced them. Others have appeared and disappeared suddenly; and others have their periodical returns.”

The Doctor ascribes a malignant fever among the dogs in Jamaica (improperly called from one of its symptoms hydrophobia) to a change in the atmosphere in the year 1783. It was said to have been imported, but experience, he says, proved the fact to be otherwise.*

“ This

* Treatise upon Tropical Diseases, p. 43, 44.

“ This latent malignity in the atmosphere (says Baron Vanswieten) is known only by its effects, and cannot easily be reduced to any known species of acrimony.” In another place he says, “ It seems certain that this unknown matter disposes all the humors to a sudden and bad putrefaction.”*

Dr. John Stedman has related many facts in his essay upon insalutary constitutions of the air, which prove, that diseases are influenced by a quality in it which, he says, “ is productive of corruption,” but which has hitherto eluded the researches of physicians.†

Mr. Lempriere, a British military surgeon, who has published in the present year practical observations upon the diseases of Jamaica, after mentioning the unusual mortality occasioned by the yellow fever within the last five or six years in that island, ascribes it wholly “ to that particular constitution of atmosphere upon which the existence of epidemics at one period rather than another, depend.”‡

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* Commentaries on Boerhaave's Aphorisms, Vol. V. p. 226, 230.

† Page 135.

‡ Vol. II. p. 31.

The novelty of a disease is no proof of its importation. Dr. Sydenham describes a fever which appeared with new symptoms in London in 1685. It was so unlike all the epidemics he had seen before, that he calls it a "new fever," but he does not upon this account hint at its being of foreign origin.* Dr. Moseley says the common "nervous remitting fever changed its type in Jamaica, in 1770. It raged with unusual violence, and carried off almost all the young people who were seized. It returned in the spring and summer of the two succeeding years, but has not been there in the same form, since." The Doctor does not derive it from another country, nor does he ask, why did it not prevail in former years.

A malignant fever has lately appeared in York county in this state, which discovers itself first by a pain in the heel. The inhabitants of that county have never suspected it to be an alien disease.

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curr The histories of the first settlement of our country contain many accounts of the prevalence of the yellow fever among the Indians. The Creeks lost 600 of their nation by it in the year 1798.

Say

* Vol. II. p. 314.

Say, ye conjurers who preside over the health of your tribes, did you ever dream that this disease was imported ?

The influence of the atmosphere and of other circumstances, has been evinced in the changes which our autumnal fever has undergone since the year 1760. From that time till 1778 it appeared in the form of a mild intermittent, or a slow nervous fever. After the year 1778 it appeared chiefly in the form of a mild bilious remittent. Thousands were affected by this fever in the year 1780. It was known by the name of the break bone fever. It made its first appearance in Front street near the *Shipping*, and yet no one believed it, though a new disease, in some of its symptoms, to be of foreign origin. Since the year 1793, both the nervous and mild bilious fevers have nearly disappeared, and an inflammatory intermitting, or remitting and malignant fever has taken their place. This change in the character of our autumnal fevers has been acknowledged by all our physicians. They unanimously declare bark to be less effectual in them than in former years, and most of them find it necessary to use blood-letting in a greater or less quantity, in order to cure them.

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It has often been asked, why was not the yellow fever common before the year 1793? If we admit it to be imported, I beg leave to ask, what has become of our nervous and mild remittents? Both questions can be answered in no other way, than by admitting, the former, to occupy the place of the latter.

It is no new thing for diseases to vary, not only from changes in the atmosphere, but from the progress of agriculture and civilization in a country. Mr. Kalm tells us in his travels through North America, that the old Swedes whom he met on the creeks in West Jersey, told him that the bilious fever was a modern disease among them. Their ancestors knew no other acute disease than pleurifies, and such other fevers as were produced by the changes in the weather in the winter and spring months.

In no part of Europe, and in none of the West India Islands, is the yellow fever believed to be spread by contagion. Admitting it to be propagated in Philadelphia by contagion, the matter which composes it must be subject to some laws. It ought to spread where it prevails in the greatest quantity, and in the most concentrated state, agreeably to what is observed of
all

all other contagious diseases—But this we know is far from being the case. The disease has often been said to be communicated through a whole neighbourhood from a supposed infected ship, and to affect a number of persons at a hundred yards distance from the ship, and from each other, and yet the same disease when carried into the healthy parts of the city, and even terminating in death with symptoms of what is called general putrefaction, has perished without propagating itself in a single instance. To suppose it to be contagious under the above circumstances, is to make a feather, outweigh a mountain, or to believe one, to be more than a thousand.

It has been said in favor of the contagious quality of this fever that it often spreads through a whole family when introduced into it by an individual. This is true, and so does the common intermittent in the southern states, and yet no one has supposed this mild state of fever to be propagated by contagion. The same exhalation which produces the disease in one member of a family, produces it in most cases in them all. Fear, grief, and the fatigue induced by attending the first person affected, are its usual exciting causes in all the rest. There is no instance of an individual infecting

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ing a whole family when he carries the disease into a dry and healthy part of the country.

I shall here repeat an argument against the propagation of the yellow fever by contagion, derived from its sudden and general extinction by means of early frost. The operation of cold in this form, is confined *exclusively* to the atmosphere. It acts long before it becomes so intense as to produce ice in our houses in which the contagion is said to be accumulated, and, where the temperature of the air seldom undergoes for many weeks, that degree of cold which is necessary to destroy the seeds of the disease out of doors. I beg the reader to pause, and reflect upon this fact. It cannot be contradicted. Its evidence, unsupported by others, which oppress the subject by their number, is alone sufficient to decide the question in favour of the disease being derived exclusively from domestic exhalation, and existing in the atmosphere during the warm weather.

All error is at war with itself. It is painful to a citizen of Pennsylvania to measure the knowledge of his fellow citizens by the present health law. The most severe penalties are threatened upon persons who visit the West India ships during their quarantine at the fort, even in cases where there is no sick person on board of them,
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and yet the same law permits physicians, nurses, and the members of the board of health to go into any house or street they please after attending, or visiting patients in the city in every stage of the fever. But there is something much worse than folly in this health law. By admitting the yellow fever to be propagated exclusively by contagion, it has produced the desertion of the sick by friends, and relations, and sometimes the exclusion of strangers to perish in the street, or in a barn. By these means, so shocking to humanity, it has added greatly to the mortality of the disease. It has moreover imposed a painful quarantine of fifteen or twenty days upon our mariners in a sickly situation in the hot months, within a few miles of their friends.

It is worthy of notice, that quarantine laws have never been adopted by Britain, France nor Spain, in their long and extensive intercourse with their respective islands, to guard against the importation of the yellow fever. To none of those European countries has that fever ever been communicated by the shoals of sick, and convalescent sailors and soldiers that have arrived in them, both in peace and war, from every part of the West Indies. Their quarantine laws are intended to operate chiefly against ships coming from the Levant and
other

other sources of the plague. It was because we derived the yellow fever from West India contagion in 1793, that the court of London imposed a quarantine upon vessels coming from Philadelphia in that year. Our obstinate attachment to this opinion, has produced a general belief in Europe that our fever *is not* the fever of the West Indies, for this is now known not to spread by contagion. But further; our quarantine has combined our sister states against us, by teaching them to adopt our error, as soon as the disease makes its appearance among us, and thereby to add to the injuries which our city has sustained by the diminution of our European commerce.

X *Accidental coincidence* is a frequent source of error. A pestilential fever which accidentally succeeded the introduction of the potatoe into France, produced an edict against the cultivation and use of that wholesome root by the French court. There was a time in the infancy of medical knowledge in Philadelphia, when the autumnal fever was ascribed to the use of the water-melon, a fruit which above all others is calculated to prevent it. In like manner, the arrival of a ship from the West Indies, and the sickness or death of a sailor induced by the putrid exhalation of our docks and wharves, occurring in the months of July or August,

guft, (the ufual time of our bilious fevers appearing) has unfortunately connected them together as caufe and effect, by an affociation as unfounded as the two fimilar errors that have been mentioned.

It is curious to obferve the relationship of the human race eftablifhed in every part of the world, not lefs by the form of their bodies, than by their refemblance in the nature of their errors.

There is not a nation upon the face of the earth, that admits the plague to be of domeftic origin. It has been chased from country to country, until it has been fought for in the planets. Nay, further, from the reluctance which all nations feel to becoming the parents of this difeafe, they have overlooked phyfical or fecond caufes in its generation, and have derived it from heaven itfelf. Whatever may be its defign; it is unneceffary to fuppofe a miraculous departure from the ordinary means by which Providence governs our world, to take place in its production.

A fimilar relationship is eftablifhed between nations remote from each other, and differing in a hundred particulars, in adopting certain errors as the means of perpetuating their mifery. The feeds of the plague have been preferved for feveral
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centuries in Turkey by a belief in predestination. The seeds of the yellow fever have been preserved in Philadelphia for five years, by a belief in importation.

The fraternity of mankind appears still further in the folly of the measures they have adopted to relieve themselves from their calamities. A picture of the Virgin Mary was fixed upon a gate at Moscow to stop the progress of the plague in that city in the year 1771. The primate of Moscow was torn to pieces by a deluded mob for an attempt to cure their prejudices by removing that picture. Equally absurd and ineffectual have been our quarantines to prevent the annual return of the yellow fever, and nearly as successful for a while have been the attacks upon the characters of the physicians who have attempted to shew their insufficiency for that purpose, as the outrage was upon the life of the innocent and benevolent Russian Archbishop.

It has been said by some Physicians, that intermitting, and mild bilious fevers only, are produced by exhalations from marshes and other sources of putrefaction. The following facts, most of which are of a recent date, will furnish proofs, in addition to many others which have been
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been mentioned in former publications, that the most malignant and fatal epidemics are the offspring of the same obvious and putrid causes. They are calculated not only to convince, but to alarm every person who has fixed his hopes of safety upon a quarantine law, and lived at ease amidst filth and danger in our city, and its neighbourhood.

In the memoirs of the Academy of Sciences for the year 1796, there is an account by Mr. Pitot of a mortal disease that prevailed in Languedoc, which was found to be occasioned by stagnating water. In a town called Ague-morte in the year 1745 out of near 1800 persons, but ten or twelve escaped the prevailing fever. Of the children alone there died 200 of those who were affected. The town of Frontignan, but three leagues from that healthy city of Montpellier, was nearly depopulated, and the village of Baleruc in the same neighbourhood, lost three-fourths of its inhabitants by this fatal epidemic. It was remarkable, says Mr. Pitot, that it increased, and declined in its mortal effects according as the waters were permitted to stagnate, or not, in those and other adjoining places.

In the Rev. Mr. Townsend's travels through Spain,* we find the following account of a malignant fever produced by putrid exhalations in the neighbourhood of Carthage, the mortal effects of which were equal to those which have occurred in 1797, and 1798, from a similar cause in our city. "Of diseases, the most endemical, are intermittent and *putrid* fevers. These arise from the proximity of an extensive swamp already mentioned [called Almojar] containing many hundred acres, which might *easily* be drained, so as to produce the most luxuriant crops. In the year 1785 during the three autumnal months, they lost two thousand five hundred persons, and the succeeding year two thousand three hundred more? *yet the Almojar is not drained.*"

In the valuable work by Mr. Lampriere before quoted, there are many proofs of the connection between putrid exhalations and the yellow fever in the West-Indies. Indeed this disease was unknown, or instantly perished in a high and pure atmosphere. There is one fact related by this author which should lead our citizens to attend to the sources of putrid exhalation at a distance from the city. He says, upon the authority of an eminent

* Vol. II. p. 243.

nent and experienced physician, that a lagoon or swamp nine miles from Kingston, after being overflowed, and acted upon by the sun, produced universal sickness when the wind blew from that quarter. Even the smell of the exhalation (he says) was perceived by the inhabitants.*

In a manuscript account of the life of the late Doctor, afterwards Governor Colden of New York, there is the following fact:†

“ A malignant fever having raged with exceeding violence for two summers successively in the city of New-York, about forty years ago, he communicated his thoughts to the public, on the most probable CURE of the calamity. He published a little treatise on the occasion, in which he collected the sentiments of the best authority, on the bad effects of *stagnating waters, moist air, damp cellars, filthy shores, and dirty streets*. He shewed how much these nuisances prevailed in many parts of the city, and pointed out the remedies. The corporation of the city voted him their thanks, adopted his reasoning, and established a plan for draining

* Vol. I. p. 86.

† New York Daily Gazette, October 30th, 1799.

draining and cleaning the city, which was attended with the most happy effects.”

If a belief in the importation of the yellow fever produced no other evils than a misapplication of public money, and a neglect of internal means to prevent it; the error would be a serious calamity to our city. But it is accompanied with other evils which are of a much greater magnitude. It is the source of all the dissentions of our Physicians upon the subject of the *treatment* of the fever, and of nearly all the mortality which has attended it since its appearance in our city in the year 1793. The truth of this assertion will I hope appear by the following considerations :

1. There has been but one morbid state of the body, or in other words, but one epidemic disease in our city for several years in the summer and autumnal months; and this disease is at all times the offspring of putrid exhalation. It is known by many names, such as diarrhoea or lax, colera morbus, or a vomiting and lax, dysentery or bloody flux, bilious colic, nervous fever, and bilious remitting fever. Let not the reader hesitate in admitting this proposition. He admits a truth which is similar to it. Every body believes the gout to be

be a *single* disease, and yet it is well known that it occupies under the different circumstances of constitution and season, the stomach, bowels, lungs, and brain as well as the limbs.—In support of this remark, I might add further the authority of many respectable authors, and produce many hundred cases to shew that all these different forms of disease frequently appear in the same person in the course of two, or three days, just as the gout appears in all the parts of the body that have been named, in the course of the same fit.

2. Mild intermitting, the common remitting, and the malignant intermitting and remitting yellow fever are all different grades of the same form of disease, and derived from the same cause. It is strange that this assertion should ever have been denied or even doubted by any person that has seen the immense difference between the mild distinct, and the malignant confluent small pox. No one has ever supposed them to be specifically different in their origin and nature, and yet the mildest intermittent does not differ more from the malignant yellow fever, than the small pox by inoculation does from that grade of it which is attended with an universal and connected eruption on the skin, livid spots, and hæmorrhages from all the natural apertures of the body.

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It is to be lamented that medicine is still in the pagan and savage state from which religion and philosophy have happily emerged in our country. We no longer worship every instrument by which the Supreme Being conveys his goodness to us, as a separate deity, nor do we believe with the Indians snow, ice, and water to be distinct essences; but different forms of the same original substance. The same unity obtains in the morbid states of the system in the summer and autumnal months. All the different forms of disease in that period are the effects of *one* cause. Its force is varied in different months, and in different parts of the city according to the greater or less activity of the putrid exhalation, but its nature is always and every where the same.

All truth is useful. Let us next examine the propositions which have been delivered by the test of their utility.

By believing that we have but one disease in our city after the first of June, and that this disease according to circumstances, may be a malignant one, we shall be led,

1. To remove filth of every kind from our doors, cellars and yards, and to avoid all the other remote, or external causes of disease.

2. To

2. To avoid all its *exciting* causes, such as fatigue, great heat, cold, the night air, costiveness, intemperance, ice creams, and all sudden or violent emotions of mind. The benefit of these precautions will be much aided by keeping up a constant and perceptible perspiration by means of warm dresses. The good effects of an increase of this discharge from the body are so well known and established during the prevalence of the plague in Egypt, that the common salutation among friends when they meet, travellers tell us is,—not, how do you do,—but “do you sweat freely?”—Similar advantages have been derived from the frequent use of the warm Bath in sickly seasons in many countries. Dr. Winterbottom speaks in high terms of it as one of the means of preventing an attack of the malignant fever of Sierra Leone.*

3. To take a gentle purge, or emetic, to refrain from business, to bathe the feet in warm water, and to take a sweat upon feeling the *first*, and even the *lightest* symptom of indisposition. In the *forming* state of a fever, it is in vain to attempt to overcome it by exercise. It is to be conquered most easily by appearing to submit to it,

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* Directions for the use of vessels in the service of the Sierra Leone Company, p. 10.

and at the same time by attacking it before it has time to collect and pour its whole force upon the system. The above remedies are generally effectual for this purpose. I am sure I have seen the disease prevented by them in many hundred instances. It is thus by a single bucket of water, we extinguish a fire which, if left to itself, would consume a house. These remedies are the more necessary, as the malignant forms of fever sometimes steal on with symptoms of so mild a nature, as not to be known by the most experienced physician.

4. To treat no form of disease as trifling, after a single case of the yellow fever appears in the city. Many thousand people in Philadelphia still deplore the loss of relations in whom a yellow skin, a black vomiting and the herse have followed a disease which was unfortunately believed in its first stage to be nothing but an intermittent, a colic, the gout, and even a common cold.

5. A belief in the unity of our autumnal diseases, will produce unity in sentiment and practice among our physicians, an event which never can take place, while one sect looks wholly at the violence and symptoms of the disease, and another looks for signs of a ship, or proofs of contagion for the indications that are to be pursued in the
treatment

treatment of the disease. The conduct of the latter sect of physicians cannot be too much lamented. It is as improper as it would be for a seaman to refuse to let go the halyards of a ship in a sudden squall of wind, until he had deliberately examined the point of the compass from which it came.

6. Such a belief will deliver those physicians who call a malignant case of fever by its unpopular name, from the abuse and persecution which have followed such acts of candor and benevolence, and prevent all those arts of secrecy, or deception, which have been resorted to by some of the faculty to retain their peace, and reputation with their fellow citizens.* The beneficial effects of tolerating

* The same cruel practice of concealing the existence of the plague, or of calling it by less unpopular names has been imposed upon physicians in many countries, and has always produced the most destructive consequences. In the second volume of the life of the late Empress of Russia there is the following recent and melancholy proof of it. "The Russian army after defeating the Turks, on entering their territories were met by the plague, and brought it with them to their country, where the folly of several of their generals contributed to its propagation, as if they thought by a military word of command to alter the nature of things. Lieutenant General Stoffeln at Yassy, where the pestilence raged in the winter of 1770, issued peremptory orders, that its name should not be pronounced; he even *obliged* the

tolerating a spirit of independence and humanity, among the physicians would be very great. No sooner would the first case of yellow fever become public, than all the precautions that have been enumerated would become general. The disease would thereby be prevented, or easily cured. Fear would be destroyed, or lessened, and the desertion of the city become less necessary. There was a time when a thunder gust produced universal terror, and sometimes flight into the open air. At present we continue business and conversation in our houses, without the least fear from its explosions over our heads. Nearly equal safety is in our power from the yellow fever, by an early choice of the proper means to prevent it.

As

physicians and surgeons to draw up a declaration in writing that it was only *a spotted fever*. One honest surgeon of the name of Kluge refused to sign it. In this manner the season of prevention was neglected. Several thousand Russian soldiers were by this means carried off. The men fell dead upon the road in heaps. The number of Burghers that died was never known, as they had run into the country, and into the forests. At length the havoc of death reached the general's own people; he remained true to his persuasion, left the town and went into the more perilous camp; but his intrepidity availed him nothing. He died of the plague in July 1771."

As the mortality of our autumnal fever has been much increased by certain prejudices and errors which prevail more or less, among all classes of our citizens, respecting its treatment, I shall add a few remarks upon this subject.—They shall be premised by three propositions.

1. The bilious fever in all its forms, is varied by *climate*. It is a widely different disease in our city, and in the West Indies, and requires a very different mode of treatment in both countries. Of this Dr. Stevens has furnished by his practice a memorable proof. He recommended bark, wine and the cold bath for the cure of the yellow fever of 1793, because he had seen those remedies most effectual in the yellow fever of St. Croix; but he laid all those remedies aside, and relied chiefly upon a salivation for the cure of the fever of 1797 in Philadelphia.

2. The bilious fever is varied by *season*. It has appeared with new symptoms every year since 1793, and has required a difference in the force and nature of its remedies. The same difference appeared in the epidemics in London in the time of Dr. Sydenham. This was so great, that the Doctor candidly acknowledges, he generally lost three or four of the first patients he saw in a new disease,

disease, before he discovered the changes which had been induced upon it by the weather.

3. The symptoms of the bilious fever are varied by the *age*, *sex*, and *habit*. It is seldom exactly alike in any two persons. It generally appears with the most force, in a part of the body which has been previously subject to weakness, or disease. Persons of robust habits suffer most from it. Hence it appears in its most malignant form in new comers in the West Indies, while in the Creoles or natives, and in persons whose bodies have been assimilated to the climate by ten or twelve years residence in the Islands, it puts on the form of a mild remittent.

It is common for physicians to describe what they called pathognomonic, or characteristic symptoms of the yellow fever. But from the circumstances that have been mentioned which vary this disease, it would be nearly as absurd to expect the same form and dimensions of a cloud under every variety of weather and season, as to expect an epidemic with exactly the same symptoms in every country, in every year, and in every constitution.

These propositions being admitted, I go on to remark that a malignant bilious fever is something
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like a storm in the system. It produces derangement in the circulation of the blood and total or partial obstructions of all the usual excretions or discharges of the body; hence arise preternatural excitement or strength in the action of the moving fibres of the body, particularly the blood vessels, also fulness, pressure upon particular parts, and pain. Sometimes this preternatural strength is thrown upon the bowels, where it produces violent spasms, pain, puking and costiveness. In proportion as strength is accumulated in the blood vessels, or bowels, it is abstracted from the limbs, and hence the inability to walk or move in some of the forms of this fever.

Sometimes the stimulus of the exhalation acts upon the blood vessels of the limbs and surface of the body, with so much force, as to prostrate them *below* their common and natural actions. This is the most dangerous form of malignant fever. It is known not only by a feeble and slow pulse, but by a cool skin, and the absence of pain.

The remedies proper to remove this deranged state of the solids, and accumulation of the fluids, in all the numerous cavities of the body, and thereby to equalize the actions of the former, and to restore

restore the latter to their natural determinations,
are EVACUANTS.

These are bleeding, purges, vomits, sudorifics, and a salivation. To these evacuating remedies may be added cold air, cold water and ice. They act by evacuating the heat of the body, when it is preternatural. They have all been considered as different remedies by some physicians, but they all act in *one* way, that is by depleting, or emptying the system of a *preternatural* quantity of fluid or abstracting their usual and natural quantity, when the solid parts of the body are so much irritated, or inflamed, as not to be able to bear their customary stimulus. Mild cases of the fever, yield to purges, and sweats alone; more violent cases require the addition of bleeding, and vomits, and cases of great malignity require the combined action of all the evacuating medicines that have been mentioned.

To suppose the same remedies are proper in the yellow fever in our climate that are used with success in the West Indies, is as absurd as it would be to use the cotton and linen dresses of that country, in our autumnal and winter months.

To prescribe the same remedies in every case of yellow fever, without any regard to its violence,

lence, is as absurd as it would be to attempt to clothe all the citizens of Philadelphia with dresses of the same form and size. There is no such thing as a specific, which acts in a secret and unknown manner without any sensible evacuation from the body, in curing this fever. Yeast, lime-water and milk, plantain juice, and centaury tea, have now and then eased troublesome symptoms, but none of them ever cured a malignant case of yellow fever. If ever durable relief has followed their use, it has been, when they have co-operated with more powerful means in promoting discharges from the bowels, or pores.

The force of the evacuating remedies above mentioned, must be accommodated to the force of the disease. I shall endeavour to illustrate this proportion between the force of the yellow fever, and the proper remedies to cure it, by a familiar simile. Let us suppose the natural strength of a constitution to be ten. Let us then suppose the different degrees of force in the fever, to range from 10 to 100, while the force of the remedies extends from 11 to 110. The point to be gained, is to reduce the force of the disease by the proper remedies *below* 10, so that the constitution may be superior to it, and thus overcome it. In mild cases, when the force of the disease exceeds but a

few degrees the strength of the constitution, a gentle purge or a sweat will turn the scale in favor of health, but where the disease rises in its violence to 100, the powers of medicine, between that number and 110, will be necessary to subdue it. It is common to say of those remedies, that they are worse than the disease. This mode of speaking is perfectly correct. They must be *worse*, or in other words, *more* powerful than the disease, or they will not cure it.

During the two last years, profuse sweating, has been the exclusive and popular remedy in the yellow fever with many people. It acts by depleting, or lessening the fulness of the blood vessels. It is now and then successful, but even when it is so, compared with the efficacy of blood letting, it is like waiting till a pond of stagnating water near a dwelling house is dissipated in vapor by the heat of the sun, instead of removing it in a few hours by a prompt and copious drain.

But sweating is often an impracticable remedy. In the fever of 1793 all attempts to excite sweats were ineffectual. Where these attempts fail, they do harm, but where they succeed in the most copious manner the disease is not always cured by them,

continued moist refrigerations would
 do the heat to a sweating degree & w. have
 place of sweating, being an artificial
 all that evaporation effects in sweating

them, as hundreds can testify in the years 1798 and 1799.

Some practitioners rely *exclusively* upon a salivation to cure the yellow fever. It is too slow and too feeble in its operation, for rapid and violent cases. Mercury is moreover an uncertain remedy when used alone, not more than one in four persons being salivated by it.

Bleeding has the following advantages to recommend it.

1. It is suited to the *seat* and *nature* of the disease. The yellow fever is always accompanied with inflammation in some part of the body. Out of 130 persons whom Dr. Physick examined after death from this disease, he did not find one in whom there were not marks of *inflammation* in the stomach, and occasionally in the bowels, kidneys and brain.

2. It is a *prompt* remedy, and requires less parade of attendance and nursing than sweating, puking, or a salivation. It is moreover subject to the controul of a physician as to the *time* of using it, and as to the *quantity* of fluids to be obtained by it from the body.

3. It

3. It is a less weakening remedy than any other. It is likewise much safer than puking and sweating, and far less disagreeable than a salivation. Its safety is guaranteed by the *pulse*. This index of the force of a fever will always, when understood and attended to, prevent any excess in the use of the lancet. No other remedy possesses such a faithful criterion by which we can judge of the necessity of increasing, or withholding evacuations.

4. It *aids* the operation of all the other evacuating remedies, and renders them less dangerous by first lessening the violent commotions, and inflammation in the system.

5. It lessens, or removes pain, and prevents those alarming discharges of blood from the nose, mouth, lungs, stomach, bowels, &c. which arise from the bursting of the blood vessels, in consequence of their being overpressed, or acting with preternatural force.

6. It is a more delicate remedy than any of those which have been exclusively preferred to it. It offends no sense, and renders sick people less disagreeable to themselves, and their attendants.

In mentioning these advantages of blood letting, let it not be supposed, that I wish an exclusive dependence to be placed upon it—all the other evacuating remedies should be combined with it according to circumstances. The degrees of it, must be accommodated to the force of the disease, and this, as has been remarked, will generally manifest itself by the state of the pulse.

Before I dismiss the subject of blood letting in the yellow fever, it will be necessary to point out two or three of the principal errors that have prevailed in the use of it.

1. It has been said that great sensible weakness, is an objection to blood letting. This weakness in the beginning, and frequently in every fit of the yellow fever, so far from forbidding the loss of blood, is the most vehement call of the system for it. It arises from the blood vessels being so much overcharged with blood, that they press upon the nerves of the muscles which move the limbs, and thereby deprive them of their usual strength. By opening a vein, we remove this pressure, and the weakness occasioned by it; hence we observe patients who were unable to move before bleeding; immediately afterwards to leave their beds, and in some instances, to resume in a few hours, their ordinary business.

*I have known great prostration
Strength to be restored by very brisk & copious
Evacuations by Stool—*

2. It

2. It has been said, that bleeding should always be proportioned to the constitution of the patient. This opinion is not just. A man may have a very strong constitution, and a weak disease which requires the loss of but little blood to cure it, while on the contrary a woman may have a weak constitution, and a strong disease which will yield only to the frequent use of the lancet. The pulse in both these cases will always afford a sure mark to discriminate the disease, from the constitution.

3. It has been said, that bleeding sometimes excites pain where it did not exist before, and even increases the force and frequency of the pulse. These symptoms, so far from being an objection to this remedy, are a proof that it has done service, by changing a suffocated and latent disease into a sensible one. They are a call of the system for more blood letting.

In favor of the use of ALL the remedies, that have been mentioned in the treatment of the yellow fever, it may be said that they have been adopted in all the eastern and southern states, and that they are used in Philadelphia by most of the physicians who formerly opposed them. They are moreover, far more successful in their combination, than any *one* of them has been, when exclusively used.

The following fact is a striking proof of the truth of this assertion.

Four times as many persons were affected by the yellow fever in 1793, as in 1798. The mortality in both years was nearly equal. In 1793 bleeding, (in addition to other depleting remedies) was so general, that many thousand people bled themselves, without the advice of a physician. In 1798 this remedy, in consequence of the weak and unreasonable fears that were excited against it the year before, was but little used, and the cure of the disease was trusted chiefly to gentle purges, mercury, and sweating medicines. It is true, it bore less copious bleeding in 1798 than in 1793, but there were few cases of it which did not require the loss of a greater or less quantity of blood.

Could the use of the depleting system in all its parts, be begun according to circumstances, on the *first* day of the fever, and could patients have, throughout all its stages, the usual advantages of good nursing, constant and regular medical attendance, comfortable apartments, family society, and exemption from terror, that are possessed in other acute diseases, there is good reason to believe the mortality from it, would not be greater than from a common pleurisy.

I have

I have hitherto said nothing of the use of bark, wine and opium in this fever. They have been supposed to be indicated by the debility which *always* precedes the fever, from the operation of its exciting causes, and by the weakness which generally accompanies it. But many facts shew, that the weakness in both these cases does not constitute the disease. It is its predisposing cause, or an accidental symptom only, and is frequently increased by tonic remedies. The weakness which follows the use of evacuations, and the crisis of the fever, is most easily, and safely removed by pleasant and nourishing aliment.

Thus have I endeavoured to discharge those obligations to society which nearly forty years inquiries and observations in medicine, have imposed upon me. Should this attempt be as unsuccessful in producing the effect intended by it, as my former ones have been, I shall hereafter mourn in secret over the continuance of an error which has been so fatal to the citizens of Philadelphia, and deprecate the refutation of it, by a repetition of our sufferings. One consolation will be mingled with the gloomy review of my abortive labors, and that is, a belief that time will do justice to my opinions, and that heaven will acquit my conduct.